JAWAHARLAL NEHRU UNIVERSITY

NEW DELHI-110067

www.jnu.ac.in

e-PROSPECTUS

JNUEE 2019-20

CEEB 2019-20

(M.Sc. Biotechnology)

CEEB 2019-20

(M.Sc. Agri. Biotech. /M.V.Sc.)

CEEB 2019-20

(M. Tech. Biotechnology)

ACADEMIC SESSION

2019-20

JAWAHARLAL NEHRU UNIVERSITY

NEW DELHI-110067

www.jnu.ac.in

e-PROSPECTUS

ACADEMIC SESSION

2019-20

INDEX

Section **Page**

I. GENERAL

The Jawaharlal Nehru University constituted under the Jawaharlal Nehru University Act 1966, (53 of 1966) came into existence in 1969. Its objectives, as defined in the First Schedule of the Act, are as follows:

"The University shall endeavour to promote the principles for which Jawaharlal Nehru worked during his life-time, national integration, social justice, secularism, democratic way of life, international understanding and scientific approach to the problems of society.

Towards this end, the University shall:

(i) foster the composite culture of India and establish such departments or institutions as may be required for the study and development of the languages, arts and culture of India;

(ii) take special measures to facilitate students and teachers from all over India to join the University and participate in its academic programmes;

(iii) promote in the students and teachers an awareness and understanding of the social needs of the country and prepare them for fulfilling such needs;

(iv) make special provision for integrated courses in humanities, science and technology in the educational programmes of the University;

(v) take appropriate measures for promoting inter-disciplinary studies in the University;

(vi) establish such departments or institutions as may be necessary for the study of languages, literature and life of foreign countries with a view to inculcating in the students a world perspective and international understanding;

(vii) provide facilities for students and teachers from other countries to participate in the academic programmes and life of the University."

In the light of the above, the approach of the University has been to evolve policies and programmes which will make Jawaharlal Nehru University a distinct addition to the national resources in higher education rather than a mere quantitative expansion of facilities which already exist. The University has identified and is concentrating upon some major academic programmes, which are of relevance to national progress and development.

The basic academic units of the University are not single discipline departments but multi-disciplinary Schools of Studies. A School has been visualised as a community of scholars from disciplines which are linked with each other organically in terms of their subject-matter and methodology as well as in terms of problem areas. Some Schools are made up of a number of Centres which constitute the units operating within the broad framework of a School. A Centre has been defined as a community of scholars irrespective of their disciplines engaged in clearly identified inter-disciplinary programmes of research and teaching.

Unless otherwise specified in the question paper, the JNU being an all India University, the medium of instruction for all programmes of study (barring Languages) is English.

In order, however, to facilitate students coming from varying backgrounds with medium of instruction other than English at their Bachelor's/Master's level, the University has in-built facilities for remedial courses in English Language in order to enable them to strengthen their foundation in English as well as to cope up with their academic and research programmes adequately.

The University includes the following Schools of inter-disciplinary research and teaching besides some Special Centres of Study:

(i) School of International Studies
(ii) School of Language, Literature and Culture Studies
(iii) School of Social Sciences
(iv) School of Arts and Aesthetics
(v) School of Life Sciences
(vi) School of Environmental Sciences
(vii) School of Computer and Systems Sciences
(viii) School of Physical Sciences
(ix) School of Computational and Integrative Sciences
(x) School of Biotechnology
(xi) School of Sanskrit and Indic Studies
(xii) School of Engineering
(xiii) ABV School of Management and Entrepreneurship
(xiv) Special Centre for E-Learning
(xv) Special Centre for Molecular Medicine
(xvi) Special Centre for the Study of Law and Governance
(xvii) Special Centre for Nano Sciences
(xviii) Special Centre for Disaster Research
(xix) Special Centre for the Study of North East India
(xx) Special Centre for National Security Studies

In matters relating to enrolment, steps have been taken to ensure that students from all parts of the country are able to join the University so that it becomes a national University in the true sense of the word.

The admission policy of the University is governed by the following principles:

(i) to ensure admission of students with academic competence and potentialities of high quality so that its alumni may be able to play their role in the process of national construction and social change in a meaningful manner;

(ii) to ensure that adequate number of students from the under-privileged and socially handicapped sections of our society are admitted to the University; and

(iii) to maintain all-India character of the University by having on its rolls a fair representation of students from different regions of the country especially the backward areas.

Upto 22.5 per cent (15% for SC and 7.5% for ST) of seats are reserved for SC/ST candidates respectively. As per the provisions of Rights of Persons with Disabilities Act, 2016, not less than five percent (5%) seats are reserved for Persons with Benchmark Disabilities, where "person with benchmark disability" means a person with not less than forty percent (40%) of a specified disability where specified disability has not been defined in measurable terms and includes a person with disability, as certified by the certifying authority. 27% seats are reserved for OBC candidates (non creamy layer).

The persons belonging to EWSs who are not covered under the scheme of reservation for SCs, STS and OBCs shall get 10% reservation in Admission to various programmes of study except M.Phil. and Ph.D. programmes.

Note: For candidates applying for M.Tech, MPH, Post Graduate, PG Diploma, Under Graduate, Part-Time programmes (except for B.Tech and MBA, the criteria for the said courses are given separately in the concerned section of the e-Prospectus): All OBC category (non creamy layer) candidates are eligible to 10% relaxation in the percentage of marks in the qualifying examination in relation to open category. The SC/ST and Person with Disability (PWD) candidates who have passed the qualifying examination irrespective of their percentage of marks are eligible to appear in the Entrance Examination.

For candidates applying for M.Phil. programme: Candidates for admission to the M.Phil. programme shall have a Master's degree or a professional degree declared equivalent to the Master's degree by the corresponding statutory regulatory body, with at least 55% marks in aggregate or its equivalent grade 'B' in the UGC 7-point scale (or an equivalent grade in a point scale wherever grading system is followed) or an equivalent degree from a foreign educational Institution accredited by an Assessment and Accreditation Agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country for the purpose of assessing, accrediting or assuring quality and standards of educational institutions. A relaxation of 5% of marks, from 55% to 50%, or an equivalent relaxation of grade, may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/Differently-Abled and other categories of candidates as per the decision of the Commission from time to time, or for those who had obtained their Master's degree prior to 19th September, 1991. The eligibility marks of 55% (or an equivalent grade in a point scale wherever grading system is followed) and the relaxation of 5% to the categories mentioned above are permissible based only on the qualifying marks without including the grace mark procedures.

For candidates applying for Ph.D programme: Subject to the conditions stipulated in these Regulations, the following persons are eligible to seek admission to the Ph.D. programme: (a) Master's Degree holders satisfying the criteria stipulated above under M.Phil programme; (b) Candidates who have cleared the M.Phil. course work with at least 55% marks in aggregate or its equivalent grade 'B' in the UGC 7-point scale (or an equivalent grade in a point scale wherever grading system is followed). A relaxation of 5% of marks, from 55% to 50%, or an equivalent relaxation of grade, may be allowed for those belonging to SC/ST/OBC(non-creamy layer)/differently-abled and other categories of candidates as per the decision of the Commission from time to time.; (c) A person whose M.Phil. dissertation has been evaluated and the viva voce is pending may be admitted to the Ph.D. programme of the same Institution subject to fulfilling condition a) and b) above; and (d) Candidates possessing a Degree considered equivalent to M.Phil. Degree of an Indian Institution, from a Foreign Educational Institution accredited by an Assessment and Accreditation Agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country for the purpose of assessing, accrediting or assuring quality and standards of educational institutions, shall be eligible for admission to Ph.D. programme.

In the light of the objectives of the University as spelt out in the First Schedule of the Act, steps have been taken to ensure that students from outside India, especially from the developing countries join the rolls of the University in adequate number.

The number of seats being limited, admission will be made on the basis of merit. Merit lists will be drawn in accordance with the provisions of Admission Policy of the University.

The outstation candidates admitted to the programme of study of the University will be considered for hostel accommodation as per rules of the University subject to availability of hostel accommodation. Grant of admission in a University would not ensure automatic allotment of hostel accommodation and that the same will be offered subject to its availability.

No Candidate shall be eligible to register himself/herself for a full-time programme of study if he/she is already registered for any full-time programme of study in this University or any other University/Institution.

In service candidature may kindly refer to Admission Policy of the University available on JNU website.

A candidate who successfully completes a programme in one particular language/subject may not be entitled for admission to same level of programme (language/subject) again. The candidate may be allowed one more chance to get admission in other language/ subject. Further, the candidate who fails to complete the programme successfully in the first two chances will not be given admission third time in the same language/ subject under any circumstances. This will be applicable to all programmes of study being offered by the University.

Selection Procedure for Admission:

No viva voce examination is held for admission to any programme except for M.Phil and Ph.D. The candidates are admitted on merit on the basis of their performance in the Computer Based Test (CBT) and the deprivation points added to their score in accordance with the approved admission Policy and Procedures of the University.

The candidates for admission to M.Phil and Ph.D are invited for Computer Based Test (CBT) and candidates qualifying with 50% marks for General Category and 45% marks for candidates belonging to SC/ST/OBC (non-creamy layer)/PWD category in the Computer Based Test (CBT) shall be called for viva voce Examination. Merit lists are prepared for each category i.e. candidates belonging to SC, ST, OBC, PWD categories separately and on the basis of performance of candidates in the total aggregate marks (CBT + Viva-voce).

The candidates for admission to DOP Bhasha Indonesia, DOP in Hebrew and **DOP in Mongolian** based on merit as per the performance in Certificate of Proficiency in respective language.

Admission of JRF holders to M.Phil and Ph.D programme

Only those candidates who fulfil the minimum eligibility requirements as prescribed for admission of candidates to M.Phil and Ph.D programmes as mentioned in the respective schools/centres and have qualified for Junior Research Fellowship through CSIR/UGC National Eligibility Test (NET) examination are eligible to apply separately in the prescribed form under this category in the respective school/centre/Special Centre wherever separate intake through JRF category is available. Candidates shall have to appear for an interview and their selection will depend on their performance in the interview. Candidates who have appeared in the CSIR/UGC NET examination but results awaited may also apply under this category. However, such candidates will be interviewed upon submission of a valid proof of having qualified for or awarded the JRF certificate at the time of interview. Moreover, only candidates with valid proof of JRF qualification would be provided permissible travelling allowance for attending interview. Please note that candidates who have been awarded “Lectureship” in the CSIR/UGC examination are not eligible and will not be interviewed.

Admission of Foreign Nationals to M.Phil and Ph.D programmes

The admission of foreign students for M.Phil and Ph.D. programmes may be considered in compliance with UGC 2016 Regulations regarding number of research scholars faculty (i.e. Professor/Associate Professor/Assistant Professor) can supervise. Foreign students shall be offered seats only if seats are left vacant in any discipline after being offered to Indian Candidates who have appeared in JNUEE – 2019-20.

II. SCHOOL AND THEIR PROGRAMME OF STUDY

1. SCHOOL OF INTERNATIONAL STUDIES

Established in 1955, the School of International Studies is the oldest School of the University. The School has established itself as one of the premier institutions in the country for the study of international relations and area studies. The School has made pioneering contributions in promoting the study of international relations as an academic discipline in India and in advancing knowledge and understanding of international affairs in an interdisciplinary perspective. The School is also the first institution in the country to promote “Area Studies” and to develop expertise on various countries and regions of the world. It has also acquired an international reputation as a centre of advanced learning.

To begin with, the School was affiliated to the University of Delhi as the Indian School of International Studies. From September 1961 till the School merged with Jawaharlal Nehru University in June 1970, it functioned as a deemed university. Following the merger, the prefix “Indian” was dropped from the name of the School and it became the School of International Studies of the Jawaharlal Nehru University.

For a long time, the academic programmes of the School focused exclusively on research only awarding Ph.D. degree. Soon after the School became a part of the Jawaharlal Nehru University, the M.Phil. curriculum was introduced in 1971-72. In the following academic year 1973-74, the School started offering a 2 year M.A. (Politics: International Studies) programme. A new and unique M.A. programme in Economics (with specialization in World Economy) was introduced in 1995-96 by the Economics Division of the Centre for International Trade and Development.

Presently, there are more than 100 faculty members in the School. It also has Emeritus Professors and distinguished scholars. Several Chairs have been instituted in the School In the recent years. These are Appadorai Chair, Nelson Mandela Chair, State Bank of India Chair and Jawaharlal Nehru Chair in International Environmental Law. Members of the faculty of the School have contributed to the advancement and dissemination of knowledge in International Studies not only through their teaching and research supervision but also by publishing books and articles in journals of highest international repute.

The School holds national and international seminars from time to time on important aspects of area studies, inter-country relations and on themes relating to the study of international relations as an academic discipline.

The School also holds a series of Hriday Nath Kunzru Memorial (Extension) Lectures every year on a theme relating to contemporary international relations. Under an endowment funded by Asia Publishing House, Bombay, it also holds lectures in memory of the great poet and patriot, Sarojini Naidu and invites a distinguished scholar or statesman to deliver the memorial lecture.

The School publishes a quarterly journal "International Studies". Founded in July 1959, this journal has acquired world-wide reputation as a leading Indian academic journal in the field.

PROGRAMMES OF STUDY

(i) M.Phil. : Selected candidates shall be admitted, in the first instance, to a two-semester programme of course work. Successful completion of the prescribed courses and a dissertation in the next two semesters will lead to the award of degree of Master of Philosophy.

Course work and research facilities for the M.Phil. Programmes are available in the following fields of the twelve Centres of Studies of the School:

Centres of Studies & Fields of Study

1. **Centre for Canadian, US and Latin American Studies**
   1. Canadian Studies
   2. United States Studies
   3. Latin American Studies
2. **Centre for European Studies**
   European Studies
3. **Centre for International Legal Studies**
   International Legal Studies
4. **Centre for International Trade and Development**
   International Trade & Development
5. **Centre for East Asian Studies**
   1. Japanese Studies
   2. Chinese Studies
   3. Korean Studies
6. **Centre for International Politics, Organization and Disarmament**
   1. International Politics
   2. International Organization
   3. Diplomacy and Disarmament
   4. Political Geography
7. **Centre for Russian & Central Asian Studies**
   Russian & Central Asian Studies
8. **Centre for South Asian Studies**
   South Asian Studies
9. **Centre for Indo-Pacific Studies**
   Indo-Pacific Studies
10. **Centre for Inner Asian Studies**
    Inner Asian Studies
11. **Centre for African Studies**
    African Studies
12. **Centre for West Asian Studies**
    West Asian Studies
13. **Centre for Comparative Politics and Political Theory**
    Centre for Comparative Politics and Political Theory offers six MA level courses in Political Theory/ Thought, Comparative Politics and Indian Politics. Four courses are part of a set of core courses for MA students of SIS, and 2 are optional courses. The Centre offers both M.Phil. and Ph.D. admission to students wishing to work broadly in the above fields

Note: In addition to above Admission to Ph.D. Programme is also offered in all the Centres of the School.
The following offer only Admission to Ph.D. Programme:

14. **Human Rights Studies Programme**
    The Human Rights Studies Programme offers only admission to Ph.D. programme.
15. **Energy Studies Programme**
    The Energy Studies Programme offers only admission to Ph.D. programme.

(ii) M.A. in Politics (with specialization in International Studies)

The two-year Master's Degree Programme in Politics (with specialization in International Studies) is a School level programme in which all the Centres of Study of the School participate. The Programme combines studies in International Affairs, Area Politics, Political Theory, Comparative Politics and Economic Development which enable the graduates to receive all-around exposure in various fields of study.

(iii) M.A. in Economics (with specialization in World Economy)

The Centre for International Trade and Development launched a Master's Programme (M.A.) in Economics in 1995-96. The M.A. programme was designed with a clear emphasis on emerging global issues like trade, technology, environment, natural resources, currency and finance that makes it unique, and distinct from conventional M.A. programmes in economics offered elsewhere in India.

The programme provides sound theoretical background in the Principles of Economics and equips students with analytical tools and techniques for understanding the evolution of the world economy. Apart from preparing students for advanced research work, the programme also aims at training students as professional economists for the government, non-government and the corporate sectors.

iv) M.A. in International Relations and Area Studies

The two-year Master's Degree Programme in International Relations and Area Studies is a School level programme in which all the Centres of Study of the School participate. This programme focuses on Area Studies, an approach to social science in which the School, with nine area studies Centres that cover the entire globe, has distinct strengths. This programme is separate and distinct from an M.A. in Political Science. Candidates are advised that pursuing this Programme of Study may, in some circumstances, render them ineligible for employment as teaching faculty in Political Science departments.

(B) CENTRES OF THE SCHOOL

(i) Centre for Canadian, US and Latin American Studies

The Centre for Canadian, US & Latin American Studies comprises the following three streams:

1. Canadian Studies
2. United States Studies
3. Latin American Studies

The Centre offers inter-disciplinary courses at the M.A. (School level), M.Phil. and Ph.D. level on Canada, the United States, and Latin America and Caribbean. The Centre's thrust areas include domestic political dynamics, foreign policies, security policies, regional integration processes and issues related to multiculturalism, ethnicity, gender, environment, politics of development and the sociological study of immigrants. Subjects relevant to the Indian context and North-South issues with a thematic focus are addressed in the study and research activities of the Centre.

(ii) Centre for European Studies

The Centre for European Studies is a multi-disciplinary department which aims to promote teaching, research and outreach activities to improve the understanding of Europe and Indo-European affairs. The Centre came into existence in 2005 as a result of larger restructuring of academic programmes in the School of International Studies. The areas of teaching and research in the Centre include Europe, The European Union, countries of Western Europe Central and Eastern Europe, the Nordics, Baltic region and the Mediterranean. It offers courses at the M.Phil. level on Europe and the European Union (EU) viz., European Economic Integration, Issues in European Security, EU in World Politics, Social Structures and Dynamics in Europe, Politics and Society in Central and Eastern Europe and Identity Issues in Europe, Contemporary Issues in of the Nordic Region, Europe and Mediterranean Region; and Foreign and Security Policy of the Baltic States. In addition there are compulsory courses in Research Methodology and German Language/French Language. Regular seminars, conferences, lectures and workshops are organized by the Centre with the aim of bringing together wide range of expertise and to exchange views on the subjects of contemporary importance. The UGC has recognized the Centre as one of the advanced centres of European Studies in India by granting it an Area Studies Programme. The Centre also has two Jean Monnet Chairs, the sign of distinction awarded by the European Commission.

(iii) Centre for International Legal Studies

The Centre for International Legal Studies consists of specialists in International Law, Trade Law, Law of International Organisation, International Environmental Law, Human Rights Law, Intellectual Property Law and International Air and Space Law. The Centre offers M.Phil. and Ph.D. programmes. It also offers three core courses (International Law of Peace, Legal Controls of International Conflicts and International Law and Organisation) to M.A. Students of the School.

(iv) Centre for International Trade and Development

The Centre attempts to provide a strong foundation for theoretical and empirical economic analysis. The Centre concentrates on thrust areas such as International Economics, Economic Development, Finance, Environmental Economics, Industrial Organisation and Econometrics. The Centre offers an M.A. in Economics (with specialization in World Economy), M.Phil. and Ph.D. with the following areas of research specialization - trade, development, finance, banking, environment, regulation etc.

(v) Centre for East Asian Studies

The Centre for East Asian Studies, originally established as a Centre for Chinese and Japanese Studies, subsequently grew to include Korean Studies as well. The Centre imparts courses on historical, political, socio-cultural, economic and foreign policy dimensions of China, Japan and the Koreas at the M.Phil level, while Ph.D. researcher specialises in an area of his/her interest related to the East Asian region. The faculty of the Centre also offer courses at the MA level of the School. The Centre organises regular seminars, workshops and meetings, conducts presentations by researchers and invites scholars from abroad to enhance professional understanding of the region. The faculty members of the Centre have published extensively and several of them also serve as consultants, advisors, or honorary fellows at prestigious institutions in India and abroad. Several students of the Centre have been recipients of prestigious research fellowships awarded by Japan Foundation, Mombusho (Ministry of Education, Government of Japan), Saburo Okita Memorial Fellowship, Nippon Foundation, Korea Foundation, Nehru Memorial Fellowship, and Fellowship from the Chinese and Taiwanese Government. Besides, students from Japan receive fellowship from the Indian Council of Cultural Relations. As the profile of the East Asian states and economies are rising, the Centre is in the process of re-inventing itself to gear for the new trends in the region in teaching, research and academic collaboration.

(vi) Centre for International Politics, Organization and Disarmament

The Centre runs four MPhil and PhD programmes in
(i) International Politics (ii) International Organization (iii) Diplomacy and Disarmament (iv) Political Geography.

The focus of the Centre's research activities has evolved over the years, in line with emerging concerns in the arena of world politics. Those wishing to apply to any of our programmes should note the specific areas of concern for each programme. The International Politics division works on theoretical approaches to the study of global politics, in particular major schools of thought such as Realism, Liberalism, Constructivism, Feminism, Marxism/Post-Marxism, Normative Theory, and Post-Colonialism. The International Organization division focuses on the structures, processes, politics and problems of organising co-operation to address major issues of vital global and regional importance. The Diplomacy and Disarmament division works on issues such as the history, theory and practice of diplomacy, negotiations, war and peace, revolution in military affairs, nuclear deterrence and disarmament, environmental security, critical theory and critical security studies, terrorism and other non-traditional threats to security. The Political Geography division focuses on the study of theoretical and applied aspects of political geography, geopolitics and critical geopolitics. The division also runs a Cartographic Lab equipped with GIS software. Further information may be obtained at http:// www.jnu.ac.in/main,asp?sendval= cipod

(vii) Centre for Russian & Central Asian Studies

The Centre runs M.Phil. and Ph.D. Programmes in Russian, Central Asian and CIS Studies. It conducts research in these areas. The Centre works in close co-operation with policy makers and larger academic community. Regular seminars and conferences are also organised by the Centre in order to bring together a wide range of expertise and to exchange views on subjects studied by the faculty and the research scholars. In recognition of its high quality academic and research programme, University Grants Commission has accorded the Centre the status of an Advanced Centre of Russian and Central Asian Area Studies in India. Other areas of research and teaching in the Centre are Transcaucasia and Baltic Republics, Ukraine, Belarus and Moldova, History, Politics, Economy and Society of these areas are studied in an inter-disciplinary manner.

(viii) Centre for South Asian Studies

The Centre for South Asian Studies covers studies and research on a range of aspects of 8 countries. All the academic activities including teaching and interdisciplinary research have been designed to objectively study and analyse history, politics, foreign policy, security, societies, economies, environment, regional cooperation/integration and contemporary affairs in different regions/countries covered by the Centre. The Centre has focused on academic pursuits that have strong intellectual value, deeper social relevance and wider national and international utilities and policy dynamics. Its programme of studies has attracted bright students having diverse background from various parts of India and also from other countries. It has evolved into a full fledged institute of academic excellence, much admired by students, frequently consulted by the national governments and eagerly sought after by international organizations and other academic institutions.

The profile of the students who have completed their studies from the Centre does show that a large number of them have joined premier academic and research institutions and equally handsome numbers are in the national and state civil services. Many of the students have done exceedingly well in media and non-governmental organizations, other tertiary sector activities and national and regional politics. The importance of the Centre has become more critical and vital both in the context of large scale transformation in the global scenario and also within the countries that have been traditionally covered and studied by the Centre. There are immense opportunities for academic inquiry triggered by these new developments.

(ix) Centre for Indo-Pacific Studies

The Centre for Indo-Pacific Studies (CIPS) is a new Centre created in 2013 keeping in view the profound shifts that are taking place around India and India's rapidly rising stakes in the Indian Ocean and East Asia. Equally, it is also a reflection of today's geopolitical realities. The Indo-Pacific as a region is emerging as the new template of reference since the confluence, interdependence and interface of the Indian and Pacific Oceans are getting strengthened not merely economically but geostrategically as well. The Indo-Pacific, comprising a vast spatial continuum spread from the Indian Ocean all the way up to West Pacific, including the crucial regions such as Southeast Asia and South Pacific, also brings forth India's centrality and its relationship with regions in the Indo-Pacific quite distinctly. The primary areas the

Centre's focus are Southeast Asia, the South Pacific and the Indian Ocean. First of its kind anywhere in the world, CIPS's intent is to break new ground by focusing its research and teaching on new frontiers of knowledge and bring out newer dimensions of a rapidly changing world. The programme is supported by competent and dedicated team of faculty committed to high quality teaching and research. Plans are afoot to expand and develop it into a leading Centre of academic excellence.

(x) Centre for Inner Asian Studies

The Centre for Inner Asian Studies, School of International Studies, Jawaharlal Nehru University is engaged in teaching and research on the whole of Central Asia, that is the five Central Asian Republics of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan; Xinjiang, Tibet and Inner Mongolia autonomous regions of China; Mongolia and Afghanistan. Over the years, this programme has evolved as the advanced Centre of Inner Asian Studies in India and is known for its

excellent research work and publications both at the national as well as international levels. All the academic activities including teaching and research have been designed to study and analyze history, politics, society, economy, geopolitics of energy and transport networks, besides the contemporary developments in Central Asia, Chinese Central Asia, Afghanistan and Mongolia, and relate them to Indian experience and policy.

(xi) Centre for African Studies

Centre for African Studies covers the entire African continent including Sub-Saharan, North African region and African Island countries. It has a UGC Area Studies Programme on African Studies established in 2005. The Centre focuses on research activities related to Southern Africa, Francophone Countries, North African Region and Diaspora Studies and also has a UGC sponsored special programme on Diaspora and International Migration Programme (DIMP). It has special focus on Indian diaspora in the region and Indo-African Relations.

The Centre offer M.A. as well as M.Phil and Ph.D. courses on African studies and Diaspora in international relations. Taught courses include foreign policy as well as political, economic and social systems pertaining to the region.

(xii) Centre for West Asian Studies

The Centre for West Asian Studies focuses on all countries of West Asia and North Africa. It has a UGC sponsored Gulf Studies Programme established in 1978 as part of the Area Studies Programme of the UGC. The Gulf Studies Programme focuses on the countries on Gulf Cooperation Council, Iran, Iraq and Yemen. The Centre also focuses on Indian diaspora in the region.

The Centre offer M.A. as well as M.Phil and Ph.D courses. Taught courses include areas of foreign policy and political, economic and social systems pertaining to the region.

(xiii) Centre for Comparative Politics and Political Theory

Centre for Comparative Politics and Political Theory offers six MA level courses for the MA (PIS) programme of the School. The centre offers four Core courses for MA students of SIS, and they are: Political Thought I and II, Comparative Politics and Indian Political System. The two Optional Courses are - Critical Thought in the Global South and Political Economy of Science and Technology.

The Centre offers an M.Phil programme in Comparative Politics and Political Theory, and also offers a Ph.D programme.

The M.Phil in Comparative Politics and Political Theory would encourage research scholars to interrogate mainstream disciplinary practices and contribute towards making the corpus of political thought and practice truly global. The programme will aim at engaging with the world of political concepts and practices in comparative perspectives.

The M.Phil Programme consists of course work to be completed in the first year and a dissertation in the second year. Students seeking admission to the M.Phil and Ph.D programme are required to qualify a Computer Based Test (CBT). Those selected for the viva voce are expected to bring a synopsis of their proposed research.

(xiv) Human Rights Studies Programme

The admission to Ph.D. programme in Human Rights is intended to offer a unique oppprtunity to extensively research important themes/issues of human rights and duties in contemporary global politics from an interdisciplinary perspective.

(xv) Energy Studies Programme

The admission to Ph.D. programme of Energy Studies aims at to offer opportunity to undertake research on Contemporary Themes and Issues in an inter-disciplinary perspective.

ELIGIBILITY:

Master of Arts

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	School of International Studies	Politics (with specialization in International Studies) – PISM (201)	Bachelor's degree in any discipline under 10+2+3 pattern of education with at least 50% marks.
2		International Relations and Area Studies – IRAM (234)	
3		Economics (with specialization in World Economy) – EILM (202)	(i) Bachelor's degree (with 50% marks in aggregate) in the following subjects: Economics (Honours) with Mathematics as subsidiary subject; or Mathematics (Honours) with Economics as a subsidiary subject; or Statistics (Honours) with Economics and Mathematics as subsidiary subjects. (ii) Any other Bachelor's degree (with 60% marks in aggregate) with Economics and Mathematics as subjects. For *in absentia* application: Bachelor's degree with Economics, Mathematics and Statistics as subject; and GRE scores.

M.Phil.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	Centre for Canadian, US and Latin American Studies (CCUS&LAS)	Canadian Studies – CANP (101)	Master's degree with at least 55% marks in Political Science, History, Economics, Sociology, Defence/Strategic Studies, International Relations and other allied subjects in Social Sciences and Humanities or Master's degree in Natural Sciences with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	**P.G. holders of AYUSH related subjects are also eligible to apply.**
2		Latin American Studies – LAMP (103)		
3		United States Studies – USSP (102)	Master's degree in Political Science, History, Economics, Sociology, Defence/Strategic Studies, International Relations with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	
4	Centre for European Studies (CES)	European Studies – EUPP (104)	Master's degree with at least 55% marks in Political Science, History, Economics, International Relations and Area Studies or Master's degree in Humanities, other Social Sciences with at least 55% marks or Master's degree in Natural Sciences with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	
5	Centre for International Legal Studies (CILS)	Int. Legal Studies – ILGP (105)	M.A. with International Law as one of the subjects with at least 55% marks in the aggregate or an LL.M. degree with at least 55% marks in the aggregate. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	
6	Centre for International Trade & Development (CITD)	Int. Trade & Development – ITDP (106)	Master's degree in Economics with at least 55% marks and Mathematics and Statistics as subject up to Bachelor's level. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	
7	Centre for East Asian Studies (CEAS)	Chinese Studies – CHIP (107)	Master's degree in Political Science, History, Economics, International Relations and Area studies with at least 55% marks or Master's degree in Humanities and other Social Science with 55% marks or Master degree in Natural Science with 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	
8		Japanese Studies– JPIP (108)		
9		Korean Studies – KOIP (109)		
10	Centre for International Politics, Organisation and Disarmament (CIPOD)	International Politics – INPP (110)	Master's degree in Political Science, History, Economics, Geography, Sociology, Defence/Strategic Studies, International Relations and Area studies with 55% marks or Master's degree in Humanities and other Social Science with at least 55% marks or Master degree in Natural Science with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	
11		International Organisation – ORGP (111)		
12		Diplomacy and Disarmament – DADP (112)		
13		Political Geography – POGP (113)		
14	Centre for Russian and Central Asian Studies (CR&CAS)	Russian & Central Asian Studies – RCAP (114)	Master's Degree in Social Sciences, International Relations and Area Studies with at least 55% marks or Master's Degree in Humanities and Commerce with at least 55% marks or Master's Degree in Natural Science with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	
15	Centre for South Asian Studies (CSAS)	South Asian Studies – SASP (115)	Master's degree in Political Science, History, Economics, Geography, Sociology, Defence Studies International Relations and Area Studies with at least 55% marks or Master's degree in Humanities and other Social Sciences with at least 55% marks or Master's degree in Natural Sciences with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	
16	Centre for Indo-Pacific Studies	Indo-Pacific Studies – IPSP (116)		

	(CIPS)			
17	Centre for Inner Asian Studies (CIAS)	Inner Asian Studies – IASP (117)		
18	Centre for African Studies (CAS)	African Studies – AFSP (118)	Master's degree in Political Science, History, Economics, International Relations and Area Studies with at least 55% marks or Master's degree in Humanities and other Social Sciences with at least 55% marks or Master's degree in Natural Sciences with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	
19	Centre for West Asian Studies (CWAS)	West Asian Studies – WASP (119)	Master's degree in Political Science, History, International Relations and Area Studies with at least 55% marks or Master's degree in Humanities and other Social Sciences with at least 55% marks or Master's degree in Natural Sciences with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	
20	Centre for Comparative Politics and Political Theory (CCPPT)	Comparative Politics and Political Theory – CPTP (120)	Master's degree in Social Sciences or Humanities with at least 55% marks Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	School of International Studies (SIS)	Human Rights Studies Programme – HRSH (846)	Only those candidates shall be considered for admission to the Ph.D. Programme who have – (a) Obtained 2 years M.Phil Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil with 55% marks with additional one year research experience of a recognized University/Institution and one publication and 55% marks or equivalent in Master's Degree/BE/B.Tech. OR (b) Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	(a) Obtained 2 years M.Phil or equivalent degree with at least 55% marks of a recognized University/Institution in the field of human rights or allied areas (with dissertation/seminar/viva) or one year M.Phil degree with 55% marks in the field of human rights or allied areas with additional one year research experience of a recognized University/Institution and one publication in the field of human rights or allied areas and 55% marks or equivalent in Master's Degree/BE/B.Tech. OR (b) Master's Degree/BE/B.Tech in the field of human rights with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). **P.G. holders of AYUSH related subjects are also eligible to apply.**
2		Energy Studies Programme – ESPH (847)		(a) Obtained 2 years M.Phil or equivalent degree with at least 55% marks of a recognized University/Institution in the field of energy studies or allied areas (with dissertation/seminar/viva) or one year M.Phil degree with 55% marks in the filed of energy studies or allied areas with additional one year research experience of a recognized University/Institution and one publication and 55% marks or equivalent in Master's Degree/BE/B.Tech. OR (b) Master's Degree/BE/B.Tech in the field of Energy Studies, Political Science, International Relations, Economics, Defence/Strategic Studies or Area Studies with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). **P.G. holders of AYUSH related subjects are also eligible to apply.**

3	Centre for Canadian, US and Latin American Studies (CCUS&LAS)	Canadian Studies – CANH (826)		**P.G. holders of AYUSH related subjects are also eligible to apply.**
4		Latin American Studies – LAMH (828)		**P.G. holders of AYUSH related subjects are also eligible to apply.**
5		United States Studies – USSH (827)		**P.G. holders of AYUSH related subjects are also eligible to apply.**
6	Centre for European Studies (CES)	European Studies – EUPH (829)		**P.G. holders of AYUSH related subjects are also eligible to apply.**
7	Centre for International Legal Studies (CILS)	Int. Legal Studies – ILGH (830)		**P.G. holders of AYUSH related subjects are also eligible to apply.**
8	Centre for International Trade & Development (CITD)	Int. Trade & Development – ITDH (831)		The candidates should have – (i) Obtained 2 years M.Phil Degree with at least 55% marks of a recognized University/Institution in Economics/International Trade and Development (with dissertation/seminar/viva) or one year M.Phil degree with 55% marks in Economics/International Trade and Development with additional one year research experience of a recognized University/Institution and at least one publication and 55% marks or equivalent in Master's Degree in Economics. OR (ii) Master's Degree in Economics with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). **P.G. holders of AYUSH related subjects are also eligible to apply.**
9	Centre for East Asian Studies (CEAS)	Chinese Studies – CHIH (832)		**P.G. holders of AYUSH related subjects are also eligible to apply.**
10		Japanese – JPIH (833)		
11		Korean – KOIH (834)		
12	Centre for International Politics, Organisation and Disarmament (CIPOD)	International Politics – INPH (835)		
13		International Organisation – ORGH (837)		
14		Diplomacy and Disarmament – DADH (838)		
15		Political Geography – POGH (836)		
16	Centre for Russian and Central Asian Studies (CR&CAS)	Russian & Central Asian Studies – RCAH (839)		

17	Centre for South Asian Studies (CSAS)	South Asian Studies – SASH (840)		
18	Centre for Indo-Pacific Studies (CIPS)	Indo-Pacific Studies – IPSH (841)		
19	Centre for Inner Asian Studies (CIAS)	Inner Asian Studies – IASH (842)		
20	Centre for African Studies (CAS)	African Studies – AFSH (843)		
21	Centre for West Asian Studies (CWAS)	West Asian Studies – WASH (844)		
22	Centre for Comparative Politics and Political Theory (CCPPT)	Comparative Politics and Political Theory – CPTH (845)		

2. SCHOOL OF LANGUAGE, LITERATURE AND CULTURE STUDIES

Language is the key to man and society — how we think, what we think, how we interact with each other and co- exist as a community, all this is determined by language, which is not only the means of thought but in fact thought itself. Learning different languages means learning about cultures and traditions of various people. There are a large number of human natural languages, but we cannot learn all of them. However, learning any one of the major languages of the world teaches us a lot about human civilisation and culture. The School of Language, Literature & Culture Studies was set up with this in mind. It imparts instruction in a number of European, Central and West Asian as well as East Asian Languages, such as French, German, Russian, Spanish, Arabic, Persian, Pashto, Chinese, Japanese and Korean. Each of these languages has a significant body of literature, a galaxy of great writers, novelists, poets and also philosophers. A student who opts to study a language in the School will, in fact, be studying much more than the language. He/She will also be studying the literature, philosophy, art and intellectual developments of the culture concerned.

Training in any one of the languages being offered by the School enables one, at the end of the training, to become a translator, an interpreter, a teacher or an intercultural consultant. In an era of globalisation a person trained in a foreign language is always in demand.

The courses aim at developing competence and proficiency in spoken as well as written language through the use of language laboratory, audio-visual means etc. Parallel to this the courses in civilization and culture give a total overview of the history, geography and cultural institutions of the country concerned. A survey of the country's intellectual history is woven into the fabric of the courses to give the students a proper understanding of the relationship between society and its art and thought.

Literature is studied as a specific discipline in itself and students are trained in various methods of literary analysis.

The School of Language, Literature and Culture Studies is the only institution of its kind in the country where facilities for teaching and research in most of the major foreign languages are available.

In addition to the several foreign languages the School also offers post-graduate courses and research in English Studies, Linguistics, Hindi, Urdu, Tamil and Kannada Studies. B.A.(Hons.) in foreign language being an integral part of the 5-year M.A. programme, on successful completion of B.A. (Hons.), the student will be eligible to seek registration to the first year of the M.A. programme (i.e. fourth year of 5-year M.A.) in the respective language, without having to go through the entrance examination again subject to his/her fulfilling minimum eligibility requirements.

(A) PROGRAMMES OF STUDY

Centre of Studies, Programme of Study & Languages

1. **Centre of Persian and Central Asian Studies**
   a. Ph.D. in Persian
   b. M.Phil in Persian
   c. M.A. in Persian
   d. M.A. in Pashto
   e. B.A.(Hons.) 1st year in Persian
   f. B.A.(Hons.) 1st year in Pashto
   g. *Certificate of Proficiency in Pashto

2. **Centre of Arabic and African Studies**
   a. Ph.D. in Arabic
   b. M.Phil. in Arabic
   c. M.A. in Arabic
   d. B.A.(Hons.) 1st year in Arabic
   e. *Certificate of Proficiency in Hebrew
   f. *Diploma of Proficiency in Hebrew

3. **Centre for Japanese Studies**
   a. Ph.D. in Japanese
   b. M.Phil. in Japanese
   c, M.A. in Japanese
   d. B.A.(Hons.) 1st year in Japanese

4. **Centre for Korean Studies**
   a. Ph.D. in Korean
   b. M.Phil. in Korean
   c. M.A. in Korean
   d. B.A.(Hons.) 1st year in Korean
   e. * Diploma of Proficiency in Mongolian
   f. * Certificate of Proficiency in Mongolian

5. **Centre for Chinese & South-East Asian Studies**
   a. Ph.D. in Chinese
   b. M.Phil. in Chinese
   c. M.A. in Chinese
   d. B.A.(Hons.) 1st year in Chinese
   e. * Diploma of Proficiency in Bahasa Indonesia
   f. * Certificate of Proficiency in Bahasa Indonesia

6. **Centre for French and Francophone Studies**
   a. Ph.D. in French
   b. M.Phil. in French
   c. M.A. in French and Francophone Studies
   d. B.A.(Hons.) 1st year in French

7. **Centre of German Studies**
   a. Ph.D. in German
   b. M.Phil. in German
   c. M.A. in German (Literature, Translation, Translation & Interpretation)
   d. B.A.(Hons.) 1st year in German

8. **Centre of Indian Languages**
   a. Ph.D. in Hindi
   b. M.Phil. in Hindi
   c. Ph.D. in Urdu
   d. M.Phil. in Urdu
   e. Ph.D. in Hindi Translation
   f. M.Phil. in Hindi Translation
   g. Ph.D. in Tamil
   h. M.Phil. in Tamil
   i. Ph.D. in Kannada
   j. M.Phil in Kannada
   k. M.A. in Hindi
   l. M.A. in Urdu
   m. *Advanced Diploma in Mass Media in Urdu
   n. *Certificate of Proficiency in Urdu

9. **Centre for Linguistics**
   a. Ph.D. in Linguistics
   b. M.Phil. in Linguistics
   c. M.A. in Linguistics

10. **Centre for English Studies**
    a. Ph.D. in English
    b. M.Phil. in English
    c. M.A. in English

11. **Centre of Russian Studies**
    a. Ph.D. in Russian
    b. M.Phil. in Russian
    c. M.A. in Russian
    d. B.A.(Hons.) 1st year in Russian

12. **Centre of Spanish, Portuguese, Italian and Latin American Studies**
    a. Ph.D. in Spanish
    b. M.Phil. in Spanish
    c. M.Phil. in Portuguese
    d. M.A. in Spanish
    e. B.A.(Hons.) 1st year in Spanish

***Part Time Programme**

Note:

1. The School has changed the pattern of the B.A. (Hons.) 1st year Entrance Examination. The Entrance Examinations for B.A.(Hons.) 1st Year in Foreign Languages will be grouped according to the following clusters:

   Cluster1: French, German, Spanish, Russian **Cluster2:** Japanese, Korean, Chinese **Cluster 3**: Persian, Arabic, Pashto

   Candidates may opt for three Languages from two clusters only. They may opt for three languages from within the same cluster.

(B) CENTRES OF THE SCHOOL

1. Centre of Persian and Central Asian Studies

The Centre of Persian & Central Asian Studies in Jawaharlal Nehru University was established on the 7th of January 1971 as the Centre for Afro-Asian Languages (CAAL). It soon emerged as a prominent seat of Modern Persian Studies all over India. The Persian world at large began to appreciate the language teaching programs of the Centre which was unique of its kind in India. The Cultural Foundation of Iran (*Bonyad-e-Farhang*) took keen interest in the academic development of the Centre and provided it with **language laboratory**. This was the only University having the facility of language lab for learning Persian in India. Keeping the national character in view,

JNU allows teachers and students of other universities to formally avail themselves of the service of the lab during vacations. The language laboratory is being used to enhance language proficiency of the students and develop their skill in the art of interpretation as well. Besides Modern Persian Studies, it also excels in Translations, Area Studies of Iran, Afghanistan, Tajikistan, Uzbekistan; Indo-Iran Relations; Ancient Iranian Studies ,History of Persian Language and Literature and Stylistics in Modern Persian Literature - the topics which are exclusively taught in Centre. Sufism; Medieval Indian Culture and Civilization; Indo-Persian Literature and a host of other academic topics that come within the purview of Persian & Central Asian Studies are also given due place in the broad curriculum of the Centre.

Keeping in view the utility of inter-disciplinary approach, the Centre also offered service courses to the students of West Asian Studies (SIS) and Centre of Historical Studies (SSS). The Centre has been offering maximum number of service courses to the students of other Centres in SLL&CS. Special Course of Persian for the PG students of Urdu in CIL are being taught by the faculty members of Centre every semester. In addition, the following courses are successfully conducted by the Centre each academic year:

(A) Four Optional Courses for the UG students of various Centres of the School.

(B) Two Tool Courses for the undergraduate students of various Centres of the School.

In due course of time, the Centre developed in size and diversified its academic programs. Today it offers courses of Persian and Central Asian Studies, which cover entire gamut of language, literature and culture of Iran; Afghanistan, Tajikistan and Turkey. Ph.D.; MPhil; M.A.; and B.A. (Hons) Courses of Persian, MA, BA (Hons.) and Certificate Courses of Pashto and Optional Courses of Turkish are being taught here with professional skill and scientific methods.

The teachers and students of the Centre of Persian & Central Asian Studies in JNU are continuously engaged in modern researches based on world interactions and comparative studies. The faculty members of the Centre, apart from teaching, take keen interest towards participating in different national and international seminars/conferences. The Professors of the Centre are regularly invited by different universities to deliver lectures to the teachers from all over India.

Persian Language and Literature: B.A. (Hons.) Ist year, MA Ist year

Pashto Language and Literature: B.A. (Hons.) Ist year, MA Ist year. The courses offered by the Centre include Advance Translation, Interpretation, Audio-Visual, Literature, Culture, Area Studies, Comparative and Interactive Studies etc. M.Phil. program for students having completed M.A. in Persian. Ph.D program. The MPhil. program in Persian has been designed to inculcate interest for research in various areas of Persian Language, Literature, Culture and Historical Studies. At the MPhil level, the students are trained in research methodology and comprehensive history of Persian Language and Literature. Persian Studies in India specially the writings of Indian Scholars in Persian are the salient features of MPhil and PhD program. The course- work for MPhil will have a combination of lectures, tutorials, presentations, reviews, tests and participation in discussions on work in progress. Students are required to appear in a written End Semester examination after completing their course work successfully. Following are the major areas which the Centre has identified as thrust areas: 1. Contemporary Persian Literature-New Trends, 2. Interactive Literature, 3. Indo-Iran Relations, 4. Area Studies (Iran, Afghanistan, Tajikistan, Kazakhstan, Uzbekistan, and Azerbaijan), 5. Development of Pashto program up to the level of post-Graduation (MA Integrated) , 6. Centre is actively pursuing project in the area of “Indian Impact on the Persian World: Compilation of Thematic Urdu-Persian Encyclopedia of Language, Literature and Culture.” 7. Introduction of Kazak, Uzbek and Mongolian languages.

Note: Computer Based Test (CBT) for M.A., Ph.D. and MPhil shall be conducted in the Persian language and MA in Pashto shall be conducted in the Pashto language.

2. Centre of Arabic and African Studies

The Centre offers full time three year B.A.(Hons.), two year M.A., M.Phil and Ph.D. programmes in Arabic Language, Literature and Culture. The salient features of these programmes are intensive specialised training in Arabic Language with particular focus on developing communication skills, oral, written as well as translation. Subsequently, students are gradually exposed to and provided deep insight about the culture and literary heritage of the Arab World through both classical and contemporary texts. In recent years, the Centre has emerged as one of the most prominent centres among all the Indian Universities specially in the field of modern Arabic Language and specialisation in its literature.

B.A.(Hons.) in Arabic: The course at the level of B.A.(Hons.) in Arabic is designed to develop language skill in speaking, reading, writing, comprehension, translation and interpretation. The students are also acquainted with history, culture and literature of the Arab World through courses such as contemporary Arab World and history of Arabic Literature. In teaching the language, audio visual language laboratory facilities and films are also used which makes learning the language simpler and interesting.

M.A. in Arabic: The M.A. programme has been designed to provide advanced and intensive training of Arabic Language, Literature, Culture and Civilisation through courses such as translation Arabic-English-Arabic, simultaneous interpretation together with course contents such as classical prose and poetry, modern prose and poetry, history of Arabic language and literature, Arabic novels and plays, prepare students for research and interpretation.

M.Phil. and Ph.D. Programme: The M.Phil and Ph.D. programmes in Arabic have been designed to inculcate interest for research in different areas of Arabic and Islamic literature, culture, language and history. At the M.Phil level the students are trained in research methodology and a special paper Arabic Studies in India is the hall mark of the M.Phil programme.

The centre also plans to develop thrust areas such as:

A. Classical Arabic language and literature
B. Indo Arab relation in the field of contemporary literary exchange
C. Indo African Studies: social cultural and literary aspects
D. At the moment, the centre offers optional courses in Hebrew at B.A. level. It also offers COP & DOP courses in Hebrew.

Note: Computer Based Test (CBT) for M.A., M.Phil. and Ph.D. shall be conducted in the Arabic language.

3. Centre for Japanese Studies

The Centre was set up in 1973 and it is one of the oldest departments of Japanese language, literature and culture learning in India. Presently, named as Centre for Japanese Studies (CJS), it is one of the centres of excellence in the South Asia, where the programs ranging from B.A. to Ph.D. are offered. There is a three year undergraduate degree programme, two year post graduate degree programme, M.Phil. and Ph.D. programme. The undergraduate courses are designed for making a beginner to acuire not only the language skills & efficiency but also impart basic knowledge about the history of Japanese literature, culture, history, society etc., so that by the end of the third year, the student will have sufficient command over the language as well as society of Japan. The postgraduate courses in the centre envisage students to pursue higher level of expertise, using Japanese Language as a tool in the areas of Japanese Literature, Culture, Linguistics, Translation and Interpretation. Under the M.Phil. and Ph.D. programme, students pursue further research in fields related to Japanese Language, literature, culture, society etc.

B.A. (Hons.) Japanese, is a three-year degree programme of six semesters during which courses required for imparting the four skills of the language, i.e. reading, writing, speaking and listening, are offered to the students. Courses on History of Japanese Literature, Society and Cultural Traditions are also offered in the B.A. Programme.

M.A. Japanese, is a two-year programme of four semesters, in which students master the advanced skills in Japanese with special emphasis on current affairs & Newspaper translation, interpretation, analysis and appreciation of literary texts, and the cultural Heritage of Japan etc. At the M.A. level students have option to specialize either in Literature or Interpretation. The objective of this programme is to groom the students for translation, interpretation as well as research. In the final semester of M.A., the students are required to write a Dissertation on any area of their interest in Japanese studies.

M.Phil and Ph.D. in Japanese: The M.Phil. programme is of four semesters. Students are required to complete the prescribed number of courses and submit a dissertation for completion of M.Phil. For the Ph.D. programme the research scholar is required to submit a thesis on a topic of his/her choice from the field of Literature, Language, Comparative and Contrastive Linguistics.

Note: Computer Based Test (CBT) for M.A., M.Phil. and Ph.D. in Japanese shall be conducted in the Japanese language.

4. **Centre for Korean Studies**

The Centre is one of the biggest academic centres of Korean Language, Literature and Culture Studies in the Indian Subcontinent. It offers B.A., M.A., M.Phil. and Ph.D. programme in Korean Language, Literature and Culture Studies. Korean language was first introduced in the Centre in 1976 as a Pre-Degree Diploma course. It was upgraded to a full-time B.A. (Hons.) programme in 1995 and M.A. in 1998. This was part of the 'Centre for Japanese, and North East Asian Studies' (CJNEAS), the nomenclature of which was changed to 'Centre for Japanese, Korean and North East Asian Studies' (CJKNEAS) in 2005. The M.Phil. programme in Korean was started from July 2013. It became an independent centre- "Centre for Korean Studies (CKS)" in August, 2013. Over the years it has grown into one of the largest Centres of the SLL&CS in JNU. The Centre also offers part time certificate and diploma courses in Mongolian Language.

B.A. (Hons) in Korean: This is a three-year degree programme wherein students are first imparted basic skills in listening, speaking, reading and writing in Korean Language. They are first introduced to the Korean script (Hangeul) and then gradually to Hanja or the Chinese characters which are used along with Hangeul. The course also trains the students in conversation, composition and translation through a knowledge of specialized terminologies. The students are given intensive training in the Oral skills with the help of State-of the-art audio-visual aids. Along with the language, students also study literature, culture, history and geography of the Korean peninsula.

M.A. in Korean: This programme is a two-year programme of four semesters, in which the students master the advanced skills in Korean with special emphasis on appreciation of literary texts of various genres, translation & interpretation from English to Korean and vice versa, analysis of current affairs, and study of social and cultural heritage of Korea. This programme also aims to impart general and overall understanding of Korean linguistics. The Centre often conducts on-line courses through an E-School programme tie-up with universities in the Republic of Korea. In the final semester of M.A. the students are required to write a dissertation on any area of their interest in Korean language, literature, culture or society.

M.Phil. and Ph.D. in Korean: The M.Phil. programme is of four semesters. Students are required to complete the prescribed number of courses and submit a dissertation for completion of M.Phil. For the Ph.D. programme the research scholar is required to submit a thesis on a topic of his/her choice from the field of Literature, Language, Comparative and Contrastive Linguistics, Culture or Society.

Mongolian Language Programme: The Centre also offers Part-Time one-year Certificate of Proficiency and one year Diploma of Proficiency in Mongolian Language.

Note: Computer Based Test (CBT) for M.A., M.Phil. and Ph.D. in Korean language shall be conducted in the Korean Language.

5. **Centre for Chinese & South-East Asian Studies**

A full-time three-year B.A. (Hons.) and two-year M.A. in Chinese language at the Centre have been attracting and inspiring both the Indian and foreign students for over four decades. The Centre offers an intensive specialized training in modern Chinese language with particular emphasis on the commonly spoken language (putunghua) in present day China. Apart from having proficiency in the language, the students are gradually exposed to the cultural and literary heritage of China through both classical and contemporary texts.

B.A. (Hons.) in Chinese: The courses at the level of B.A. (Hons.) in Chinese are designed to develop language skills in speaking, reading, writing and comprehension. The students are also familiarized with various aspects of life in China through courses such as Read Chinese, Newspaper Chinese, Chinese Oration/Fluent Chinese, General Knowledge of China, Composition etc. The courses are aimed at developing competence and proficiency in spoken as well as written Chinese through state-of-the-art audio- visual language laboratory facilities and films. The Centre offers a four-semester comprehensive optional course in English for the undergraduate students of the School of language, Literature and Culture Studies and beyond on India China relations during ancient, colonial, and contemporary times.

M.A. in Chinese: The programme is designed to facilitate advanced and intensive training of Chinese language, literature, culture and civilization on the one hand and translation and interpretation on the other. Courses such as the History of Chinese Literature, Introduction to Chinese Language, Fundamental of Chinese-English Translation, Newspaper Translation, Chinese Novels, Consecutive and Simultaneous Interpretation, Introduction to the Economy of Modern China, Reading and Translation of Contemporary Writing train students for research and interpretation careers. The inter-disciplinary orientation of the courses also offers an opportunity to students to join M.Phil. or Ph.D. programmes in social sciences streams of other Schools. The Centre offers a unique programme in training students in Modern Standard Chinese (Putonghua). Apart from having a practical proficiency in the language concerned, students are also familiarized systematically with various aspects of life in China and other Chinese-speaking areas in the South-East Asia. The aim of the programme, therefore, is to stimulate and facilitate young scholars to engage themselves in advanced level language-based studies on language, literature, history and culture of China and South-East Asian Countries.

M.Phil. and Ph.D. in Chinese: At M.Phil. level, the Centre aims at introducing research methodology and other multi-disciplinary courses. A student admitted to the programme is required to clear prescribed courses in the areas like methodology, language, literature, culture, history, India-China contacts and write dissertation for completion of M.Phil. The broad areas of research include:

1. Chinese Culture Studies
2. India-China Civilizational Interaction through Ages
3. Contemporary Chinese Literature & Literary Theory & Criticism
4. Chinese Literary History
5. Chinese Language, Linguistic Profile and Linguistic History
6. Theory and Practice of Translation
7. Structure and Styles of Modern Chinese

COP/DOP in Bahasa Indonesia: The Centre also offers (Part-time) Certificate of Proficiency and Diploma of Proficiency programmes in Bahasa Indonesia.

Note: Computer Based Test (CBT) for M.A., M.Phil. and Ph.D. shall be conducted in the Chinese language.

6. Centre for French and Francophone Studies

The Centre is actively engaged in teaching and research in French and Francophone Studies with a view to promoting an interdisciplinary approach to learning. The Centre offers full-time courses at the level of B.A. (Hons.), M.A., M.Phil and Ph.D.

B.A. (Hons.): The programme aims at language proficiency by imparting written and oral skills through communicative approaches, language laboratory, films etc. Along with language acquisition, courses in civilization, culture & literature of French and Francophone countries are also included in the programme.

M.A. in French and Francophone Studies

At the M.A. level, students may specialize in French & Francophone Literature or Translation & Interpretation. Courses on language, linguistics methodology of teaching French as a foreign language and civilization (History of Art, Cinema, French Thought and Mass Media) are common to both streams.

M.A. Literature: The CFFS has the distinction of being the first Centre in Asia to have introduced Francophone literature as part of the curriculum: literatures from Canada, Sub-Saharan Africa, North Africa, the Indian Ocean, Asia and Europe constitute a substantial part of the syllabus. Equal weightage is given to theories of literature, thematic study of literature and its evolution through genres. With a view to promoting an intercultural perspective, courses on French Literature and India as well as Contemporary Indian literature in French have been introduced.

M.A. Translation & Interpretation: The programme is designed to teach theory and practice of translation and to analyze problems of inter linguistic and intercultural transfer and terminology of specialized fields. The role of translation in building national literatures and disseminating knowledge is emphasized. Courses such as "Translation in French of Indian Literary works" study the construction of Indian identities in French translations. A course on Scientific and Technical translation initiates students to techniques of documentary and terminological research. The CFFS lays equal emphasis on consecutive and simultaneous interpretation, and students undergo rigorous training in laboratory booths before going professional.

M.A. Dissertation: With a view to broadening the philosophical horizons of the students, the Centre not only promotes individual research in the form of an M.A. Dissertation (written in French) under the personal supervision of a teacher, but also actively encourages students to present papers in Conferences and Seminars for a wide range of reactions to their ideas.

M.Phil and Ph.D: A student admitted to M. Phil programme is required to clear prescribed courses on Methodology of research, linguistics, theories of translation, literature and write a dissertation for the completion of M. Phil. The broad areas of research for M. Phil include:

1. Translation Studies
2. Didactics of Language and Culture
3. French & Francophone Literature
4. Mass Media
5. Culture Studies
6. Language Studies
7. French Thought & Western Thought

Note: Computer Based Test (CBT) for M.A., M.Phil. and Ph.D. shall be conducted in the French language.

7. **Centre of German Studies**

The Centre offers a B.A. Programme, three M.A. Programmes (M.A. in Literature; M.A. in Translation; M.A. in Translation and Interpretation) as well as a research programme (M.Phil and Ph.D.). Intensive language courses in the first year B.A. equip the students with the requisite knowledge of the German language to study the cultural, political, and literary history of German speaking countries. Introductory courses in linguistics and translation are offered in B.A. III, along with literary and social history. Tool courses in the cultural history of Europe since the Renaissance and in the political history of German speaking countries after 1945 are taught in English.

The Centre of German Studies is among the first departments to offer separate degrees in Literature, Translation, Translation & Interpretation. The M.A. in Translation, Translation & Interpretation offers a broad spectrum of courses, ranging from the conventional to the innovative, thereby providing students the choice of becoming professionally competent translators/interpreters or entering the equally challenging and rewarding arena of research in Translation Studies. The M.A. in Literature engages closely with contemporary literatures from German speaking countries. This programme also focuses variously on particular authors, literary movements, genres, and periods in literary history. Courses in theories of literature provide students with the opportunity to read critical texts which also form the theoretical basis of the literature curriculum. Within the M.A. programme, we also offer a range of common courses, which seek to consolidate and supplement what students learn in their respective specializations. Didactics of German Language, the cultural and political history of key periods in the history of German speaking countries, Germany within the European Union, courses in Stylistics as well as courses in folklore studies are among some of these courses. Over the third and fourth semester of the M.A., students are expected to write a dissertation on an area of their choice.

M.Phil and PhD: The Centre of German Studies offers a four semester M.Phil programme, comprising course work and dissertation. The course work is to be completed during the first two semesters. The course on Research Methodology is compulsory – the other three courses are to be chosen from the courses notified by the Centre every year. The dissertation is to be written in the second year of the M.Phil. programme.

At the time of the viva-voce, M.Phil and PhD candidates seeking admission to the Centre are required to bring with them a synopsis of their research proposal, indicating its scope, plan and feasibility.

The candidates must make their specific choice of specialization i.e. (Literature or Translation/Translation and Interpretation) with care; it is not possible to change from one stream to another. Candidates applying for M.A. (German) programme are allowed to exercise only one option, i.e., Literature or Translation/Translation and Interpretation, and the option so exercised must be clearly mentioned.

Note: The Computer Based Test (CBT) for M.A., M.Phil. and Ph.D. will be conducted in German. There will be one paper at M.A. level and two options for three M.A. programme offered by the Centre viz. 1. (Literature) and 2. M.A. (Translation, Translation & interpretation).

8. Centre of Indian Languages

The Centre is a research oriented Centre of higher studies for promoting inter-disciplinary approach and comparative perspective of literary studies. The centre undertakes socially relevant and intellectually stimulating research in various Indian languages. At present, the Centre has facilities for teaching and research in Hindi, Hindi Translation, Urdu, Tamil & Kannada. Bangla, Marathi & Odia are likely to be introduced shortly. Efforts are being made to introduce Punjabi, Malayalam & Telugu. The Centre has made innovations in its teaching and research programmes related to Hindi, Urdu, Tamil and Kannada languages, literatures and their cultures. The Centre is perhaps the only Centre of its kind in India where not only common courses in Hindi and Urdu at M.A. level are being taught but also faculty and students are engaged in comparative and integrated research. The Centre for Indian Languages offers courses at M.A. level in History of language and literature, Indian and Western literary theories, literary texts and their aesthetic and sociological appreciations.

The Centre has M.Phil. and Ph.D. programme in Hindi, Urdu, Tamil, Kannada Language and Literature with special focus on the Areas like Historiography, Classic and Ancient, Medieval, Modern and Contemporary Literature, Social Perspective of Literature, Gender and Literature, Dalit and Adivasi Literature, Comparative Studies of literature and Emerging Literary trends in literature.

The thrust areas of research programme in M.Phil and Ph.D. in Hindi Translation are History/tradition, tools, theory of translation in Indian Perspective and comparative studies including different prospects of translation.

Programmes of Study:

The Centre offers M.A.(Hindi), M.A. (Urdu) with Literature and Mass Media Streams, M.Phil and Ph.D. in Hindi, Urdu, Tamil, Kannada and Hindi Translation. Apart from service courses in Hindi, Urdu, Tamil & Translation like Tool and Optional courses, two part- time courses namely Advanced Diploma in Mass Media in Urdu and Certificate of Proficiency in Urdu are also offered by the Centre.

M.A. in Hindi and Urdu: Each programme contains four semesters. During this period a student is required to earn total 68 credits.

M.Phil and Ph.D. programme in Hindi, Urdu, Tamil, Kannada & Hindi Translation: M.Phil and Ph.D. programme at the Centre consists of course work and dissertation for M.Phil and a thesis for Ph.D.. Advanced Diploma (ADOP) in Mass Media in Urdu: This is a part-time evening programme of two semesters with focus on:

i. Introduction to Mass Communication,
ii. Print Media,
iii. Stage & Film,
iv. Radio and Television.

Certificate of Proficiency (COP) in Urdu: COP is a part-time evening course of two semesters meant for beginners for imparting introductory knowledge of script, grammer, basic vocabulary and sentence formation in Urdu language. Optional & Tool courses in Hindi & Urdu: The optional courses meant for those who have basic knowledge of language and literature and need the further proficiency in language, literature and culture. The course is spread over 4 semesters. Whereas tool course is an elementary language programme for beginners. The course is spread over two semesters.

Short term courses for Foreign/casual students in Hindi and Urdu: Centre offers short-term courses in Hindi & Urdu for foreign students. The duration of the course varies from six months to one year. The course covers script, grammatical skills, language proficiency, knowledge of culture of respective language and literary appreciation.

9. Centre for Linguistics

The Centre offers an MA in Linguistics and interdisciplinary programmes of research (M. Phil. and Ph. D.). The Centre also offers a wide range of Optional courses in Linguistics to undergraduate students of the Centres of foreign languages in the School.

(a) M.A. in Linguistics:

The M.A. programme in Linguistics provides students a basic grounding in descriptive, general and theoretical linguistics, and initiates them into specialized areas, Applied Linguistics, South Asian Language Typology, Generative Phonology, Generative Syntax, Semantics, and Morphology, Cognitive Linguistics, Language-Mind and Brain, Sociolinguistics, Indian Linguistic Theories and Approaches and Semiotics of Language and Culture. The Centre imparts training in the practical and research aspects of the discipline, enabling the students to explore and reflect upon various theories of language and their relevance in specific contexts. Among the facilities the Centre provides are: Computerized Speech Lab and Phonetics Lab. Field work on Indian Languages is also facilitated.

(b) M.Phil in Linguistics:

The M.Phil programme is rich and multimodal. They allow researchers to engage in almost all areas of language studies. The programmes are thus open to postgraduates from multiple disciplinary fields, leading to considerable interdisciplinary interaction. Work in the following areas has resulted in significant and impressive research outputs: Descriptive Linguistics, Speech sciences including Language Pathology, Generative Syntax and Semantics, Neuro-cognitive Linguistics, Sign Linguistics, Phonological Theory, Indian linguistic theory, mutilingualism, Sociolinguistics, language documentation, Applied Linguistics including Language Teaching, Semiotics and Philosophy of Language.

(c) Ph.D. in Linguistics:

It allows researchers to engage in almost all areas of language studies. The programme is thus open to postgraduates from multiple disciplinary fields, leading to considerable interdisciplinary interaction. Work in the following areas has resulted in significant and impressive research outputs: Descriptive Linguistics, Speech sciences including Language Pathology, Generative Syntax and Semantics, Neuro-cognitive Linguistics, Sign Linguistics, Phonological Theory, Indian linguistic theory, mutilingualism, Sociolinguistics, language documentation, Applied Linguistics including Language Teaching, Language technology, Semiotics and Philosophy of Language.

10. Centre for English Studies

The Centre, recognized by the QS World University Ranking as one of the top 100 departments of English in the world, offers an M.A. programme in English, and interdisciplinary programmes of research (M.Phil and Ph.D.). The Centre also offers tool and optional courses in English Language and Literature to undergraduate students of the School majoring in foreign languages.

The MA programme lays emphasis on introducing students to new ways of looking at literatures in English both from England and from other parts of the world, like Indian, American, Australian and Irish literatures in English. Courses in critical thought both Western and Indian, literary theories, and culture studies further help students to develop the ability to relate literatures to their contexts, to compare theories and texts, and to explore the way history, ideology, and material forces condition literary and other cultural texts.

The research programme M.Phil and Ph.D. are open to postgraduates from many disciplines. This allows for considerable interdisciplinary intellectual interaction. The areas of research include British Literature, Literature in other Englishes, Indian Literatures, Comparative Literature, Translation Studies, Gender Studies, Literary Disability Studies, Contemporary Literary and Cultural Theories, Classical Indian Literary and Aesthetic Theories, Folkloristics, Theatre and Performance Studies, Popular Culture Studies, etc.

11. Centre of Russian Studies

The Centre of Russian Studies is one of the leading Centres offering courses in Russian Language, Literature, Culture and Translation. In addition, the Centre also offers Optional course in Russian (4 semesters) to undergraduate students of other Centres of SLL&CS.

Programmes of Study:
At present the Centre offers B.A. (Hons.), M.A., M.Phil. and Ph.D programmes in Russian studies.

B.A. (Hons.) in Russian:
This Programme is spread over six semesters. During this period a student has to earn a total of 74 credits in Core courses and 10 credits in two Tool courses. Core courses in Russian Language, Literature, Translation and Interpretation and two Tool courses spread over 4 semesters on "Culture and Civilization of Russia" and "Cultural Heritage of Russia" are all compulsory courses. In addition, the student has to earn credits in optional/ tool courses as prescribed by the School.

M.A. in Russian:
The Master's Programme is spread over four semesters. During this period a student is required to earn 80 credits. While all language courses are compulsory, the students may exercise a choice between Literature and Translation and Interpretation courses offered by the Centre in the second year. Besides Russian grammar, the other courses offered are Phonetics, Lexicology, Morphology, Syntax, Introduction to Linguistics. There are specially designed courses in Translation for students pursuing specialization in Literature and vice versa. The Translation stream comprises of courses on Translation of Newspapers, Business, Trade and Commerce, Social Sciences, Science and Technology and Theory of Translation. The students are also trained in Consecutive and Simultaneous interpretation (Russian into English and vice versa). The Literature stream comprises of courses on Introduction to Literary trends, History of Literary criticism, Folklore and Ancient Russian Literature, Russian Literature of 17th – 20th Centuries and Theory of Literature. In the final semester the students are required to write a Term paper which is meant to prepare them to carry out research work.

M.Phil. and Ph.D. in Russian:
M.Phil. Programme at the Centre consists of Course Work and a dissertation. The Programme is spread over four semesters. During this period a student has to earn 16 credits in the course work comprising of four courses in the first two semesters. Of the four courses, Research Methodology is compulsory and the other three courses are to be chosen from a range of courses notified by the Centre every year. The dissertation is to be written in the second year of the M.Phil. programme.
For the Ph.D. Programme the research scholar is required to submit a thesis on a topic of his / her choice from the field of Russian philology – Linguistics, Literature, Methodology of Teaching Russian, Culture and Translation Studies.

Note: Computer Based Test (CBT) for M.A., M.Phil. and Ph.D. shall be conducted in the Russian language.

12. Centre of Spanish, Portuguese, Italian and Latin American Studies

The Centre initially began its academic programmes as one of the Centres of the then School of Languages, with courses in language proficiency in Spanish. Since then, it has grown into a specialized Centre dealing with language, linguistics, literature, culture and civilization of Spain and Latin America as well as translation studies. In Spanish studies, the programmes go upto the Ph.D. level. An M.Phil programme in Portuguese is also being offered.

The Centre is a pioneering institution in the country, having prepared students and teachers to take up important assignments involving use of Spanish studies. Besides having provided teaching faculty to a number of academic institutions where Spanish is taught, personnel prepared by the Centre are engaged in such activities as tourism, interpretation, translation, banking and the business sector.

B.A.(Hons.): This programme, besides imparting language proficiency in Spanish written and oral skills through a mix of traditional/modern methods, including language laboratory and film shows, also offers courses in civilization, culture and literature of Spain and other Spanish speaking countries. There are also courses on translation involving professional, technical, literary and commercial texts.

M.A.: The two year comprehensive post-graduate programme offers courses in Spanish and Latin American literature and in translation and interpretation studies, as well as in language teaching methodology and contrastive linguistics. The programme aims to prepare students to conduct research at the M.Phil. level and also to impart translation/interpretation/teaching skills.

M.Phil. and Ph.D.: This programme covers area of hispanic/Portuguese studies and offers courses on Methodology of Research, theories of translation, literature, contrastive linguistics and didactics. The faculty and the students of the Centre regularly avail of the opportunities offered by the active cultural exchange programmes with Spain, Portugal, Mexico, and Italy. A number of protocols of bilateral exchange programmes have been established with Spanish and Portuguese Universities. Each year a number of students from the Centre are selected for scholarships for further studies in these countries.

The Centre has been specially selected as an associate member of the European Union consortium under the MULTIELE (Erasmus Mundus) Program of European Commission to jointly conduct the Master Degree Program in Learning and Teaching of Spanish in Multilingual and International Contexts (www.multiele.org/es/miembros/html). Under this program European participants have to spend at least one semester (Monsoon Semester) in JNU to receive practical & theoretical training in the teaching of Spanish in Multicultural Context of India. This program is open to only Multiele participants from Europe.

Note: Computer Based Test (CBT) for M.A., M.Phil. and Ph.D. in Spanish language shall be conducted in the Spanish language and M.Phil. in Portuguese language shall be conducted in Portuguese language.

(C) SPECIAL FEATURES OF PART-TIME PROGRAMMES

Part-time courses are designed to suit the professional requirements of those who require some knowledge of the language for their areas of specialisation and for professional work where ability to understand the language at elementary level would be an asset.

i. **Certificate of Proficiency (COP) in Pashto, Mongolian, Bahasa Indonesia, Urdu and Hebrew**: It is a one year part-time course in the language concerned in which basic skills of reading and comprehension are imparted.

ii. **Diploma of Proficiency (DOP) in Bahasa Indonesia, Mongolian and Hebrew:** It is a one year part-time course open to candidates who have completed the Certificate of Proficiency course in the concerned language.

iii. **Advanced Diploma in Mass Media in Urdu:** It is a one year part-time intensive course which gives training in writing for radio, television, film, drama, journalism and other means of communication.

Selection of candidates to part time programmes of study

(a) **For COP and Advanced Diploma in Mass Media in Urdu Courses:** The admission to COP and Advanced Diploma in Mass Media in Urdu Programmes of Study in the School will be made on the basis of the performance of the candidate in the Computer Based Test (CBT) which will be held **only at Delhi**.

(b) **For DOP Courses**: The admission to DOP course in the School will be made on the basis of the performance of the candidates on the basis of merit.

Part-time courses

The candidates who have obtained their qualification under the pattern of education other than 10+2 will be eligible for admission to the COP and DOP programmes of study if they have successfully completed the first year of Bachelor's degree examination of a University with atleast a minimum of 45% marks. Similarly, the candidates who have obtained their Bachelor's degree under the pattern of education other than 10+2+3 will be considered for admission to Advanced Diploma in Mass Media in Urdu if they have successfully completed the first year of Master's degree programme or a bridge course in lieu thereof, wherever prescribed, from a recognised University with atleast a minimum of 45% marks.

ELIGIBILITY:

CERTIFICATE OF PROFICIENCY

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Korean Studies (CKS)	COP-Mongolian – MONC (702)	At least Senior School Certificate (10+2) or an examination recognized as equivalent thereto with a minimum of 45% marks in aggregate.
2	Centre for Chinese, South East Asian Studies (CCSEAS)	COP-Bhasha Indonesia – BHAC (703)	
3	Centre for Indian Languages (CIL)	COP-Urdu – URDC (704)	
4	Centre for Persian and Central Asian Studies (CPCAS)	COP in Pashto – PUSC (701)	
5	Centre for Arabic & African Studies	COP in Hebrew – HEBC (710)	

DIPLOMA OF PROFICIENCY

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Chinese and South East Asian Studies (CCSEAS)	DOP-Bhasha Indonesia – BHAD (602)	At least Senior School Certificate (10+2) or an examination recognized as equivalent thereto with a minimum of 45% marks in aggregate and **Certificate of Proficiency in the language concerned** or an examination recognized as equivalent thereto.
2	Centre for Korean Studies (CKS)	DOP in Mongolian – MOND (603)	
3	Centre for Arabic & African Studies (CAAS)	DOP in Hebrew – HEBD (604)	

ADVANCE DIPLOMA OF PROFICIENCY

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Indian Languages (CIL)	ADOP-Mass Media in Urdu – URDA (502)	A Bachelor's Degree under 10+2+3 pattern of education with a minimum of 45% marks in aggregate with Urdu as one of the subjects at High School or Intermediate or B.A. Level.

B.A. (Hons.) 1st year

The school has changed the pattern of the B.A. (Hons.) 1st year Entrance Examination w.e.f. Academic Session 2016-17 onward. The Entrance Examinations for B.A. (Hons. 1st year in Foreign Languages will be grouped according to the following clusters:
Cluster 1: French, German, Spanish, Russian; Cluster 2: Japanese, Korean, Chinese; & Cluster 3: Persian, Arabic, Pashto. Candidates may opt for three Languages from two clusters only. They may opt for three languages from within the same cluster

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Persian and Central Asian Studies (CPCAS)	Persian – PERU (401)	**(i)** Senior School Certificate (10+2) or equivalent examination with minimum of 45% marks. **The candidates who are due to appear in Senior School Certificate (10+2) or equivalent examination are eligible to apply.** (ii) Certificate of Alimiah with atleast 45% marks issued by any of the following Madrasas subject to the condition that the candidate has passed English language at the level of Senior Secondary from a recognised Board/University or a three year course conducted by Darul-Uloom Deoband. 1. Darul Uloom Deoband, U.P. 2. Mazahirul Uloom Saharanpur, U.P. 3. Darul Uloom Mau, U.P. 4. Miftahul Uloom, Mau, U.P. 5. Jamia Athria Darul Hadith Mau, U.P. 6. Jamia Faize Am Mau, U.P. 7. Madrasa Alia Mau, U.P. 8. Madrasa Muhammadia, Mau, U.P. 9. Madrasa Faizanul Uloom Bahadurganj, Ghazipur, U.P. 10. Madrasa Ihyaul Uloom Mubarkpur, Azamgarh, U.P. 11. Tauhid Education Trust Ma'hadabad-Khagra Kishan Ganj, Bihar 12. Jamia Imam Ibn Taimiya, Madinatussalam, E. Champaran, Bihar (iii) (a) Certificate of Alimiah with atleast 45% marks issued by the following Madrasas 1. Nadwatul Ulema, Lucknow, U.P. 2. Jamiatul Flah, Bilariaganj, Azamgarh, U.P. 3. Certificate of Fazilah from Madrasatul Islah, sarai Mir, Azamgarh, U.P. 4. Madrasa Jamia Islamia, Muzaffarpur, Azamgarh, U.P. 5. Madrasa Eram Convent for Girls and Boys Indra Nagar, Lucknow, U.P. 6. Jamial Muzahrul Uloom (Patna) (Degree of Fazilah) 7. Jamial Darul Huda al-Islamiyah (Certificate of al-Sanaviyah al-Ulia) 8. Darul Uloom Alimia, Jamda Shahi, Basti, UP (Alimia Certificate) 9. Al-Jamia-Tus-Salafiah (Markazi Darul-Uloom) (Degree of Alemiat) 10. Al Jamia Al Islamiya Kerala India (V) (Preparatoy course which is of 2 years after senior school leaving certificate) 11. Al Jamiatul Ashrafia, Mubarak Pur, Azamgarh UP (Certificate of Alimiat/Fazilat) 12. Jamia Syed Ahmad Shaheed, Vill. Ashmadabad (Katauli) Malihabad, Lucknow UP (Alamiyat degree) 13. Jamiya Misbahul Uloom, Chaukonia Bharat Bhari, Siddharth Nagar, UP (Almiah degree) 14. Jamia Islamia Sanabil (Aaliya/Fadhil) 15. Al Jamiatul Islamiah Tilkahna, Siddarth Nagar, UP (Alimia) 16. Madrasa Arabia Islamia Wasiatul Uloom, Allahabad, UP (Alimia) 17. Mahad Aysha Al-siddiqa Qasimul Uloom Libanat, Darussalam Abul Barakat, Deoband, UP (Almiyat). (b) Certificate of Maulvi with atleast 45% marks issued by the Bihar Board of Madrasa Education (c) Certificate of Senior Secondary (Class 12) with atleast 45% marks issued by the Urdu Education Board, New Delhi (d) Certificate of Alima with atleast 45% marks issued by the Jamiat-Ul-Mominath, Hyderabad **(iv) Candidates who have already pursued B.A./M.A., Language programme in two or more Centres of the School during their entire academic career are not eligible for admission.** **Minimum Age : 17 years as on 1st October 2019.** **NOTE :** 1. 80% of the seats in the First Year of 3-year B.A.(Hons.) programme in the
2		Pashto – PUSU (410)	
3	Centre for Arabic and African Studies (CA&AS)	Arabic – ARBU (402)	
4	Centre for Japanese Studies (CJS)	Japanese – JAPU (403)	
5	Centre for Korean Studies (CKS)	Korean – KORU (404)	
6	Centre for Chinese, South East Asian Studies (CCSEAS)	Chinese – CHNU (405)	
7	Centre for French and Francophone Studies (CFFS)	French – FRNU (406)	
8	Centre for German Studies (CGS)	German – GERU (407)	
9	Centre for Russian Studies (CRS)	Russian – RSNU (408)	
10	Centre for Spanish, Portuguese, Italian and Latin American Studies (CSPI&LAS)	Spanish – SPNU (409)	

			School are earmarked for those who have either passed the Senior School Certificate or equivalent examination in the year 2018 or are due to appear in 2019, and the remaining 20% are open to all other candidates. 2. Candidates who have obtained their Higher Secondary Certificate under the 10+1 pattern of education will be eligible for admission to the First-Year of the three-year B.A. programme if they have successfully completed the First-Year of Bachelor's degree examination of a University under 10+1+3 pattern of education with the prescribed percentage of marks.

Master of Arts

Candidates who have already pursued B.A. (Hons.)/M.A. Language programme in any two or more Centres of study of the School during their entire academic career are not eligible for admission to M.A. Language Programme.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Persian and Central Asian Studies (CPCAS)	Persian – PERM (203)	Bachelor's degree in any discipline under 10+2+3 pattern of education with at least 45% marks with adequate proficiency in the concerned language.
2		Pashto – PUSM (236)	
3	Centre for Arabic and African Studies (CA&AS)	Arabic – ARBM (204)	
4	Centre for Japanese Studies (CJS)	Japanese – JAPM (205)	
5	Centre for Korean Studies (CKS)	Korean – KORM (206)	
6	Centre for Chinese, South East Asian Studies (CCSEAS)	Chinese – CHNM (207)	
7	Centre for French and Francophone Studies (CFFS)	French – FRNM (208)	
8	Centre for German Studies (CGS)	German Literature – GRLM (209)	Bachelor's degree in any discipline under 10+2+3 pattern of education with at least 50% marks with adequate proficiency in German.
9		German Translation – GRTM (230)	
10	Centre for Indian Languages (CIL)	Hindi – HNDM (210)	Bachelor's degree in any discipline under 10+2+3 pattern of education with at least 45% marks with adequate proficiency in the concerned language.
11		Urdu – URDM (211)	
12	Centre for Russian Studies (CRS)	Russian – RSNM (212)	
13	Centre for Spanish, Portuguese, Italian and Latin American Studies (CSPI&LAS)	Spanish – SPNM (213)	
14	Centre for Linguistics (CL)	Linguistics – LINM (214)	Bachelor's degree in any discipline under 10+2+3 pattern of education with at least 50% marks.
15	Centre for English Studies (CES)	English – ENGM (215)	

M.Phil

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	Centre for Persian and Central Asian Studies (CPCAS)	Persian – PERP (121)	Master's degree in the concerned language/subject with at least 55% marks Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	**P.G. holders of AYUSH related subjects are also eligible to apply.**
2	Centre for Arabic and African Studies (CA&AS)	Arabic – ARBP (122)		
3	Centre for Japanese Studies (CJS)	Japanese – JAPP (123)		
4	Centre for Korean Studies (CKS)	Korean – KORP (172)		
5	Centre for Chinese, South East Asian Studies (CCSEAS)	Chinese – CHNP (124)		
6	Centre for French and Francophone Studies (CFFS)	French – FRNP (125)		
7	Centre for German Studies (CGS)	German – GERP (126)		

8	Centre for Indian Languages (CIL)	Hindi – HNDP (127)		
9		Urdu – URDP (128)		
10		Tamil – TAMP (129)		
11		Hindi Translation – HTLP (130)	Master's degree in Hindi/Hindi Translation with 55% marks and English or any Indian language as one of the subjects at B.A. level other than Hindi or Master's degree in any Indian/Foreign language with 55% marks and Hindi as one of the subjects at B.A. level. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	
12		Kannada – KANP (131)	Master's degree in the concerned language/subject with at least 55% marks Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	
13	Centre for Russian Studies (CRS)	Russian – RSNP (181)		
14	Centre for Spanish, Portuguese, Italian and Latin American Studies (CSPI&LAS)	Spanish – SPNP (132)		
15		Portuguese – PRTP (133)	Master's degree in Portuguese with at least 55% marks or Master's degree in any other Roman Language (Italian, Spanish, French, Romanian) or in English with at least 55% marks and an Advanced Diploma in Portuguese with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	
16	Centre for Linguistics (CL)	Linguistics – LINP (134)	Master's degree in linguistics or its equivalent or any other discipline with at least 55% marks Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	
17	Centre for English Studies (CES)	English – ENGP (135)	Master's degree with at least 55% marks in English or Linguistics or Sociology or History or Political Science or Philosophy or Folklore in Film & Communication Studies or Culture Studies or Comparative Literature with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	Centre for Persian and Central Asian Studies (CPCAS)	Persian – PERH (848)	Only those candidates shall be considered for admission to the Ph.D. Programme who have – (a) Obtained 2 years M.Phil Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil degree with 55% marks with additional one year research experience of a recognized University/Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech. OR (b) Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	**P.G. holders of AYUSH related subjects are also eligible to apply.**
2	Centre for Arabic and African Studies (CA&AS)	Arabic – ARBH (849)		
3	Centre for Japanese Studies (CJS)	Japanese – JAPH (850)		
4	Centre for Korean Studies (CKS)	Korean – KORH (851)		
5	Centre for Chinese, South East Asian Studies (CCSEAS)	Chinese – CHNH (852)		
6	Centre for French and Francophone Studies (CFFS)	French – FRNH (853)		
7	Centre for German Studies (CGS)	German – GERH (854)		
8	Centre for Indian Languages (CIL)	Hindi – HNDH (855)		
9		Urdu – URDH (856)		
10		Tamil – TAMH (857)		
11		Hindi Translation – HTLH (858)		
12		Kannada – KANH (859)		
13	Centre for Russian Studies (CRS)	Russian – RSNH (860)		
14	Centre for Spanish, Portuguese, Italian and Latin American Studies (CSPI&LAS)	Spanish – SPNH (861)		
15	Centre for English Studies (CES)	English-ENGH (864)		
16	Centre for Linguistics (CL)	Linguistics – LINH (863)		

3. SCHOOL OF LIFE SCIENCES

BRIEF HISTORY AND PROFILE

The School of Life Sciences (SLS) established in the year 1970 and would soon celebrate its Golden Jubilee.

The School offers M. Sc. and Ph.D. degree in Life Sciences. The teaching and research programme in the School was conceptualized as an interdisciplinary program unifying the disciplines of biological sciences from a molecular level to whole organismal level. The experimental approaches undertaken by different research groups include biochemistry, biophysics, cell biology, genetics and molecular biology in organisms representing bacteria, fungi, plants and mammals.

The teaching programme of the School of Life Sciences has earned a high reputation for its interdisciplinary nature for students from both biological and physical sciences at the Master's and Ph.D. levels. This is made possible by offering remedial courses in physical sciences for Master's students coming from the bioscience stream and in elementary biology for students entering biology after their first degree in physical sciences. The School has an in-house system of continuous review of its academic programmes that allows inclusion

of newer areas into research and teaching. The M.Sc. practical laboratories are well equipped to give 'hands- on' training to students in the theory subjects taught to them. Graduates completing their degrees at the School are always sought after by research labs in India and abroad and have performed exceptionally well in the universities, institutes and industries.

HIGHLIGHTS OF OUR TEACHING PROGRAMME

 Molecular, cellular and organismal biology with emphasis on a holistic understanding of the mechanisms operating in living systems

- Experienced Faculty Members with national and international recognition
- Continuous review of its academic programs that allows inclusion of newer areas into research and teaching
- Well equipped M.Sc. practical laboratories give 'hands on' training in the subjects taught in theory classes

 M.Sc. dissertation research carried out in SLS laboratories

 Strong Mentoring programme and successful placements of students in India and abroad

Two programmes of Study-

- **Ph.D (Life Sciences)**

Modest support for travel/registration for senior students to attend conference and present their research covering various aspects of advanced research in life sciences.

The School offers core/foundation courses as well as advanced courses for the Ph.D. students. Students are assessed and evaluated throughout the semester by a continuous system of tests, seminars, assignments, mid and end-semester examinations.

- **M.Sc. (Life Sciences)**

The M. Sc. course lays emphasis on research and offers students the choice of a research career. Our M.Sc. students are encouraged to rejoin SLS through due admission procedure to pursue their doctoral studies, or seek admission in other institutions in India/abroad.

This program offers an in-depth theoretical as well as practical knowledge in all areas of Life Sciences. Students from both Physical Sciences as well as Biological Sciences backgrounds may join this program. Students have to take both core courses and optional courses spread over four semesters, and practical courses in the first two semesters. During the final two semesters, students also have to carry out a research project on a specific topic under the supervision of a faculty member in a laboratory and submit a dissertation for evaluation by a committee of experts followed by open oral presentation defending the project. Students also have to present a seminar and submit a term paper on a current topic in life sciences. Detailed information regarding the course structure can be obtained from the website (www.jnu.ac.in/sls).

Funding:

School-level funding:

 From UGC

o Departmental Special Assistance Programme in "Cell and Molecular Biology"

o UGC-Resource Networking Program

o University with Potential for Excellence (UPOE)

 From DST

o FIST-I and FIST-II programmes

oPURSE Grant

Faculty-level funding:

oResearch grants from various national and international funding agencies such as the UGC, DST, DBT, CSIR, ICMR, The European Union, the Wellcome Trust (UK), Swiss Development, USDA, International Atomic Energy Agency (IAEA) etc.

Career and Aptitude Development of our Students

 JNU and the SLS pro-actively support career and aptitude development of its students by the following:

oStudents elected to the statutory Student Faculty Committee

o Student representation in the Special Committee (Board of Studies) of SLS

o Organization of the highly successful annual research festival 'BioSparks' by senior Ph.D. students Visiting Scholar seminar 'Meet the Speaker' anchored by students

HIGHLIGHTS OF OUR RESEARCH PROGRAMME

SLS has been on the forefront of research in several important areas/field as reflected by high impact research articles published in peer-reviewed national and international journals of repute. The School has consistently maintained a high level of productivity in terms of publications in reputed peer reviewed journals and books.

oOver 1, 600 papers authored by the faculty of the school since its inception.

o Several national and international patents

o Over 500 students have been awarded Ph.D. degree.

o Some of our Ph.D. students have won the prestigious
INSA Medal for Young Scientists

o International travel award and best poster and talk prize won by our Students in International Conferences

o SLS Alumni have obtained independent faculty and
Scientist positions in India and Abroad

o Alumni of the SLS have also achieved success in biotechnology industry

o Alumni have been constantly accepted in top research institutions in India and abroad as post-doctoral fellows

o Our faculty members have been honoured with recognitions like Padma Awards, Shanti Swarup Bhatnagar Prize, National Bioscience Award, Birla Award, J.C. Bose Award, Bhasin award, member of the Planning Commission of India, elected Fellows of various Academies, The World Academy of Sciences Award, Ranbaxy Award, J.C. Bose Fellowship and many others.

RESEARCH INFRASTRUCTURE

 A well-established 24x7 accessible Central Instruments Facility (CIF) with 'state of the art' instruments

 Equipments for Genomics and proteomics research: FACS, MALDI-TOF/TOF, Nano LC-ESI-MS/MS, and real-time PCR.

 Equipments for Cell biology: Fluorescence microscopes, live cell microscope, Cell sorter/FACS and whole animal imaging system.

 Common Equipments: Ultra- and high-speed centrifuges, spectrophotometers, spectrofluorimeters, time-resolved single photon counting fluorescence spectrometer, atomic absorption spectrometer, isothermal titration calorimeter, phosphorimager, scintillation counter, PCR-machines, gel documentation system, imaging facilities, lyophilizer, ultra-low freezers, water purification system, brain-wave analyzer, oscilloscope, polygraph for electrophysiological measurements, gene gun, and gamma chamber·

 Plant cell culture, Glass House for experimental and transgenic plants and animal cell culture facilities and stereotaxic surgical facility for small animals.

 JNU's Advanced Instrumentation Research Facility (AIRF) (http://www.jnu.ac.in/AIRF/) is with sophisticated equipments are open to all SLS research scholars

In-house Training Opportunities

- Training in Animal Handling
- Training in Radiation Safety
- CIF orientation and equipment usage
- Equipment training in the JNU-AIRF
- English learning through JNU Linguistic Empowerment Cell
- Maths learning through JNU Maths Empowerment cell
- Course on Plagiarism awareness and software training through JNU library

ADMISSION PROCEDURE

(i) M.Sc. (Life Sciences)

Students are admitted to the M. Sc. (Life Sciences) program each year on the basis of their performance in the nation-wide entrance test conducted by JNU. Candidates with an undergraduate degree in the relevant areas are eligible to apply. Those who are pursuing undergraduate studies in the relevant areas are also eligible to appear in the admission test. However, they can be admitted only if they have earned the undergraduate degree prior to the admission, as per the university rules.

(ii) Ph.D (Life Sciences)

Students would be admitted into the Ph.D. programme into one of the five research groups (see Table below).
Key Features of this change:

- **Each candidate has to indicate their choice of any Two of the five research areas in order of their priority in the application form for admission**.
- The entrance exam question paper would cover all aspects of Life Sciences.
- Eligible candidates would be interviewed by a competent interview board on the basis of their choice of research areas indicated in the application form.

Instructions for the Candidates short-listed for interview

- Each candidate must come prepared to present a research proposal in the topic of their choice.
- Candidates would be asked to write a short summary of the research proposal at the time of the interview. Following this, candidates would be asked to present their proposal in a chalk-and-board format.

Key Aspects of our Ph.D. Program

- There would be an orientation session in the form of faculty colloquium, following which students would be offered a list of vacant seats available with individual faculty members in the chosen research group, and supervisor/laboratory would be assigned thereafter.
- Each student during their tenure in the SLS would be assigned to a Research Advisory Committee (RAC).
- For confirmation into the Ph. D. programme, a student has to secure the required qualifying marks. The student, in consultation with the respective Ph.D supervisor, has to submit a synopsis of the research proposal and defend it in an open seminar in the RAC. Upon acceptance by the RAC, the Special Committee of the School would approve the enrollment of the student into the Ph. D. programme.
- There would be a six-monthly assessment of progress of each student by the RAC.

After sufficient amount of research work has been carried out by the student and with due approval of the RAC, each student would make a presentation in an open seminar detailing their research work, and would become eligible to submit their Ph. D. thesis. Although Ph. D. thesis can be submitted upon completion of at least 2 years of research work, normally it is between 2 to 4 years from the date of confirmation for the Ph. D. program.

A student may apply, for consideration by the RAC, for an extension for up to two years to submit the Ph. D. thesis, provided the research work has been examined and recommended by the RAC.

The Ph. D. degree is awarded on the basis of evaluation and recommendation of the thesis by examiners and successful oral defense of the research work by the candidate after fulfilling due requirements as per UGC regulations.

Research Groups in the School of Life Sciences

Research in the School of Life Sciences is organized into five thematic research areas. ***Candidates should indicate their choices for 2 (Two) research areas in the order of their preference in the application form***. Each faculty member is listed alongside one Research Group. However, as faculty members in the School of Life Sciences conduct inter-disciplinary research, they may be conducting research in other areas either independently or jointly with faculty members in the other groups.

Research Group		Topics (For a detailed list, see SLS website www.jnu.ac.in/sls)	Faculty Members conducting research in the area mentioned *Faculty not taking students in 2019-2020
No. Code	Group Name		
I GONH	**Plant Biology; Virology; Biotechnology**	Biology of Plant-virus Interactions; Plant-microbe Interactions; Functional Genomics and Metabolomics of Abiotic stress in Crop Plants; Comparative, Functional and Evolutionary Genomics of Capsicum species	SC, AN, AP, NR*
II GTWH	**Microbiology; Immunology; Infectology, Radiation and Cancer Biology**	Parasitology/Basic biology; Carcinogenesis, Cancer Chemoprevention and Therapeutics; Yeast Molecular and Cell Biology; Microbiology; Cell Signaling and Cancer Biology; Yeast Molecular Genetics in *S. cerevisiae* and the pathogenic fungus *Candida albicans;* Radiation and Cancer therapeutics; Molecular Mechanisms and protein traffic during immune cell effector responses; Cell and molecular biology of the malaria parasite, *Plasmodium falciparum*	AB*, RPS, AKM, AKJ; ASK, NM, SLP*, ABT, NP, ABL
III GTRH	**Genetics; Cell & Molecular Biology; Developmental Biology**	Non-coding RNA, Stem Cells; Chromatin, transcription and Gene Regulation; Developmental biology with emphasis on autophagy in *Dictyostelium;* Epigenetics & Chromatin Remodeling	PCR, KN, SS, RM*
IV GFOH	**Animal Physiology; Neurosciences and Systems Biology**	Neurobiology of Sleep-Waking-REM Sleep; Brain Ageing and its counter strategies; Sleep, Learning and Memory; Neurodegenerative disorders	BNM*, DS, ACM, SKJ
V GFIH	**Biochemistry; Biophysics; Bioinformatics; Nanobiology**	Biochemistry & Redox biology of degenerative diseases; Structural Biology; Structural & Parasite Biology; Biophysical Chemistry; Biophysics, Nanobiotechnology	SKG*, AKS, SGN, SSK, KK

Faculty Members: Prof. Alok Bhattacharya (AB), Prof. Birendra Nath Mallick (BNM), Prof. Shyamal Kumar Goswami (SKG), Prof. Pramod Rath (PCR), Prof. K. Natarajan (KN), Prof. Shweta Saran (SS), Prof. Supriya Chakrabarty (SC), Prof. Ajay Kumar Saxena (AKS), Prof. Deepak Sharma (DS), Prof. Rana Pratap Singh (RPS), Prof. Ashis Kumar Nandi (AKN), Prof. Ashwani Pareek (AP), Prof. Alok Kumar Mondal (AKM), Prof. Atul Kumar Johri (AKJ), Prof. Sneha Sudha Komath (SSK), Prof. S. Gourinath (SGN), Prof. Arun S. Kharat (ASK), Dr. Neelima Mandal (NM), Dr. Sushil Kumar Jha (SKJ), Dr. Rohini Muthuswami (RM), Dr. Amal C. Mandal (ACM), Dr. Sneh Panwar (SLP), Dr. Ashu Tiku (ABT), Dr. Niti Puri (NP), Dr. Nirala Ramchiary (NR), Dr. Karunakar Kar (KK), Dr. Abhisheka Bansal (ABL).

ELIGIBILITY:

M.Sc.

Sl No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1.	School of Life Sciences (SLS)	Life Sciences –SLSM (225)	Bachelor's (B.Sc. or B.Tech or equivalent) in Biological, Physical or Agricultural Sciences or Biotechnology under the 10+2+3 pattern of education with at least 55% marks.

Ph.D.

Sl No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1.	School of Life Sciences (SLS)	Life Sciences – Group-I GONH (892)	Master's degree or equivalent with at least 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed) in Life Sciences/Biological, Physical, Chemical, or Agricultural Sciences/ Biotechnology/Botany/Zoology/Bioinformatics/Genetics/Microbiology /Systems Biology/ any other branch of biological sciences with 55% marks or equivalent. OR Master's degree in the fields given above with 55% marks (or equivalent) and obtained 2 years M.Phil Degree with at least 55% marks (or equivalent) of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil with 55% marks (or equivalent) with additional one year research experience of a recognized University/Institution and one publication Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	**P.G. holders of AYUSH related subjects are also eligible to apply.**
2.		Life Sciences Group-II – GTWH (893)		
3.		Life Sciences Group-III – GTRH (894)		
4.		Life Sciences Group-IV – GFOH (895)		
5.		Life Sciences Group-V – GFIH (896)		

4. SCHOOL OF SOCIAL SCIENCES

(A) PROGRAMMES OF STUDY

The School of Social Sciences is the largest post-graduate School in the University. It has M.A., M.Phil., MPH and admission to Ph.D. programmes in its various Centres. It has no undergraduate programme of its own, even though it offers a few under-graduate courses for students of School of Language, Literature & Culture Studies. The School has thirteen Centres plus one group, in which regular admission takes place in different programmes as detailed in the following table:

Centre, Programme of Study & Field of Study

1. Centre for Economic Studies and Planning
1. Ph.D. in Economic Studies & Planning
2. M.Phil. in Economic Studies & Planning
3. M.A. in Economics

2. Centre for Historical Studies
1. Ph.D. in Historical Studies
   a. Ancient History
   b. Medieval History
   c. Modern History
2. M.Phil. in Historical Studies
   a. Ancient History
   b. Medieval History
   c. Modern History
3. M.A. in History
   a. Ancient History
   b. Medieval History
   c. Modern History

3 Centre for Political Studies
1. Ph.D. in Political Studies
2. M.Phil. in Political Studies
3. M.A. in Political Science

4. Centre for the Study of Regional Development
1. Ph.D. in Regional Development
   a. Economics
   b. Geography
   c. Population Studies
2. M.Phil. in Regional Development
   a. Economics
   b. Geography
   c. Population Studies
3. M.A. in Geography

5. Centre of Social Medicine and Community Health
1. Ph.D.(Social Sciences in Health)
2. M.Phil.(Social Sciences in Health)
3. Masters in Public Health (MPH)

6. Centre for the Study of Social Systems
1. Ph.D. in Social Systems
2. M.Phil. in Social Systems
3. M.A. in Sociology

7. Centre for Studies in Science Policy
1. Ph.D. in Studies in Science Policy
2. M.Phil. in Studies in Science Policy

8. Centre for Philosophy
1. Ph.D. in Philosophy
2. M.Phil. in Philosophy
3. M. A. in Philosophy

9. Zakir Husain Centre for Educational Studies
1. Ph.D.
2. M.Phil. in Educational Studies

10. Centre for Women's Studies
1. Ph.D. in Women's Studies.
2. M.Phil. in Women's Studies.

11. Centre for the Study of Social Exclusion and Inclusive Policy
1. Ph.D. in Social Exclusion and Inclusive Policy
2. M.Phil. in Social Exclusion and Inclusive Policy

12. Centre for Informal Sector and Labour Studies
1. Ph.D. in Informal Sector and Labour Studies
2. M.A. in Development and Labour Studies

13. Centre for Media Studies
1. Ph.D. in Media Studies
2. M.Phil. in Media Studies

14. Group of Adult Education

The Group of Adult Education offers only admission to Ph.D. programme.

The School has a lively academic ambience. The teaching and research programmes in the School have certain innovative elements. While ensuring rigorous discipline- oriented training in each Centre, interest is generated in multi-disciplinary study and research, by allowing students to take courses in other Centres depending upon their aptitude as well as the relevance of the courses to their main disciplines and areas of research interest.

(B) CENTRES OF THE SCHOOL

1. Centre for Economic Studies and Planning

The Centre has established itself as a premier institution for teaching and research in Economics, and has been recognized by the UGC as a Centre for Advanced Studies. The richness of the teaching and research programmes is reflected in the structure of the courses and the research output of faculty and research scholars. The faculty has a distinguished record of publications of books, monographs and articles, as well as outreach through more accessible articles in the popular media.

The Centre strives to ensure that the faculty is easily accessible to the students. The pedagogic emphasis is on analysis, understanding and learning, rather than on memorizing. Students have to write term papers, make presentations, solve problems, appear in open book examinations, etc. as part of a continuous evaluation process.

(a) Admission to the Ph.D. programme

A very limited number of scholars are admitted to the Ph.D. programme.

(b) M.Phil. programme

The M.Phil. programme consists of course work (4 courses to be completed in the first year, accounting for a total of 16 credits) and a dissertation (to be completed in the second year, accounting for 8 credits). One compulsory course must be chosen out of either "Methods of Economic Analysis" or "Statistical and Econometric Methods", while the other three may be chosen from a range of optional courses offered in each semester. The purpose of these courses is to introduce students to analytical issues and the current state of research in the subject, with a view to providing a background for the research required for the dissertation. Course work involves lectures, presentations and writing papers, while students writing their dissertations are required to present their work in progress at different points.

Admission to the programme is on the basis of a Computer Based Test (CBT) and a viva voce examination. Candidates seeking admission to the programme are required to bring a synopsis of their planned research theme, and have some idea of its scope and viability.

(c) M.A. programme:

The focus of the M.A. programme is twofold: (i) to acquaint the students with the analytical foundations of the discipline of economics in alternative theoretical approaches; global and Indian economic history and quantitative methods and (ii) to enable the students to relate their analytical understanding of the subject to the actual experience of economies and to interpret processes of change using a historical perspective. Special emphasis is placed on the study of aspects of development, in the context of the global and the Indian economy. The programme consists of 16 courses taught over four semesters. 8 courses taught in the first year are compulsory while the remaining 8 courses are optional, to be chosen out of a range of courses offered out of the Centre and including 2 that can be chosen from outside the Centre if desired. One of the new experiences for many students comes from an introduction to research through the requirement of writing term papers for several courses.

2. Centre for Historical Studies

Recognised as a Centre for Advanced Studies by the UGC, The Centre for Historical Studies is a premier centre of teaching and research in history within India. It is also one ot the oldest centres in the School of Social Sciences having launched its programme of Post Graduate Studies in 1970 under the guidance of eminent historians like Professors S. Gopal, Romila Thapar, Bipan Chandra and Satish Chandra. A major focus of the Centre continues to be on cutting-edge research that can expand the frontiers of the discipline.

(a) Admission to Ph.D. programme

(b) M.Phil.

The Centre focuses its teaching and research on Ancient, Medieval, Modern and Contemporary History with particular emphasis on the study of economic, social and cultural changes. Students who learn to handle different types of source material are encouraged to work on themes that cut across these chronological divides.

Ancient History: Emphasis is placed on training students in different disciplines: archaeology, text studies, languages, epigraphy, and numismatics. In particular, study and research on the following are encouraged: evolution of social structure, gender and sexuality, political process, agrarian relations, urbanization, trade, religion, philosophy, literary culture, intellectual history, cultural history, historical geography.

Medieval History: Study and Research includes structure and change in medieval Indian Society, state systems, agrarian development, growth of trade and commerce, ideology and culture. Emphasis is also given to the study of two major transitions in Indian History–from ancient to medieval and from medieval to colonial regimes, through a reconstruction of structural continuities and cleavages encompassing the institutional, technological, social, economic and ideological development.

Modern History: Apart from the study of social changes and evolution of agrarian, industrial and class structures, emphasis is placed on the study of colonialism in its economic, political and cultural dimensions, nationalism and the national movement, peasant, trade union and tribal movements, the growth of left-wing parties and groups and developments in the cultural, intellectual and ideological fields.

Focuses on the study of Colonial and contemporary societies. Themes include: colonialism and nationalism, capitalism, state and law; labour and gender history, economic and social history, cultural and intellectual history, legal and environmental history; histories of peasant and tribal societies, histories of castes and communities, histories of domination and subordination; comparative perspectives on Asia, Africa and Europe.

Contemporary History: In this field an effort is made to situate the evolution of contemporary developments, particularly those since World War II, in a long term historical context. Special attention is given to studying the linkages between different aspects of contemporary society viz., the economy, polity, culture, environment, etc., in a holistic manner, i.e. not compartmentalised into the relatively strict boundaries of disciplines such as political science, economics or sociology. Also, an attempt is made to conduct the above studies in a comparative perspective, taking into account the experience of different countries.

The M.Phil. programme of the Centre is intended to introduce the students to research in history through a research methodology course and dissertation. Efforts are made to fill gaps in the student's knowledge of the period or area of history with lectures as well as seminar courses in the first year. The dissertation will have to be submitted on the basis of primary research work undertaken by the student at the end of the two year programme.

At the time of the viva-voce, M.Phil. and Ph.D. candidates should come with 1000 word synopsis of their research proposal (six copies). In the interview, they will be asked questions regarding their proposal, primary sources and some of the key books read by them in their M.A. course.

Candidates applying for M.Phil. and Ph.D. (History) programme are allowed to exercise only one option, i.e., Ancient History; or Medieval History; or Modern Indian History, and the option so exercised must be clearly mentioned in the appropriate column in the Application Form.

(c) M.A. in History

Students entering the Centre are offered a flexible programme while specialising in (1) Ancient History, or (2) Medieval History, or (3) Modern and Contemporary History. Along with courses in their specialisation, students are required to offer a set of common courses designed to survey (a) historiography and historical methods, and (b) broad patterns of socio-economic and political formations and structural changes through a series of three courses covering the Ancient, Medieval and Modern periods. In addition, students will be required to offer at least two courses on histories of countries other than India.

Apart from these compulsory courses, a large part of the progrmme is available as "Open Options", wherein the students may choose courses in areas other than that of one's specialization including (1) other periods of Indian history, and (2) courses in other Centres(with permission of the Faculty) in disciplines relevant to the student's area of interest and specialization. Students are strongly advised to do a language course relevant to their area of specialisation.

With the exception of two seminar courses in the fourth semester of the M.A. Programme, all courses offered by a student are lecture courses. In lecture courses fifty per cent of the evaluation depends on a student's performance in examination or tutorials during a semester, and fifty percent on performance in the end-semester examination. The programme expects a good deal of independent writing by students as part of the curriculum. The seminar courses initiate students into the exciting and painstaking world of research, wherein they are required to present an original paper on the basis of an investigation of primary sources.

The candidates must make their specific choice of specialisation, i.e. (Ancient History or Medieval History or Modern Indian History) with care; it is not possible to change from one stream to another.

Candidates applying for M.A. (History) programme are allowed to exercise only one option, i.e., Ancient History; or Medieval History; or Modern Indian History.

Students applying for the MA entrance examination will be examined on themes related to political, economic and social history, and on aspects of religion and culture pertaining to ancient, medieval and modern periods of Indian history. They will also have the option of answering questions from the history of countries other than India. The student is expected to have some familiarity with the debates on historical issues and periods.

No application for a second M.A. at the Centre for Historical Studies will be entertained from those who have completed an M.A. degree from the same Centre even if the period of specialization is different.

Candidates who qualify are requested to register at the earliest so that they can take full advantage of the tutorial system. Classes normally begin from the end of July. Students are required to check with the CHS office for specific dates. Students are also requested to attend the Orientation Meeting with the Faculty. This will introduce them to the structure of courses, the system of evaluation and the rules and norms of the Centre. The date of this meeting will be put up on the notice board of the Centre by the first week of August.

3. Centre for Political Studies

The Centre is recognized as a premier centre for teaching and research in Political Science. Students who have graduated from the Centre are holding important positions in academic institutions and other walks of public life all over the world. The faculty members have a distinguished record of publications of books and articles in important national and international journals.

The Centre offers two programmes of study- MA. and M.Phil and Ph.D. The teaching and research work of the Centre covers three rubrics of political studies: (1) political philosophy and history of ideas; (2) Indian government, politics and public policy; and (3) comparative politics and international relations.

(a) Admission to Ph.D. programme:

The Centre for Political Studies offers admission to Ph.D. programme in the three core areas of research mentioned above. Those who wish to apply for a research degree are expected to have a strong, detailed and well developed research proposal for a thesis that can be supervised in the Centre. In addition to fulfillment of the entry requirements, they will need to approach the subject with rigor and appropriate knowledge of the field. Candidates must submit a copy of their research proposal along with their application for admission to the Ph.D. programme.

(b) M.Phil. Programme

The M.PhiI students seeking admission to the Centre are required to:

-- qualify the Computer Based Test (CBT);
-- Those who are selected for Viva-Voce are required to bring with them a synopsis of their research theme indicating the scope, plan and feasibility of proposed research at the time of Viva-Voce.

M.Phil. programme at the Centre consists of course work and dissertation. The M.Phil course work comprises of a combination of lectures, presentation of seminar papers and participation in discussions on work in progress. In each case academic work is designed to enable students to understand the link between concepts, theoretical formulations and empirical investigation.

For the M.Phil. programme students are required to take four courses in the first two semesters-two compulsory courses and two optional courses. The two compulsory courses are: 1) Philosophy and Methods in Social Sciences; (2) Approaches, Concepts and Methods of Political Analysis. These courses must be offered in the first semester of the M.Phil. programme.

The compulsory courses are designed to train students in the methods and techniques of research work and to equip them to use political concepts with some degree of theoretical and analytical rigour. The first course introduces students to major debates in the Philosophy of Science and Philosophy of Social Science. It also prepares them to undertake quantitative and qualitative research. The second course exposes students to concepts and approaches that are central to the study of politics. In addition to this, the students can take any two optional courses offered by the Centre, depending upon their research interests and chosen specializations.

(c) M.A. in Political Science

As a degree in Political Science, the M.A. programme of the Centre focuses on the study of Political Theory/ Ideas, Comparative Politics/International Relations, and Indian Politics and Public Policy. The programme is designed to - a) enhance theoretical understanding and develop methodological skills in these three branches of Political Science; (b) relate political processes with social structures and ideas; and (c) interpret institutions, policies and processes in a historical perspective. The Centre places special emphasis on the study of political developments in India and promotes theoretically informed analysis of social and political reality.

The M.A. programme consists of 16 courses, which are taught over four semesters. Of these 10 are compulsory and the remaining six are optional courses. Of the six optional courses, at least four should be chosen from a wide range of optional courses offered by the Centre and two may be from outside the Centre in the two years M.A. programme.

All compulsory courses offered by the students are lecture-based courses. However, they require students to write tutorials/term papers. In each case, fifty percent of the grade depends on the student's performance in midterm assignments and the remaining fifty percent is awarded on the basis of their performance in the end semester examination.

4. Centre for the Study of Regional Development

The Centre for the Study of Regional Development came into existence in the year 1971 with the mandate of evolving an inter-disciplinary teaching and research programs with a focus on the issues of regional development in India. This is one of the largest Centres in the School of Social Sciences, offering postgraduate degree programs in Geography, MPhil and PhD research programs on diverse issues of regional development within the interdisciplinary framework.

(a) Admission to Ph.D. Programme

A limited number of scholars are admitted to the PhD Programme

(b) M. Phil Programme

The Centre for the Study of Regional Development offers the M.Phil programs in an interdisciplinary framework within the broad ambit of regional development and planning. While students from geography, economics, population studies, and statistics are admitted, the program is also open to students from any other related disciplines. The MPhil program covers diverse streams of research which contributes towards understanding of the Indian regional structure and the spatial dynamics of development processes.

The teaching and research in the MPhil and PhD programs have been developed to study the processes of regional development in all its complexities. Since its formation in 1971, the endeavour of the Centre has been to understand the plural and multi-layered character of the processes of regional development and to develop appropriate paradigms and analytical tools. The interdisciplinary course work in the MPhil and PhD programs cover all possible dimensions that help meet these objectives. The courses offered at the M. Phil and PhD levels are taught by faculty members from Geography, Economics and Population Studies and students from all the three disciplines are advised to take these courses.

The courses that are offered include research and quantitative techniques, applied statistics and econometrics, computer - aided cartography, data management and GIS ; demographic methods and applications; census, vital statistics and sources of demographic data; along with theoretical and applied courses that deal with - agrarian issues; rural development; political economy of agrarian change; natural resource base and its implications for regional development; distribution and utilization of natural resources; geomorphology and climatology; application of GIS and remote sensing in resource management; natural

resource base, population, environment and sustainable development; climate change; socio-economic aspects of fertility, mortality and morbidity; settlement and human ecology; population theory and policy; gender and human development; processes of urbanization and migration; labour and employment; political economy of regional development; theories of regional growth; industrial location and location theories; infrastructure and its financing; geographies of trade; socio cultural dimensions of regionalization with special reference to ethnicity, caste, gender, linguistic and other identities; social infrastructure and development with special focus on health and education; health economics, development experience and theory, and dynamics of regional policy. The faculty has diverse research interests covering range of themes that relate with spatial, social, economic and environmental vulnerabilities and marginalities; issues of climate change that address resources, livelihoods and institutions; issues related with demographic changes with particular focus on ageing and demographic dividend; issues that explore processes of migration, urbanization, employment, deprivation and poverty; trade, transportation and mobility issues, social development and outcomes; geo-spatial applications in regional development; and globalisation and spatial differentiation. Detailed research interest of the faculty is available at www.jnu.ac.in. The M. Phil and Ph. D students seeking admission to the Centre, at the time of viva voce, are required to bring with them synopsis on their proposed research theme indicating the scope, plan, methodology and feasibility of their research.

(c) M.A. in Geography

The focus of the programme is on the contemporary approaches of Geography with special reference to issues and challenges associated with the pattern of regional development in India. The curriculum includes theoretical, topical and methodological courses. The courses cover geographical thought, human ecology, regional development theory, geomorphology, climatology, hydrology, economic geography, social geography, population and settlement geography. All the topical courses have emphasis on India. Issues on regional development are dealt with in courses on regional geography of India, meso-regional studies, and levels of regional development in India. The methodological courses cover quantitative techniques, computer assisted cartography, GIS and remote sensing. As part of the M.A. programme the centre also runs two compulsory courses on field and survey methods i.e. physical and socio-economic, constituting a vital mode of teaching in the discipline. The students are required to participate in the field work which is usually organised in the challenging terrain and rural settings during the summer and winter vacation. The fourth and the last semester offer diverse specialization streams and set of optional courses to the students to choose from. Students can opt for any one of the following specialization streams:

a) Physical Resources and Geomorphology
b) Population and Settlement Geography
c) Regional Development and Planning
d) Social Geography
e) Agricultural Geography
f) Remote Sensing and GIS
g) Advanced Techniques in Geography

5. Centre of Social Medicine & Community Health

The Centre of Social Medicine and Community Health (CSMCH) was established in order to shape and provide academic content to the discipline of public health, making it relevant to the situation in India. It was recognised that the discipline of Preventive and Social Medicine needed a paradigm shift that could only be provided if this Centre was set up outside the confines of a medical college.

Over the past 30 years, the Centre has acquired vast experience in evolving problem-oriented interdisciplinary academic programmes in public health, in addition to building an active research base. At the same time, efforts have also been made at establishing institutional links with various academic, research, policy-making and non-governmental organisations.

Under the overall objective of creating academic programmes for making health services meaningful to the people of the country, the Centre has set out as its objective the task of understanding the health problems and health needs of the Indian people. The endeavour is to understand how health problems are shaped by socio-economic factors and to examine the social structure itself, to delineate the structural constraints that contour the scope of health interventions. The task requires an inter-disciplinary approach involving disciplines such as sociology, anthropology, psychology, economics, history, political science, demography, statistics and public administration, apart from the disciplines that are traditionally included in public health. It was for this reason that the Centre was located in the School of Social Sciences. Epidemiology, health service structure, health programme design, health systems research and health policy analysis are important foci for all the programmes.

The Centre offers the following academic programmes:

1. M.Phil and Ph.D. in Social Sciences in Health.
2. Master of Public Health (M.P.H.)/ in Public Health.

Both M.Phil and MPH are spread over four semesters (2 years). M.Phil students are required to undertake two semesters of course work followed by a dissertation. The MPH students are required to undertake three semesters of course work. They are additionally required to conduct a field study during the inter semester breaks and to be completed in the fourth semester. The successful completion of the prescribed course work and dissertation/field study will lead to the award of M.Phil. or M.P.H. degree. In addition to the above programmes, the Centre also admits candidates to the Ph.D. programme directly as per criteria mentioned in the eligibility coloumn. The Centre may prescribe courses to the candidates admitted under the direct Ph.D. programme.

Courses in public health cover areas such as organization of health programmes, epidemiology, nutrition, maternal and child health, communicable diseases, family planning, research methodology, operations research etc. Courses in social sciences cover concepts perspectives and methods relevant for public health within an interdisciplinary perspective.

During the second semester students are offered a number of optional courses. They also get an opportunity to familiarise themselves with the current issues in public health through an intensive journal club in the second semester. All students are exposed to group field work in both urban and rural areas as a part of their course work.

6. Centre for the Study of Social Systems

The Centre is recognized as a premier centre for teaching and research in Sociology. This Centre has been ranked among the top 60 best departments in the world for sociology in 2014-15 by QS World Rankings. Students who have graduated from the Centre have distinguished themselves in all walks of public life. Our alumni are present in most leading institutions of higher education and research nationally and globally. Our faculty members have made their mark in the broader world of social sciences with a distinctive intellectual orientation and an illustrious record of publications.

Since its inception in 1971, the Centre has developed a distinctive approach to sociology both in terms of a plurality of theoretical and methodological orientations as well as in a variety of substantive fields of empirical enquiry. Equal focus is therefore given on the teaching of qualitative and quantitative methods on the one hand and on philosophy of methods on the other. From its very inception both teaching and research in our Centre have shown an engagement with pressing questions of development and marginalization, social movement and social justice. The CSSS is recognized as a Centre for Advanced Studies in the discipline of sociology by the UGC.

The Centre offers two programmes of study-MA, M.Phil and Ph.D. The teaching and research work of the Centre covers three aspects of sociological studies:(i) Theory and Social Thought; (ii) Methodological Orientation and Methods of Social Research; (iii) Substantive studies on different dimensions of social life. The Interdisciplinary orientation of our teaching is reflected in the structure as well as contents of the courses offered at both M.A and M.Phil Levels.

(a) M.A in Sociology

Teaching and research programmes of the Centre for MA are organized around studies in theories and methods, on the one hand, and analysis of structures and processes of social systems on the other. Courses at the M.A level seek to combine theoretical and methodological concerns with the study of the substantive issues relating to Indian society. Of the 16 courses offered to the M.A students, 5 are optional courses.

All courses offered to the students are lecture-based courses. However, they require students to write tutorials/term papers. In each case, fifty percent of the grades depend on the student's performance in mid-term assignments/tests and the remaining fifty percent is awarded on the basis of their performance in the end semester examination.

(b) M.Phil

The M.Phil programme at the Centre consists of course work and dissertation. It carries a total of 24 credits-16 credits for the course work and 8 credits for the Dissertation. The Course work consists of 2 compulsory papers of 4 credits each and two optional papers, also of 4 credits each. The compulsory courses are on Theoretical Orientations and on Methods of Social Research designed to expose students to concepts and approaches that are central to sociological studies. The aim is to equip the students to use these concepts and approaches with some analytical rigour and to train students in diverse techniques of research as well as in the methodological assumptions upon which they rest.

(c) Admission to Ph.D Programme

Those who wish to apply for a research degree will have to submit a strong, detailed and well-developed proposal for a thesis that can be supervised in CSSS.

7. Centre for Studies in Science Policy

Studies in Science Policy is an interdisciplinary field drawing upon a range of social, natural and applied sciences, engineering, and technology disciplines to enhance our understanding of the interactions between science, technology and society. The primary focus of teaching and research at the Centre is on areas relating to science and technology policy analysis; sociological and historical perspectives in science and technology; economics of technological change, sustainability, innovation studies, technology futures analysis, gender relations, intellectual property rights (IPR), scientometrics, environment and agro-foods. Please visit: https://www.jnu.ac.in/sss/cssp-programme_of_study

The Centre is open to students for admission from a variety of social, natural and applied sciences, technology, engineering, medicine, law and management disciplines. The Centre offers M.Phil and Ph.D. programmes.

a) Admission to Ph.D. Programme

Scholars seeking admission to Ph.D. programme are required to bring with them a research proposal of 1800 to 2000 words at the time of interview. The research proposal is expected to indicate a research, theme, a statement of the research problem, objectives, research questions, methodology and a brief review of literature along with a list of references.

b) M.Phil. Programme

The M.Phil. Programme in Studies in Science Policy requires completion of 24 credits in four semesters. The course work carries 16 credits and dissertation of 8 credits. The course work consists of 4 courses (4 credits each): three compulsory and one optional.

8. Centre for Philosophy

The Centre was set up in 1999 in the School of Social Sciences. For a long time, the School and the University had felt the urgent need for an independent Centre for Philosophy. This was driven by the understanding that Philosophy must have a central place in an institution of higher learning and research. Further, that an engagement with Philosophy would strengthen the ongoing research in the various fields of knowledge in the University. It was this concern that led to the creation of the Centre for Philosophy in the School of Social Sciences.

The academic programmes of the Centre are intended to provide students with a deeper and more rigorous foundation in the discipline in Philosophy while simultaneously encouraging an engagement with substantive issues and contemporary concerns. The teaching and research work is designed to train students to read and engage critically with original philosophical texts, both classical and contemporary, with a high degree of methodological awareness; and to reflect systematically on concepts and problems central to Philosophy. The primary purpose of this is to create a body of scholarly work that can yield newer and richer reflections on philosophical problems and debates. The Centre would like to encourage research students to study issues and concerns in Philosophy cutting across diverse traditions and narrow disciplinary boundaries. It would also like students to move to a problem-oriented study where philosophical reflection addresses concerns of present day society and polity.

The Centre offers admission to Ph.D. programme, M.Phil. and M.A. programme.

(i) **Admission to Ph.D. Programme:** The Centre welcomes applications in major areas of Philosophy, which is of interest to the faculty members of the Centre, such as, Ethics, Epistemology, Metaphysics, Social and Political Philosophy, Philosophies of Language, Mind and Action, Philosophy of Social Sciences, Indian Philosophy and Comparative Philosophy.

Applicants for the programme are expected to submit a well articulated research proposal (between 2000-2500 words) for a doctoral theses that can be supervised in the Centre. The candidates are required to approach the area of their research with adequate understanding of the contemporary discussions in the field.

(ii) **M.Phil:** The M.Phil. programame carries a total of 24 credits - 16 credits for the course work and 8 credits for the Dissertation. The course work consists of 2 compulsory papers of 4 credits each and 2 optional papers, also of 4 credits each. Every student is required to take two compulsory courses in the first semester of the programme, and they must successfully complete the entire course work in the first year of admission.

The two compulsory courses are: (i) Concepts in Philosophy, and (ii) Philosophical Methods. The aim of these courses is to critically engage with some of the core concepts of philosophy and to systematically introduce students to methods of philosophical enquiry by an in depth study of identified essential texts in Philosophy. In addition to this, the Centre offers a range of optional papers in the fields of Ethics and Moral Philosophy, Epistemology and Metaphysics, Philosophy of Action, Philosophy of Language, Philosophy of Culture, Philosophy of Mind and Consciousness, Philosophy of Social Science Studies, Analytical Philosophy, and Phenomenology and Existentialism. The choice of the two optional courses will be determined by the research interest and field of specialization selected by the student.

The course work for M.Phil. will consist of a combination of lectures, preparation and presentations of seminar papers, and participation in discussions on work in progress.

The candidate at the time of viva-voce is expected to bring a research proposal of about 1000-1500 words.

(iii) **M.A. programme:** As a degree in Philosophy, the M.A. Programme of the Center focuses on the study of the distinctive character of philosophical inquiry, debates in metaphysics, epistemology, logic and ethics. Since philosophical inquiry is not isolated but rooted in the basic questions of other academic disciplines and social life, students will be encouraged to comprehend the interdisciplinary and foundational character of philosophical studies. They will also be trained to identify and appreciate the sources of philosophical questions and puzzles in our reflections on language, thought, knowledge and values.

The programme will review and attempt to overcome the received binaries and dichotomies such as study of philosophy in terms of geographical and civilizational divisions, intra-disciplinary segregations like analytic philosophy and phenomenology, metaphysics and epistemology, moral and social philosophy, etc.

The programme aims to develop philosophical aptitude and analytical skills among the students through a rigorous training. An intensive study of philosophical texts for a critical appraisal of concepts and arguments used by philosophers, and writing of philosophical essays will be an integral part of the programme.

The two year M.A Programme consists of 16 courses with 10 compulsory and 06 Optional courses of 04 credits each. These are Philosophical Studies: Problems and Perspectives; Epistemology and Metaphysics: Issues and Problems of Knowing and Being; Moral and Social Philosophy; Logic and Scientific Methods; Philosophy of Social Sciences; Philosophy of Language; Readings in 20th Century Indian Philosophy, Readings in Analytic Philosophy and Phenomenology; Seminar Course: Reading a Philosopher and Seminar Course: Project on a Philosophical Theme. Out of the 06 optional courses at least 04 should be chosen from the courses offered by the Centre.

All courses are lecture and seminar based. Students are required to write term papers/ tutorial assignments and give seminar presentations in each course. 50% of the grade depends on the student's performance in mid semester assignments and the remaining 50% is awarded on the basis of their performance in the end semester examination.

9. Zakir Husain Centre for Educational Studies

The Centre offers a programme of study leading to the degree of M.Phil. in Educational Studies and Ph.D. in Sociology of Education, Social Psychology of Education, History of Education and Economics of Education. The Centre focuses on the study of education from social science perspectives. Its teaching and research programmes are structured around social science disciplines of Economics, History, Sociology and Psychology. Accordingly, there are four streams of research and the curriculum for the M.Phil. programme is geared around them.

Economics of Education: Students are introduced to the economic issues in education both from the perspectives of theory as well as applied research for handling and analyzing of problems related to human resource development. Wider issues of education from the development economics perspective receive special attention. Other topics include investment decisions in education, financing of education, applied economics of education, social choice dilemmas, education and labour market, educational inequality, educational policy issues, migration of knowledge, workers, trade in education services and WTO, etc.

History of Education: The research programme in the history of education at the Centre has evolved into three distinct areas. The first one deals with the growth of modern schools, access to these schools in terms of gender and caste, the emergence of the system of state and private funding, curriculum, text books and educational debates during British rule in India. The second dimension has to do with the evolution of the system of higher education, again from the eve of colonialism into contemporary times. The focus is on the social history of higher education, with an emphasis on issues of the globalization and naturalization of models of the university, and the transformation of knowledge ideals in changing political and socio-economic contexts. The attempt is to study historically the impact of the globalization of the university, on the one hand and the formation of academic disciplines within the university and research institutes on the other. And finally, a third area has to do with the history of science and technology in India, where in addition to looking at the philosophical, and social dimensions of the history of science education, research also focuses upon contexts, policies, and strategies of science communication and popularization.

Social Psychology of Education: The co-constitutive nature of cultural-historical processes and the psychological phenomena is problematized. The existing theoretical traditions within Psychology and their transformative roles in bringing about changes in the educational processes are examined. Areas such as cultural roots of learning with specific emphasis on language and mathematics learning, everyday and scientific cognition, personality, motivation, social cognition, inter-group dynamics and identity processes, etc. and their implications for curricular and pedagogic practices in a multicultural-multilingual society are analysed.

Sociology of Education: Special emphasis is placed on issues relating to diversity, equity and social justice, structure and processes of schooling and higher education, social and educational policy, social impact of globalization and privatization of the educational systems, and other contemporary concerns of education in the 'developing' world. Basic concepts and approaches in sociology, linkages of education with socialization, stratification, social change and mobility, social and educational inequality, etc. are some of the areas discussed from multiple theoretical standpoints in the sociology of education. Classroom teaching focuses on a comparative analysis of diverse social contexts within India and also other countries.

The scheme of teaching is as follows:

a. A compulsory core course in Research Methods in Social Sciences as applied to Educational Studies, focusing on quantitative and qualitative techniques of data collection.

b. A compulsory course on Education in India: Social Science Perspectives focusing on various dimensions of the Indian education system.

c. Introductory and advanced level courses in Economics of Education, Sociology of Education, History of Education and Social Psychology of Education are offered in the first and second semesters.

d. A basket of optional courses is also offered in the second semester and students have to opt for one of them. Courses include Economic Policy in Education; Educational Thought in Modern India; Changing Conceptions of the Modern University; Education and Diversity in Multicultural Societies; Culture, Cognition and Mathematics, International Migration and Skilled Diasporas; Multilingualism and Education; Cultural Psychology; and Gender and Education.

e. A dissertation on a selected theme in one's specialization/stream is to be completed over the third and the fourth semesters.

f. Candidates who clear the entrance examination for M.Phil. programme should bring a brief research proposal of 1500 words at the time of the Viva-Voce. Those applying for Ph.D. should send a detailed research proposal of at least 3500 words along with the application, indicating the scope of the problem chosen, preliminary review of literature, perspectives (theoretical and empirical) and methodology seen as relevant to the proposed study.

The UGC has accorded the Centre the status of Centre for Advanced Study (CAS). Earlier, the Centre was also accorded Department of Special Assistance (DSA) and Assistance for Strengthening of Infrastructure for Humanities and Social Sciences (ASIHSS) by the UGC.

10. Centre for Women's Studies

The Centre undertakes both innovative, and intensive, interdisciplinary research and teaching, besides providing the space for creating a vibrant community of feminist academics, students, activists and artists concerned with issues of gender, and wider issues of power in society. The Centre regularly organizes lectures, seminars, workshops and film screenings on a wide range of subjects.

Currently, the Centre offers a Ph.D and M.Phil. in Women's Studies. In addition, the Centre also offers Optional courses at the Master's level that are open to students not only in Social Sciences but also to those enrolled in other Schools and Centres of the University. In these, students learn to examine the historical, social, political, economic, and cultural dimensions of gender, while gaining a more complex understanding of the construction of gender and its intersection with other categories of difference, power, and inequality.

(a) Admission to Ph.D. programme

The Centre welcomes applications in all subjects of Social Sciences & Humanities. Ph.D. scholars will be required to complete course work in the first year after admission. Ph.D. candidates seeking admission to the Programme are required to submit a synopsis of roughly 1000 words on a research theme of their interest, indicating its scope, statement of the problem, methods and a preliminary review of literature.

b) M.Phil. STRUCTURE:-

i) 16 credits in the first year in which period the student will do course work and another 10 credits in the second year, when she/he will write the dissertation in a chosen topic in the field. Therefore, in total the M.Phil. work will be 26 credits.

ii) Each Student will do two compulsory course. These are "Feminist Theory and Social Research" and "Research Methods in Women's Studies". This is common for all students. In addition, they have a choice currently of eight papers of Four credits each, from which they may choose two. These are in the fields of Labour, Work, Politics, Religion, Violence, Ethnography, Sexuality, Visuality, Caste and Performance.

11. Centre for the Study of Social Exclusion and Inclusive Policy:

The Centre for the Study of Social Exclusion and Inclusive Policy was created as a centre to document and analyse Social Exclusion and Inclusive Policy in Indian society. The objective is to use theories and concepts from several disciplines to discover, document and analyze various sites and modes of Social Exclusion. The idea is not merely to study the structures and processes of exclusion but also to discover the ways for deconstruction of these structures and identify the unique processes of inclusion and empowerment. The focus is primarily to understand theories and concepts of social exclusion in reference to caste-class, gender, disability, tribe, religion etc. The Centre brings together the comparative and interdisciplinary framework necessary for a teaching and research programme that would study social exclusion and Inclusion given its diverse structural roots and varied forms and manifestations in different social and economic spheres. The thrust of the centre is to study various sites of Social exclusion; Scheduled castes, Scheduled tribes, minorities, disability, old age, gender, queer, child labor, migration, diaspora etc.
The Centre also offers optional courses (MA and B.A) on a number of thematic issues such as Histories from the Margins, Agrarian Change and Exclusions; Minorities, Political Economy of Discrimination, Intersectionality of caste class and gender, Dalits and Exclusion, Processes of Marginalization's, Understanding key concepts of inclusion and Policies for Inclusion, Philosophy of Affirmative Action, Development and Exclusion, globalization and issues of exclusion and inclusion, contemporary debates on exclusion and inclusion etc.
Students from all social science disciplines can apply for admission to the Centre.

The Centre offers the following courses:

a) Admission to Ph.D. programme

The Centre offers admission to its Ph.D. programme. Candidates shall have to appear for an entrance examination followed by an interview. Candidates seeking admission to the Ph.D. programme should demonstrate their academic capability by preparing a well-developed research proposal of roughly 2000 words, drawing out a specific theme, statement of the problem, literature review and relevant research methodology.

b) M.Phil programme

Admission to the M.Phil. programme is based upon Computer Based Test (CBT) and viva-voce. The candidates short-listed after the Computer Based Test (CBT) are expected to bring a research proposal of about 1000-1500 words at the time of viva-voce.

The M.Phil programme carries a total of 32 credits (16 credits for course work and 16 credits for the Dissertation) and has to be completed in a maximum of four semesters. The course work consists of compulsory and optional papers and consists of a combination of lectures, preparation and presentation of seminar papers, and participation in discussions on work in progress. Each student will do two core courses; i) Discrimination and Exclusion: Theoretical and Conceptual Framework ii) Research Methods for the study of Discrimination and Exclusion. The students are required to finish the entire course - work in the first year of the M.Phil.

12. Centre for Informal Sector and Labour Studies

Centre for Informal Sector and Labour Studies is one of the newly created Centres with the objective of studying the informal sector which includes non-agricultural workers, agricultural labourers, peasants, fishermen, craftsmen, street vendors, domestic work etc. Since the overwhelming bulk of the working people are located in the informal sector which is also termed as the "Unorganized Sector", the focus of teaching and research in the Centre is on labour processes and working conditions in the unorganised sector in the contemporary world, particularly the developing countries. The Centre offers the following programmes:

(i) Admission to Ph.D. Programme

The Ph.D programme focuses on interdisciplinary research on Indian informal sector and labour scenario. The programme encourages to work on themes such as–Political Economy of State, Development and Underdevelopment in the contemporary world, Labour History, Globalization and the changing forms of Labour, Global Production Systems, Informalisation in various sectors, Labour Market, Forms of Employment, Poverty, Migration, Urbanisation, Labour Rights and Regulation, Workers' Organizations and Politics, Trade Unions, Resistance, Peasant Production, Non-farm Economy, Agrarian Change and Rural Development, Political Economy of Care, Discrimination on the basis of Caste, Gender and Community, Common Property Resources, Public Policies in the Unorganised Sector, and Sustainable Development. The objective of the programme is to enable students to understand the linkages between the formal and the informal sectors and between theory and empirical investigations in research work.

(ii) M.A. in Development and Labour Studies

MA in Development and Labour Studies focuses on contemporary themes related to the informal sector and labour. Its main objectives are – (i) providing an interdisciplinary perspective on the contemporary themes and issues on informality and labour drawing from the disciplines of history, economics, sociology and political science, (ii) providing basic theoretical and empirical training to undertake in depth analysis of the structural changes and public policy challenges that confront the labour in the informal sector in the contemporary world.

The M.A. programme consists of sixteen courses which are taught over four semesters. Of these eight compulsory courses are spread over the first two semesters. These compulsory courses cover broad thematic areas which provide students with an overview of the subject and basic theoretical knowledge of the structural factors that impact on labour processes and the growing informalization. Eight Optional Courses will be offered in the third and the fourth semesters. Out of the eight Optional Courses, students will have to do seven Lecture Courses (up to a maximum of three can be chosen from outside the Centre) and one Seminar Course in the third and fourth semesters. The optional courses will focus on specific themes and problems to allow students to undertake in-depth analysis of recent debates and contemporary areas of research in labour processes and unorganised sector. Seminar Courses will focus on introducing students to original research in various themes of informal sector and labour.

13. Centre for Media Studies

The Centre for Media Studies (CMS) is the academic location for critical understanding about media and its engagement with society, culture, polity and economy. The Centre's research concerns include the history of media, its functioning in different forms, i.e., electronic, visual, print, etc., in diverse socio-cultural and political milieu. The thematic areas of research and teaching in the Centre include:

1. Histories of media
2. Political economy of Media
3. Media and issues of Language
4. Media, democracy, and dimensions of rights and justice
5. Violence and media
6. Media, technologies and cultural industries
7. Media and the nature of connectivities
8. Visual culture

(a) Admission to PhD programme: The Centre for Media studies offers a PhD programme in the broad areas mentioned above. Candidates are required to submit a synopsis of about 1000-1500 words on a research theme which they intend to study.

(b) M.Phil

Students admitted into the programme will study four courses in the first two semesters of which two will be compulsory courses to be studied by all students. The two compulsory courses are: 1) Media Research Methods and (2) Media Theory. Students can choose two optional courses from a basket of courses offered by the Centre according to their research interests and specialization. The MPhil programme carries a total of 24 credits of which 16 credits are for the course work that the student will do in the first year, and 8 credits for the Dissertation, which will be written in the following year.

The course work for MPhil will have a combination of lectures, tutorials, preparation and presentation of seminar papers, book reviews, class room tests and participation in discussions on work in progress.

For admission in the MPhil programme students are required to appear in a Computer Based Test (CBT), the dates of which will be notified on the University website. Students will be shortlisted for a viva-voce on the basis of their scores in the Computer Based Test (CBT), where they will be expected to bring a research proposal of about 1000-1500 words.

14. Group of Adult Education

The Group of Adult Education (GAE) conducts research, information and documentation, teaching and outreach programmes in the area of both the formal and non-formal education. The main thrust areas include 'literacy studies' (e.g. basic literacy, adult literacy, digital literacy, financial literacy, consumer literacy, legal literacy, environmental literacy, health literacy, family literacy, functional literacy, media literacy, and citizenship literacy), adult education, lifelong learning, community education, development education, citizenship education, vocational, education, sustainable livelihoods education, social entrepreneurship education and continuing education in India and abroad. The GAE also focuses on problems of contemporary youth and their lifestyles and the impact of globalization and market practices on the local communities and society with special emphasis on consumer rights and their public awareness. By linking education research, policy and practice in all these areas, GAE makes a special contribution to enhancing access to learning and improving professionalism in social and educational sectors.

Presently, the GAE has faculty members from the disciplines of education, economics, history, political science and sociology. It offers optional course (including one on research methodology) which are credited by students across other Centers and School in the University.

The Group is offering PhD programme for students of social sciences, humanities, arts and media studies and for professionals engaged in development and social sectors.

ELIGIBILITY:

Master of Arts

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Economics studies and Planning (CESP)	Economics-ECOM (216)	Bachelor's degree in any discipline under 10+2+3 pattern of education with at least 50% marks. Knowledge of Mathematics at 10+2 level is expected and will be tested for in the Entrance Examination.
2	Centre for Historical Studies (CHS)	Modern History-MODM (217)	Bachelor's degree in any discipline under 10+2+3 pattern of education with at least 50% marks.
3		Medieval History – MEDM (218)	
4		Ancient History – ANCM (219)	
5	Centre for Political Studies (CPS)	Political Science – POLM (220)	Bachelor's degree under 10+2+3 pattern of education with at least 50% marks in Social sciences and 55% marks for those who have Bachelor's Degree in science and technology disciplines.
6	Centre for the Study of Regional Development (CSRD)	Geography-GEOM (221)	Bachelor's degree in any discipline under 10+2+3 pattern of education with at least 45% marks.
7	Centre for the Study of Social Systems (CSSS)	Sociology- SOCM (222)	Bachelor's degree in any discipline under 10+2+3 pattern of education with at least 45% marks.
8	Centre for Philosophy (CP)	Philosophy-SPHM (229)	Bachelor's degree under 10+2+3 pattern of education with at least 50% marks in Social Sciences and Humanities and 55% marks in Science & Technology disciplines.
9	Centre for Informal Sector and Labour Studies (CIS&LS)	Development and Labour Studies-DLSM (231)	Bachelor's degree in any discipline under 10+2+3 pattern of education with at least 50% marks.

M.Phil

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	Centre for Economics studies and Planning (CESP)	Economics Studies & Planning - ECOP (136)	Masters degree in the subject concerned with at least 55% marks; or Master's degree in allied subjects or Humanities with at least 55% marks; or Masters degree in Natural Sciences with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016. **Main:** Economics **Allied: History**, Political Science and Sociology, Mathematics and Statistics.	**P.G. holders of AYUSH related subjects are also eligible to apply.**
2	Centre for Historical Studies (CHS)	Modern History- MODP (137)	Masters degree in the subject concerned with at least 55% marks; or Master's degree in allied subjects or Humanities with at least 55% marks; or Masters degree in Natural Sciences with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016. **Main:** History **Allied subjects** - Political Science, Economics, Sociology and Geography.	
3		Medieval History – MEDP (138)		
4		Ancient History – ANCP (139)		
5	Centre for Political Studies (CPS)	Political Studies – POLP (140)	Masters degree in the subject concerned with at least 55% marks; or Master's degree in allied subjects or Humanities with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016. **Main:** Political Science **Allied Subjects** - All other Social Science Subjects.	
6	Centre for the Study of Regional Development (CSRD)	Population Studies- POPP (141)	Masters degree in the subject concerned with at least 55% marks; or Master's degree in allied subjects or Humanities with at least 55% marks; or Masters degree in Natural Sciences with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016. **Main**: Geography, Population Studies and Economics **Allied Subjects** - All other Social Science Subjects.	
7		Geography- GEOP (142)		
8		Economics- ECNP (143)		
9	Centre of Social Medicine and Community Health (CSMCH)	Social Sciences in Health- CSMP (144)	Masters degree in social sciences or Humanities with at least 55% marks or Master Degree in Sciences and Technology with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016. **Main: Social Sciences/Humanities subjects –** Sociology, Psychology, Anthropology, Economics, Political Science, History, Social Work, Geography, Population Studies, Public Administration, Communication, Humanities, Management and Rural Development. **Science and Technology Subjects –** Applied Health Sciences and Technology, Nutrition.	
10	Centre for the Study of Social Systems (CSSS)	Social Systems - SOCP (146)	Masters degree in the subject concerned with at least 55% marks; or Master's degree in allied subjects or Humanities with at least 55% marks; or Masters degree in Natural Sciences with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016. Main: Sociology **Allied Subjects –** Social Anthropology, Political Science, Economics, Psychology, History, Public Administration, Geography, Philosophy, Socio-Linguistics and any other Social Science discipline	
11	Zakir Husain Centre for Educational Studies (ZHCES)	Educational Studies- EDUP (147)	Masters degree in the subject concerned with at least 55% marks; or Master's degree in allied subjects or Humanities with at least 55% marks; or Masters degree in Natural Sciences with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016. **Main:** Economics, History, Phycology, and Sociology.	

			Allied Subjects: (i) Education-this should be two year master programme and not M.Ed. which is only a nine months/one year programme. Political Science, Philosophy, Social Anthropology, Geography and other Social Science (including Social Linguistics, Child Development and Social work). (ii) other science and Humanities.	
12	Centre for Studies in Science Policy (CSSP)	Studies in Science Policy- SSPP (148)	Master's degree in Social Science or Humanities or Law or Management with 55% marks or Master's degree in Natural Sciences or Bachelor's degree in Engineering or Technology or Medicine with 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016. **Main:** Social Sciences and Humanities. **Allied Subjects** – Law and Management Science subjects – Natural Sciences, Engineering, Technology and Medicine	
13	Centre for Philosophy (CP)	Philosophy- SPHP (149)	Masters degree in the subject concerned with at least 55% marks; or Master's degree in allied subjects or Humanities with at least 55% marks; or Masters degree in Natural Sciences with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016. **Main:** Philosophy **Allied Subjects –** Social Sciences, Humanities, Natural Sciences & Technology	
14	Centre for Women Studies (CWS)	Women Studies – WSPP (176)	Master's degree in Social Science or Humanities or Law with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016. **Main:** All Social Sciences & Humanities subjects including Political Science, History, Sociology, Anthropology, Economics, Geography, Education, Psychology, Law, Literature, Arts & Aesthetics, Philosophy.	
15	Centre for the Study of Social Exclusion and Inclusive Policy	Social Exclusion and Inclusive Policy - SEIP (152)	Masters degree in main and/or in allied subjects with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016. **Main:** Political Science, History, Sociology, Anthropology, Economics, Geography, Education, Law **Allied Subjects:** Gender Studies, Dalit, Tribal Studies, Cultural Studies and Development Studies	
16	Centre for Media Studies (CMS)	Media Studies- CMSP (173)	Masters degree in Social Sciences or Humanities or Law or Cultural Studies or Media Studies with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016. **Main Subject:** All social sciences and humanities subjects including Media Studies, Cultural Studies, Women's Studies, Political Science, History, Sociology, Philosophy, Anthropology, Economics, Law, Literature, Arts and Aesthetics	

MPH

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre of Social Medicine and Community Health (CSMCH)	Master of Public Health - MPHT (145)	MBBS degree with at least 55% marks or M.Sc. Degree in nursing with at least 55% marks. **Main Subject –** Medicine and Nursing (Allopathic) **Allied Subjects** - None

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	Group of Adult Education (GAE)	Adult Education-GAEH (883)	Only those candidates shall be considered for admission to the Ph. D. Programme who have — (a) obtained 2 years M.Phil. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) is essential or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/ Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech. OR (b) Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	In addition to (a) or (b) those candidates who have two years (full-time) work/professional experience in the area of NGO sector, development and social sectors, governmental sector, main 'literacy studies' or work areas (such as basic literacy, adult literacy, consumer literacy, legal literacy, environmental literacy, health literacy, media literacy, citizenship literacy) with research publication(s) comparable to M.Phil. standard are also eligible for the PhD programme. In this case, such candidates must have obtained their Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). **P.G. holders of AYUSH related subjects are also eligible to apply.**
2	Centre for Informal Sector & Labour Studies (CISL)	Informal Sector & Labour Studies- ISLH (884)		In addition to (a) or (b) students with specialization in the areas of informal sector and labour studies. Students from all disciplines in Social Sciences and Humanities can apply and should have 55% marks or equivalent in Master's degree. **P.G. holders of AYUSH related subjects are also eligible to apply.**
3	Centre for Economics studies and Planning (CESP)	Economics Studies & Planning - ECOH (865)		**P.G. holders of AYUSH related subjects are also eligible to apply.**
4	Centre for Historical Studies (CHS)	Modern History-MODH (866)		**P.G. holders of AYUSH related subjects are also eligible to apply.**
5		Medieval History – MEDH (867)		**P.G. holders of AYUSH related subjects are also eligible to apply.**
6		Ancient History – ANCH (868)		**P.G. holders of AYUSH related subjects are also eligible to apply.**
7	Centre for Political Studies (CPS)	Political Science – POLH (869)		**P.G. holders of AYUSH related subjects are also eligible to apply.**
8	Centre for the Study of Regional Development (CSRD)	Population Studies-POPH (870)		Candidates are admitted to Ph.D. Programme with relevant eligibility/qualification in the field of Geography, Economics, Population Studies and allied/related disciplines/areas. **P.G. holders of AYUSH related subjects are also eligible to apply.**
9		Geography- GEOH (871)		
10		Economics- ECNH (872)		

11	Centre of Social Medicine and Community Health (CSMCH)	Social Sciences in Health- CSMH (873)	Only those candidates shall be considered for admission to the Ph. D. Programme who have — (a) obtained 2 years M.Phil. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) is essential or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/ Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech. OR (b) Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	In case of doctors and nurses, MBBS/M.Sc. Nursing with 55% marks or M.Phil./MD/MPH degree with at least 55% marks of a recognized University/ Institution OR In case of social sciences and other disciplines allied to public health: Masters degree in social sciences or Humanities with at least 55% marks or Master Degree in Sciences and Technology with at least 55% marks or equivalent Master's Degree with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). **P.G. holders of AYUSH related subjects are also eligible to apply.**
12	Centre for the Study of Social Systems (CSSS)	Sociology- SOCH (875)		**P.G. holders of AYUSH related subjects are also eligible to apply.**
13	Zakir Husain Centre for Education Studies (ZHCES)	Educational Studies-EDUH (876)		**P.G. holders of AYUSH related subjects are also eligible to apply.**
14	Centre for Studies in Science Policy (CSSP)	Studies in Science Policy- SSPH (877)		**P.G. holders of AYUSH related subjects are also eligible to apply.**
15	Centre for Philosophy (CP)	Philosophy- SPHH (878)		**P.G. holders of AYUSH related subjects are also eligible to apply.**
16	Centre for Women Studies (CWS)	Women Studies-WSPH (879)		Candidates may have work experience in an NGO (related to gender issues). **P.G. holders of AYUSH related subjects are also eligible to apply.**
17	Centre for the Study of Social Exclusion and Inclusive Policy	Social Exclusion and Inclusive Policy – SEIH (880)		**P.G. holders of AYUSH related subjects are also eligible to apply.**
18	Centre for Media Studies (CMS)	Media Studies-CMSH (881)		May have exposure in Social Sciences/Humanities/Media and Cultural Studies. **P.G. holders of AYUSH related subjects are also eligible to apply.**

5. SCHOOL OF ENVIRONMENTAL SCIENCES

Environmental Sciences as a discipline was incepted at JNU in 1974 as a bold step to clear precept the frame of boundaries across disciplines— Biology, Chemistry, Geology, Mathematics, Physics among others. The school is truly multidisciplinary in its teaching, research and outreach activities. These ensure interaction between fundamental and applied sciences, and expect evaluation of meaningful, viable and sound academic curriculum where Environmental Science remains a central focus. The outcomes of the research are value addition to existing knowledge and creation of newer information which helps in affecting and shaping policy interventions for environmental conservation and management. The research work ranges from environmental pollution, climate change issues, ecological and geological processes to science and technology based interventions. The intake of students, research scholars and faculty members ensures diverse interests and multi-disciplinary built-up in the school with the dynamic perspectives to find sustainable solutions.

The school offers Ph.D., M.Phil. and M.Sc. programmes. The School is distinguished for recipient of UGC sponsored special assistance programme (SAP)/DSA/ DRS programmes, FIST sponsored by the DST and the ENVIS centre sponsored by the Ministry of Environment and Forests, Government of India. Academic activities of the faculty members have been recognized both nationally and internationally, and several of them are recipients of various research projects, funded by governmental and intergovernmental agencies such as DST, ISRO, DBT, MoES, UGC, ICMR, CSIR, MoEF&CC, Global Environment Facility, NIC, DRDO, MoWR and others. Faculty members are also part of various committees constituted by the Central and State Governments. The School has set-up a Central Instrumental Facility (CIF) housing many state of art of analytical instruments including CHNSO Analyser, Gas Chromatograph, Atomic Absorption Spectroscope, UV-Vis Spectrophotometer, Scintillation Counter, AKTA system, XRD, Real Time PCR, Microwave Digestion, AXIOSKOP AXIOVERT microscope and Fluorescent Microscope, Flow Cytometer, OC/EC analyzer, Ion exchange Chromatograph, Ultra-centrifuge, Spectroradiometer, Atomic absorption spectroscope, WD – XRF, High-end Performance Computing (HPC) facility etc. Other than that a well equipped M.Sc. laboratory with some essential instrumental facilities, an in-house library and computational laboratory with internet facilities are provided to the students to strengthen their scientific awareness with global challenges.

PROGRAMMES OF STUDY

The activities of the School are inter-disciplinary. The School endeavours to study the problem of environment in an integrated manner using the principles of Mathematics, Physics, Chemistry, Geology and Biology.

(i) M.Sc.

The School offers a two years interdisciplinary M.Sc. programme in Environmental sciences. The program covers various aspects of the environment by providing in depth understanding of issues at local, regional and global level; using interdisciplinary teaching/research/field work resources. Well-designed contemporary courses are offered to ensure development of scientific understanding of the environmental problems. The courses offered fall under four categories: (i) Core courses, (ii) Optional courses (iii) Remedial courses and (iv) Non-credit courses. The M.Sc. programme is spread over four semesters. It carries 64 credits and comprises of four different components viz., I) Teaching, II) Lab Work, III) Field Work and IV) Dissertation. The subjects areas covered require knowledge of the basic scientific disciplines (Mathematics, Physics, Chemistry, Biology, and Geology). Detail about all the courses offered in this programme can be obtained from the Jawaharlal Nehru University Website.

(ii) M.Phil.

Students admitted for M.Phil. are required to go through one year mandatory course works and secure qualifying CGPA for further continuation for the M.Phil. dissertation.

The candidates may give their preference to any two research areas of the following four research areas at the time of applying. The candidature of those candidates applying for more than two research areas of the School is likely to be rejected. Therefore, candidates are advised in their own interest not to apply for more than two research areas.

Based on performance in entrance exam, candidates will be called for interview. At the time of interview the candidates will have to give their preference for research specializations within the area they have been called for. The research specializations of each faculty are described in the JNU web site.

(iii) Ph.D.

Students admitted for Ph.D. are required to go through one year mandatory course works and secure qualifying CGPA for further continuation for the PhD thesis.

The candidates may give their preference to any two research areas of the following four research areas at the time of applying. The candidature of those candidates applying for more than two research areas of the School is likely to be rejected. Therefore, candidates are advised in their own interest not to apply for more than two research areas.

Based on performance in entrance exam, candidates will be called for interview. At the time of interview the candidates will have to give their preference for research specializations within the area they have been called for. The research specializations of each faculty are described in the JNU web site.

Research Area-I: Application of applied Physics and Mathematics in the disciplines to study the Environmental Problems, Air Pollution, Aerosol Studies, Noise, Meteorology and Climatology, Science of Climate change and Regional Climate Modeling, Paleoclimate, Snow and Glacier Physics.

Research Area-II: Application of Geology Geochemistry and Biogeochemistry to problems of surface earth processes, water bodies including ground water, glaciers, Coastal Aquatic Systems, Estuaries and Mangroves, soils/ sediments, Mineral Deposits and Mining Pollution. Remote sensing applications in Geosciences. Extra terrestrial Remote sensing application in Lunar and Martian observation by using Chandrayan and Mangalyan (MOM), Climate Change impact on glacier & water resources.

Research Area-III: Application of Chemistry and Geochemistry in monitoring and management of Air, Water and Soil Pollution, Biogeochemical Cycling, Weathering and Paleoclimate studies.
Research Area-IV: Ecosystem Dynamics, Cellular and Molecular Biology, Biochemistry, Biophysics and Biotechnology in Environmental Science, Molecular Microbial Ecology, Bioremediation and Bioconversion of xenobiotics, Environmental Cancer Biology, Environmental Toxicology, Antimicrobial Agent Discovery & Development, Bioaerosols, Environmental Pathogen and Remote Sensing & GIS for LULC/ecosystem analysis & modelling.

ELIGIBILITY:

Master of Science

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	School of Environmental Sciences (SES)	Environmental Sciences – SESM (223)	B.Sc. degree or equivalent in any branch of basic or applied science under 10+2+3 pattern of education or B.E./B.Tech/MBBS with at least 55% marks.

M.Phil

Sl. No.	Name of Centre	Sub. Code & Sub. CodeNumber	Eligibility	Additional information
1	School of Environmental Sciences (SES)	Research Area I-ONEP (153)	M.Sc. or equivalent degree in any branch of basic or applied science or B.E/B.Tech/MBBS with minimum 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	**P.G. holders of AYUSH related subjects are also eligible to apply.**
2		Research Area II-TWOP (154)		
3		Research Area III-THRP (155)		
4		Research Area IV-FORP (156)		

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	School of Environmental Sciences (SES)	Research Area I-ONEH (885)	Only those candidates shall be considered for admission to the Ph.D. programme who have: (a) Obtained 2 years M.Phil in any branch of basic or applied sciences with 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil in any branch of basic or applied sciences with at least 55% marks with additional one year research experience of a recognized University/Institutional, and one publication and 55% marks or equivalent in M.Sc. OR (b) M.Sc. in any branch of basic or applied sciences or BE/B.Tech/MBBS with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	**P.G. holders of AYUSH related subjects are also eligible to apply.**
2		Research Area II-TWOH (886)		
3		Research Area III-THRH (887)		
4		Research Area IV-FORH (888)		

6. SCHOOL OF COMPUTER & SYSTEMS SCIENCES

The School of Computer & Systems Sciences was established in 1975. It is one of the foremost institutions to start teaching and research programmes in computer science. The School has established itself as one of the most prestigious institutions in the area of computer education in the country. The School offers programmes of instruction and research leading to the degree of MCA, M.Tech. (Computer Science & Technology) M.Tech. (Statistical Computing), M.Phil. and Ph.D. It attracts best of the students from all over the country. Every year around ten thousand applicants, including from the neighbouring SAARC countries appear for the entrance examinations for all the programmes of studies. The popularity of the courses offered can be judged from the successful placement of the students in the leading companies in the field of Computer Science and Information Technology. The graduates from the School have been placed in the companies such as IBM, CSC, TCS, Flextronics, Siemens, HP, Parot Systems, CSG, Accenture, Cadence, Genpact, etc. The School has also trained the students from foreign universities in the field of Computer Science.

The School continues to be at the forefront in offering interdisciplinary courses - a goal in JNU's charter. The School has the following research areas:

Big Data, Cloud Computing, Computer Graphics, Computer Networks, Computer Vision, Databases, Data Mining, Data Warehousing, Embedded Systems, Image Processing, Knowledge Engineering, Machine Learning, MEMS, Mobile Networks, Modelling and Simulation, Natural Language Processing, Network Security, Optimization Theory, Parallel and Distributed Systems, Pattern Recognition, Programming Languages, Software Engineering, VLSI, Web Mining, Wireless Networks.

PROGRAMMES OF STUDY

(i) Ph.D Programme

Admission is offered to candidates based on their performance in the Computer Based Test (CBT) and the viva-voce examination, as per University rules.
The candidates who join the programme are required to complete the course work within the first two semesters. Successful completion of the course work is the prerequisite for the confirmation in the Ph.D. programme.

(ii) M.Phil.

The candidates must appear in the Computer Based Test (CBT) conducted by the University. Based on the performance in the Computer Based Test (CBT), the short-listed candidates will be invited for the viva-voce examination.
Admission is offered to candidates based on their performance in the Computer Based Test (CBT) and the viva-voce examination, as per the University rules.
The two year component of the M.Phil. programme strengthens the foundations in various areas of computer science to prepare for the research in the current trends and challenges in computer science.

(iii) M.Tech. (Computer Science & Technology)

Admission is offered to candidates based on their performance in the Computer Based Test (CBT).
This two year full-time programme is designed to provide fundamentals and advanced topics alike in theoretical background and to prepare the graduates for research in the current trends and growing challenges in the computing fields.

(iv) M.Tech (Statistical Computing)

This M.Tech Programme in Statistical Computing is a relatively new programme of two years' duration. The programme includes a course work in the first two semesters in preparation to the research component in the second year in the area of specialization. The two areas of specializations being, Data Science and Data Communication.

An applicant for M.Tech. in Statistical Computing should clearly mention only one specialization in the application form. The candidature of those applying for both the specializations is likely to be rejected. Therefore, the candidates are advised in their own interest not to apply for both the specializations. In the entrance examination, besides the common part, the applicants must answer questions only for the part meant for their choice of the specialization. Separate merit lists for Data Science and Data communication will be prepared. **No change-over from one specialization to another will be allowed. This programme is a terminal degree.**
The applicants for this programme must appear in the Computer Based Test (CBT) conducted by the University. Based on the performance in the Computer Based Test (CBT).

(v) Master of Computer Application

The candidates shall be admitted to the MCA programme each year on the basis of their performance in the Computer Based Test (CBT) conducted by the University.
This three-year programme is designed to provide necessary theoretical background and practical experience in Computer Science and Applications to meet the ever growing manpower requirements in automatic computing.

ELIGIBILITY:

MCA

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	School of Computer & Systems Sciences (SC&SS)	Master of Computer Applications- MCAM (224)	Bachelor's degree in any discipline with adequate competence in Mathematics under 10+2+3 pattern of education with at least 55% marks.

M.Phil.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	School of Computer & Systems Sciences (SC&SS)	Computer & System Sciences - SCSP (158)	Master's degree in Computer Science or Mathematics or Statistics or Operational Research or in any branch of Science or Master of Computer Application (MCA) with 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the latest UGC Regulations 2016.	P.G. holders of AYUSH related subjects are also eligible to apply.

M.Tech. (Computer Science and Technology)

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	School of Computer & Systems Sciences (SC&SS)	Computer & System Sciences – MTCT (157)	Master's degree in Computer Science/ Mathematics/Statistics/Operational Research/any branch of Science/Master of Computer Applications (MCA)/Bachelor's degree in any branch of Engineering/ Technology with 55% marks.

M.Tech. (Statistical Computing)

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	School of Computer & Systems Sciences (SC&SS)	Statistical Computing (Data Science) - MTST (183)	Master's degree in Computer Science/ Mathematics/Statistics/Operational Research/any branch of Science/Master of Computer Applications (MCA)/Bachelor's any branch of Engineering/ Technology with 55% marks.
2		Statistical Computing (Data Communication) – MTDT (189)	

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	School of Computer & Systems Sciences (SC&SS)	Computer & Systems Sciences - SCSH (890)	The candidates interested in research in Cloud Computing, Computer Graphics, Computer Network, Computer Vision, Databases, Data Mining, Data Warehousing, Embedded Systems, Image Processing, Knowledge Engineering, Machine Learning, MEMS, Mobile Networks, Modelling and Simulation, Natural Language Processing, Network Security, Optimization Theory, Parallel and Distributed Systems, Pattern Recognition, Programming Languages, Software Engineering, VLSI, Web Mining and Wireless Network will be considered for Admission to Ph.D. programme this year. Only those candidates shall be considered for admission to the Ph.D programme who have a) Obtained 2 years M.Phil. degree with at least 55% marks of a recognized University/Institution (with Dissertation/Seminar/Viva), and with 55% marks or equivalent Master's degree; OR b) One year M.Phil. with 55% marks with additional one year research experience of a recognized University/Institute, and one publication and with 55% marks or equivalent in Master's degree; OR c) Master's Degree in Computer Science or Mathematics or Statistics or Operational Research in any branch of Science or Master of Application (MCA) with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the latest UGC Regulations	P.G. holders of AYUSH related subjects are also eligible to apply.

7. SCHOOL OF PHYSICAL SCIENCES

The School of Physical Sciences (SPS) is one of the leading departments in India in terms of research and teaching in Physical Sciences. Over the years, the School has made significant contributions to traditional as well as interdisciplinary areas spanning Physics, Chemistry and Mathematics. The School has well-equipped laboratories for Physics and Chemistry and state of the art computing facilities. It also has a library with an excellent collection of books on Mathematics, Physics and Chemistry.
The research emphasis of the Physics group has been on topics in Computational Physics, Condensed Matter Physics, Chemical Physics, Disordered Systems, High Energy Physics, Mathematical Physics, Neutrino Physics, Non-equilibrium Statistical Mechanics, Non-linear Dynamics, Probability Measures, Quantum Chaos, Quantum Optics, Statistical Nuclear Physics and String Theory. Active research is also being carried out in the areas of Complex Fluids, Material Sciences, Superconductivity, Magnetism, Semiconductors, Mesoscopic Systems, Polymers, Bio and Nano Materials.
The Chemistry group is active in the areas of Supramolecular Chemistry, Crystal Engineering, Spectroscopy, Synthetic Organic Chemistry, Inorganic Chemistry, Physical Chemistry, Materials Chemistry, Biophysical Chemistry, Bio-inorganic and Medicinal Chemistry.

The Mathematics group has been working in Number Theory (Algebraic and Analytic), Elliptic Curve Cryptography, Ergodic Theory and Dynamical Systems, Probabilities on Groups and Operator Algebras.

The research and teaching contributions of SPS have been acknowledged in various ways. Many of our students have gone on to become academicians in leading institutions and laboratories. Many of the faculty members are frequent speakers at national and international conferences.The faculty and students regularly publish research papers in top international journals and their

publications have received extensive citations in the scientific literature. Some faculty members have received prestigious awards and been elected fellows of reputed scientific academies. In recognition of its excellence in teaching and research, SPS has been continuously supported by the UGC since 1994 through various schemes such as DRS-COSIST and DSA. Apart from the UGC support, SPS has also been receiving major funding from the DST under the FIST programme. In addition, SPS faculty members have received considerable individual support through research projects from CSIR, DST, DBT, UGC, NBHM, DAE etc.

PROGRAMMES OF STUDY

(i) Ph.D. programmes in Physical Sciences, Chemical Sciences and Mathematical Sciences.
Candidates admitted to a Ph.D. programme would be required to successfully go through prescribed course work.

(ii) M.Sc. in Physics
The detailed syllabus of the M.Sc. programme is available at the JNU website. It emphasises laboratory training and core aspects of modern physics. The M.Sc. programme is nurtured as an integral part of the research activities of the School.

(iii) M.Sc. in Chemistry
The detailed syllabus of the M.Sc. programme is available at the JNU website. The salient features of the syllabus are: (a) emphasis on the fundamental and applied aspects of chemistry, (b) focus on advanced laboratory training, and (c) initiation to research in chemistry.

(iv) M.Sc. in Mathematics
The detailed syllabus of the M.Sc. programme in Mathematics is available on the website of the School of Physical Sciences, JNU. In addition to standard courses, the programme would include a course in Computational Mathematics. The students would also be required to undertake a project in Mathematics.

ELIGIBILITY:

Master of Science

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	School of Physical Sciences (SPS)	Physics- SPSM (226)	Bachelor's degree (with Physics as one of the subjects) under the 10+2+3 pattern of education with 55% marks in the aggregate (or in Physics, Chemistry and Mathematics combined), or in Physics Honours. Applicants with B.Tech. (or equivalent) (Electronics/Electrical/Mechanical/Computer) can also apply.
2		Chemistry – CHEM (227)	Bachelor's degree (with Chemistry as one of the subjects) under the 10+2+3 pattern of education with 55% marks in the aggregate (or in Chemistry, Physics and Mathematics combined), or in Chemistry Honours. Applicants with B.Tech degree (or equivalent) in Chemical/Polymer/Petroleum Engineering can also apply.
3		Mathematics – MATM (237)	Bachelor's degree in Mathematics under the 10+2+3/4 system with at least 55% marks or equivalent, Or B.Tech or B.E. in any of the Engineering disciplines with a CGPA of at least 6.0 out of 10.0 (or equivalent percentage).

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	School of Physical Sciences (SPS)	Mathematical Sciences – MATH (897)	Candidates shall be considered for admission to the Ph.D. programme on the following basis: Candidates who have obtained M.Sc. degree (2 years programme or 5 years Integrated programme) from a recognized University/Institution in Mathematics/Physics/ Chemistry (for the corresponding subject) with at least 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). OR obtained 2 years M.Phil Degree for the corresponding subject with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil with 55% marks with the corresponding subject with additional one year research experience of a recognized University/Institution and one publication and 55% marks or equivalent in M.Sc. Relaxation to SC/ST/OBC (Non creamy layer)/ Differently abled as per the UGC Regulations 2016.	**P.G. holders of AYUSH related subjects are also eligible to apply.**
2		Physical Sciences – PHYH (898)		
3		Chemical Sciences – CHEH (899)		

8. SCHOOL OF COMPUTATIONAL AND INTEGRATIVE SCIENCES

The **School of Computational and Integrative Sciences**, Jawaharlal Nehru University, presently houses the **Center for Computational Biology and Bioinformatics**, a Center of Excellence of the Department of Biotechnology, Govt. of India. Additionally SCIS has initiated the Center for Complex Systems, introduced and supported in the XII Plan by the UGC. The major objective of the School is to develop and apply computational methods in different disciplines. This mission is reflected in the diverse faculty profile of the school which comprises researchers from fields as varied as Genomics, Computational Biology, Plant Biology, Complex Systems, Bioenergy, Theoretical and Computational Chemistry, Petri nets and Graph Theory, Mathematical Biology, Bio- & Nano- molecular Interactions, Biosensors, Statistical Data Analysis and Modeling, Computational Radio Frequency and Microwave, Antenna applications for Biomedical application.

PROGRAMMES OF STUDY

Teaching and research programs in Computational and Systems Biology involve the research, development, and application of computational tools and approaches for expanding the use of biological, agricultural, medical, behavioral or health data, including those to acquire, store, organize, archive, analyze, or visualize such data. In addition, research programs involve the development and application of data analytical and theoretical methods, mathematical modeling and computational simulation techniques to the study of biological, behavioral, and social systems. The School has initiated a program in Complex Systems which will study the behavior of mathematical, physical, living and social systems, identify patterns that underlie these inter-related systems, and examine properties such as emergence, evolution, network, structure and dynamics of these systems in a competitive environment.

(a) The School runs a vibrant Ph.D. program, with research in different areas of Computational Biology and Complex Systems.

Some of the frontier areas of research conducted at the School are:

Computational Genomics and Next Generation Sequencing Plant Biology: Genomics, Epigenomics, Genome Editing and Systems Biology of Abiotic Stress and Development
Application of Omics Technologies and Crop Genetics to Feedstock Improvement for Biofuels
Cheminformatics and Drug Discovery
Genome-wide Application of Information Theory and Pattern Recognition Methods
Intelligent Systems and Machine Learning
DNA-Protein Interactions
Chromatic Conformational Dynamics
Biomechanics and Mathematical Modeling of the biological systems
Stochastic and Nonlinear Dynamics Applied to Biological Systems
Monte Carlo Simulation Techniques to Explore the Energy Landscape of Water Clusters and Biomolecules.
Development of a Bacterial Cell Model: diffusion and hydrodynamics.
Effect of Molecular Crowding on Biomolecular Systems.
Mathematical biology, Graph Theory and Petri-Nets optimization techniques.
Application of Network Theory in Social and Financial Systems.
Econophysics and Sociophysics- Application of Physics to Model Socio-Economic Systems.

Wireless communication and Applications in Biology, including wearable/implantable devices as antennas/sensors
High Performance Computing and Cyber infrastructure.
Biomolecular Interactions, nano- and bio-sensor for clinical, food and environment applications.

(b) SCIS offers:

(i) **M.Sc. degree in Computational and Integrative Sciences** with a specialization in either **Computational Biology** or **Complex Systems**.

(ii) A program in data science through a **Post-Graduate Diploma in Big Data Analytics (PGD)**, with specialization in **Biological Big Data**. This is a sponsored skill-development program of the Department of Biotechnology, and is aimed at training postgraduates in the upcoming field of Big Data analytics for life sciences and health. Trained graduates from this program are expected to learn key technologies of data sciences, including big data collection and warehousing as well as machine learning, data integration and modeling technologies, which can be applied in an academic, and industry environment in the future.

(iii) **PhD in Computational and Integrative Sciences**. The School has encouraged intake from multiple disciplines into all its programs of study, which are grouped with independently specified intake requirements as (1) Physical Sciences: Physics, Chemistry and Mathematics (2) Life Sciences/Bioinformatics, and (3) Engineering/Computer science, to provide an optimal peer-group of analytical, domain and computational skills within each program. Admitted students can pursue research on any topics broadly listed under (a).

The teaching and research programs are supported by good computational and communication infrastructure. Each student is provided with a Desktop/workstation, and the School manages a centralized facility for high-performance computers, consisting of computer clusters with multiprocessor nodes, large-memory nodes and GPUs to facilitate specialized research. The school takes pride in being

among the country's best institutions in imparting high- value employability-related skills to its students such as in genomics data analytics, molecular simulations, data science and financial modeling and simulation.

(c) ADMISSION TO PROGRAMMES OF STUDY

For admissions, SCIS is offering three degree programs vis: (i) M. Sc., (ii) PhD and (iii) P G Diploma in Big Data Analytics. Admission to all three programs is through JNU Entrance Examination. In addition, students who have cleared the National Eligibility Test & hold a Junior Research Fellowship (JRF) may be invited directly for the viva/interview for admission to Ph.D. Courses.

Entrance examination will consist of two or three tracks based on discipline:

Track 1: Physical Sciences: Physics, Chemistry, Mathematics and related disciplines.

Track 2: **Life Sciences/Bioinformatics** with an aptitude in informatics; Bioinformatics and Computational Biology

Track 3: Engineering/Computer Sciences: Engineering disciplines, including Information Technology, with a stress on disciplines with computational data analytics.

The use of the word "Track" in this document is solely for the purpose of grouping disciplines for the purpose of Entrance examination and admission to various programs.

For the current year, entrance exam for: M. Sc. In Computational and Integrative Sciences will consist of only two tracks i.e., Track 1 & 2 and for Post-Graduate Diploma in Big Data Analytics & PhD program will consist of three tracks i.e., Track 1, 2 & 3.

POST-GRADUATE PROGRAMME

(i) M.Sc. program in Computational and Integrative Sciences

The M.Sc. program allows for a specialization either in Computational Biology or Complex Systems.

(ii) Post-Graduate Diploma in Big Data Analytics
(With a specialization in Biological Big Data)

The curricular work leading to the award of Post- Graduate Diploma shall be spread over a period of two semesters – one Monsoon Semester and one Winter Semester with a provision of a project report to be submitted by student at the end of the Winter Semester.

(iii) Ph.D. program in Computational and Integrative Sciences

Research areas are broadly listed under section (a).

Note: Candidates applying for M.Sc./PGDT/Ph.D. programme are allowed to exercise only one track for each programme

ELIGIBILITY:

M.Sc. Programme

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	School of Computational and Integrative Sciences (SC&IS)	Computation and Integrative Sciences - Track 1 – TROM (232)	A minimum of 55% marks in Bachelor's degree in any branch of Basic and Applied Science or Technology, including medicine and engineering disciplines.
2		Computation and Integrative Sciences - Track 2 – TRTM (238)	

Post-Graduate Diploma in Big Data Analytics (PGDT)

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	School of Computational and Integrative Sciences (SC&IS)	Post-Graduate Diploma in Big Data Analytics - Track 1 – TROT (191)	M.Sc/B.Tech/B.E. in Physics/ Chemistry/ Mathematics/Computer Science/ Statistics/ Operations research/Life Sciences/ Biotechnology/Bioinformatics/related disciplines in engineering, physical, and biological sciences. Minimum of 55% in the qualifying degree.
2		Post-Graduate Diploma in Big Data Analytics - Track 2 – TRTT (192)	
3		Post-Graduate Diploma in Big Data Analytics - Track 3 – TRDT (193)	

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	School of Computational and Integrative Sciences (SC&IS)	Computational Biology and Bioinformatics - Track 1 – TROH (903)	M.Sc/B.E./B.Tech in Physics/ Chemistry/ Mathematics/Computer Science/ Statistics/ Operations research/Life Sciences/ Biotechnology/Bioinformatics/engineering and related disciplines with minimum of 55% in the qualifying degree or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). OR Obtained 2 years M.Phil. degree or equivalent with at least 55% marks in the related field like science, engineering, medical and pharmaceutical science from a recognized University/Institution (with dissertation/seminar/Viva) or one year M.Phil. degree with 55% marks in the related field like science, engineering, medical and pharmaceutical science with additional one year research experience of a recognized University/Institution, and one publication and with minimum of 55% in the M.Sc./B.E./B.Tech in relevant field or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). OR Candidates with Advanced Diploma (after M.Sc. degree with at least 55% marks) in Bioinformatics are also eligible. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016	**P.G. holders of AYUSH related subjects are also eligible to apply.**
2		Computational Biology and Bioinformatics - Track 2 – TRTH (909)		
3		Computational Biology and Bioinformatics - Track 3 – TRDH (910)		

9. SCHOOL OF ARTS AND AESTHETICS

The School of Arts and Aesthetics offers post-graduate degree courses in the theoretical and critical study of cinema, and the visual and performing arts. It is one of the few places in India where these disciplines are offered in one integrated programme at the Masters level. The M.Phil programme offers a specialized focus in each of the three disciplines viz. Cinema Studies, Theatre and Performance Studies, and Art History and Visual Studies.

study of the arts in recent years has been enriched by methods and insights from many fields, such as sociology, anthropology, linguistics, cultural studies, political science, economic history, semiotics and feminist studies. The School's outlook has been formulated in response to new ways of thinking about culture using a wide array of critical and theoretical approaches. During the course of their studies, students are introduced to a range of research methods that combine archival, ethnographic, theoretical and cultural approaches and are encouraged to create theory-practice interface. The faculty also encourages students to visit museums, exhibitions, and monuments and to attend festivals of theatre, film, dance and music. The school frequently hosts interactive sessions with eminent scholars and practitioners from within the country as well as from overseas.

Resource Centre: Over the years the School has also built up a valuable and expanding library and archive of photographs, audio and video recordings. The use of multi media in teaching helps students maintain live contact with performance, visual art and film. Students are encouraged to undertake field trips, learn documentation methods, to curate exhibitions in the art gallery, to organize film festivals on specific themes and observe performance practices.

Disciplinary Streams:
Cinema Studies courses position the moving image as a force inhabiting a multi-media environment that includes film, television, video, and digital cultures. While film, as a powerful experience of 20th century modernity, continues to be an important scholarly focus, we also see it as a gateway to a broader field of the moving image complex. Our courses are structured to offer students exposure to a wide range of issues such as the sensory experience of moving image technologies; the stylistic and aesthetic dimension of diverse media forms; the political and cultural evaluation of audio-visual representations; and the infrastructures of media production, circulation, and exhibition. Students are encouraged to think conceptually and critically about global media cultures along with a special focus on India.

Theatre and Performance Studies offers a diverse spectrum of courses covering the history, theory and practice of theatre, dance, music and performance, both within India and across the world. Introductory courses are offered alongside a wide range of optional courses in music and dance. Covering a vast timeframe from 'living traditions' of rural performances in India and bhakti to the cutting-edge developments in political theatre, gender, globalization, and performance art, the Department is committed to studying theatre and performance both within established traditions of the stage, as well as in relation to the immediacies and contradictions of public culture at national and global levels.

Visual Studies: The visual studies courses address "high" art forms as well as the larger visual field of popular culture and visual practices. The majority of visual studies courses encourage a critical engagement with aspects of Indian visual culture (including *shastric* and aesthetic theories of Indian art, ancient sculpture, medieval temple architecture, Mughal and Rajput painting, 19th and 20th century popular culture, modern and contemporary art in India and elsewhere) in the light of cutting-edge research and theoretical developments in art history, visual studies, history, literary theory, philosophy, aesthetics and sociology. Theoretically-oriented and cross-cultural courses take up issues such as the relationship between methods, materials and meanings in art, narrative strategies in art, and the history and politics of art institutions, particularly museums, in the creation of canons of art.

PROGRAMMES OF STUDY

The School runs an MA programme in Arts and Aesthetics, three M Phil programmes in Cinema Studies, Theatre and Performance Studies and Visual Studies as well as three PhD programmes in the three disciplines.

1. **PhD Programme**: For details kindly see the eligibility table.

2. **M.Phil:** The School offers M.Phil. programmes in three disciplines – Visual Studies, Theatre and Performance Studies and Cinema Studies. Candidates seeking admission to any of the M Phil courses are expected to have a broad knowledge of the history, practice and theories of their respective disciplines. Selected candidates in each stream will spend the first two semesters in coursework including two compulsory courses (i) Research Methodology and (ii)Dissertation Seminar as well as two optional courses.

M.A. IN ARTS AND AESTHETICS:

M. A. COURSE STRUCTURE:

The School offers an integrated MA programme in Visual Studies, Cinema Studies, and Theatre and Performance Studies. Students of this programme are required to complete sixteen courses of four credits each, earning sixty-four credits over the course of four semesters. Of these, eight courses must be taken from among the ten compulsory courses on offer, while the other eight are to be selected from optional courses. While students are expected to take optional courses within the School, they are also permitted to take up to two optional courses from other centres or schools.

ELIGIBILITY:

Master of Arts

Sl. No.	Name of Centre	Sub. Code & Sub. CodeNumber	Eligibility
1	School of Arts & Aesthetics (SA&A)	Arts & Aesthetics-SAAM (235)	Bachelor's degree under 10+2+3 pattern of education with at least 50% marks.

M.Phil

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	School of Arts & Aesthetics (SA&A)	Visual Studies – VSAP (163)	Masters degree in any discipline with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/ Differently abled as per the UGC regulations 2016	**P.G. holders of AYUSH related subjects are also eligible to apply.**
2		Theatre & Performance Studies- TPSP (164)		
3		Cinema Studies- CNSP (165)		

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	School of Arts & Aesthetics (SA&A)	Visual Studies – VSAH (900)	Only those candidates shall be considered for admission to the Ph. D. Programme who have — (a) obtained 2 years M.Phil degree with 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) or one year M.Phil. degree with 55% marks with additional one year research experience of a recognized University/Institution, and one publication and Master's Degree with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). OR (b) Master's Degree with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). Relaxation to SC/ST/OBC (Non creamy layer)/ Differently abled as per the UGC regulations 2016.	**P.G. holders of AYUSH related subjects are also eligible to apply.**
2		Theatre & Performance Studies- TPSH (901)		
3		Cinema Studies- CNSH (902)		

10. SCHOOL OF BIOTECHNOLOGY

The School of Biotechnology was one of the first six centres established under the aegis of Department of Biotechnology (DBT), Govt. of India for carrying out Postgraduate teaching and research in areas related to Biotechnology. Initially established as a Special Centre for Biotechnology in 1985, it was upgraded to the level of a School in the year 2006.

Over the years the Biotechnology programme at JNU has established itself as a leading academic programme both from the teaching and research point of view. The faculty of the school is internationally recognized for basic and applied aspects of biotechnology research.

The competitive and vibrant Ph.D. programme in basic and applied biotechnology embarks on creating a strong academic research foundation in the following cutting-edge areas of Biotechnology:

- Biochemical Engineering and Metabolic Engineering
- Molecular and Cell Biology
- Cancer Biology
- Molecular Biology of infectious diseases
- Protein Science and Structural Biology
- Chemical Biology and Bioconjugate Chemistry
- Bioinformatics and Systems Biology
- Immunology and Vaccine Development
- Nanobiotechnology and Microfluidics
- Plant Biotechnology
- Environmental Biotechnology & Metagenomics
- Cilia Biology and Optogenetics
- Functional genomics of human diseases
- Synthetic Biology

The School of Biotechnology is well endowed with State of the art facilities for cutting edge research in Biotechnology. Some of the major equipments/facilities in the school are as follows:

- Central Instrumentation Facility
- Recombinant Product Development Facility
- Spectroscopic Facility
- Microcalorimetric Facility
- Microscopic Facility
- Protein production and purification Facility
- Biosafety Level 2 Facility
- Biosafety Level 3 Facility
- Plant Tissue Culture Facility

Central Instruments Facility

The School has a Central Instruments Facility (CIF) equipped with all the basic and advanced equipments/ instruments required for modern day research in biotechnology. The facility is open round the clock for both the students and the faculty.

Recombinant Product Development Facility (RPDF)

Under the FIST support from the Department of Science and Technology (DST), the School has created a Recombinant Product Development Facility. The facility includes all necessary up stream and downstream equipments, and quality control and testing equipments required for the recombinant product development.

Spectroscopic facility:

The spectroscopic facility includes a number of highly sensitive UV-Visible spectrophotometers, Fluorescence spectrometers, Circular Dichroism spectrometer with stopped flow attachment, FT-IR spectrometer and Nano drop Spectrophotometer etc.

Microcalorimetric facility:

This facility includes Microcal differential scanning calorimetric and isothermal titration calorimetric set up for studying bimolecular stability, folding and interactions.

Microscopic facility:

This includes Simple microscopes, Fluorescent microscopes, Laser Scanning Confocal microscope, Phase contrast microscopes.

Protein Production and Purification Facility:

This facility includes refrigerated incubator shakers, Bacterial and Mammalian cell bioreactors with online FTIR analysis, AKTA-Prime, AKTA-Explorer FPLC for protein purification, Shimadzu HPLC.

Other equipments:

Other specialized analytical facilities that are available in various labs and the Central facility include Real Time PCR, ELISA readers, Elispot Reader, Fluorescence Activated Cell Sorter, Bioreactors. Denaturing Gradient Gel Electrophoresis etc. In addition to the above, the University has an Advanced Instrumentation Facility. Details about the facility can be looked at: http://www.jnu.ac.in/AIRF

Strong emphasis is placed on the interdisciplinary nature of Biotechnology; Thus, students coming from both the Physical and Biological Sciences streams are welcome.

For more details about the School, visit the JNU website : http://www.jnu.ac.in/sbt

ELIGIBILITY:

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	School of Biotechnology	Biotechnology – SBTH (904)	M.Sc. in Biotechnology, Biochemical Engineering, Biochemistry, Chemistry, Physics, Mathematics or any branch of Physical or Biological or Engineering Sciences or B.Tech/B.E. (Biotechnology/Bioengineering/Allied Areas)/MBBS with at least 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). OR M.Sc./B.Tech/B.E./MBBS with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). OR Obtained 2 years M.Phil Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil with 55% marks with additional one year research experience of a recognized University/Institution and one publication and 55% marks or equivalent in M.Sc./B.E/B.Tech./MBBS Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016	**P.G. holders of AYUSH related subjects are also eligible to apply.**

11. SCHOOL OF SANSKRIT AND INDIC STUDIES

The School of Sanskrit and Indic Studies, formerly Special Centre for Sanskrit Studies established in 2000, was upgraded by the 144th (A) Academic Council meeting vide the Notification dated 18/12/2017. The new School broadens its domain of study to undertake research and teaching in Sanskrit studies directed towards relating Indian knowledge systems both to contemporary Indian reality and contemporary Western thought. The initial focus is on philosophy, grammar, as reflected in Sanskrit, Pali and Prakrit langauges and Language Technology, literary theory, literature, social and scientific thought.

PROGRAMMES OF STUDY

(A) Regular Courses

(i) **Ph.D. programme:** Research and teaching is undertaken in areas of Vedic and Agamic/Tantric literature and thought, Indian philosophical systems, Sanskrit poetics and poetry, Sanskrit grammar and grammatical theory, Pali and Buddhist Studies, Mahayana Buddhism, modes of disputation and interpretation of text, Sanskrit linguistics including Computational Linguistics etc. Comparative research is also encouraged.

(ii) **M.Phil:** Research and teaching is undertaken in same areas as enumerated for Ph.D. programme.

In the two semesters of the first year of the M.Phil Programme, students will be required to successfully complete four courses offered in the School including one on research methodology. In the second year students will be required to write dissertation.

(iii) **M.A.:** Wide ranging courses are offered by the School in Vedas, Literature, Philosophy, Pali and Buddhist Studies, Sanskrit Linguistics including Computational Linguistics and Social and Scientific thought etc.

M.A. programme in Sanskrit Studies requires completion of sixteen courses over four semesters. Specialized courses are offered in the above mentioned areas.

(B) Part-time Courses

i. **Certificate of Proficiency in Pali:** The admission to Certificate of Proficiency in Pali will be made on the basis of the performance of the candidate in the Computer Based Test (CBT) examination which will be held **only at Delhi Centres**.

ii. **Certificate of Proficiency in Sanskrit Computational Linguistics:** The admission to Certificate of Proficiency in Sanskrit Computational Linguistics will be made on the basis of the performance of the candidate in the Computer Based Test (CBT) examination which will be held **only at Delhi Centres**.

iii. **Certificate of Proficiency in Yoga Philosophy:** The admission to Certificate of Proficiency in Yoga Philosophy will be made on the basis of the performance of the candidate in the Computer Based Test (CBT) examination which will be held **only at Delhi Centres**.

iv. **Certificate of Proficiency in Vedic Culture:** The admission to Certificate of Proficiency in Vedic Culture will be made on the basis of the performance of the candidate in the Computer Based Test (CBT) examination which will be held **only at Delhi Centres**.

v. **Certificate of Proficiency in Sanskrit:** The admission to Certificate of Proficiency in Sanskrit will be made on the basis of the performance of the candidate in the Computer Based Test (CBT) examination which will be held **only at Delhi Centres**.

ELIGIBILITY:

Master of Arts

Sl. No.	Name of Centre	Sub. Code & Code Number	Eligibility
1	School of Sanskrit and Indic Studies (SSIS)	Sanskrit – SANM (228)	Bachelor's Degree in Sanskrit or in any other subject under (10+2+3) pattern of education with at least 45% marks.

M.Phil

Sl. No.	Name of Centre	Sub. Code & Code Number	Eligibility	Additional information
1	School of Sanskrit and Indic Studies (SSIS)	Sanskrit – SANP (170)	Master's degree or equivalent in Sanskrit or in any allied subject with at least 55% marks. Knowledge of Sanskrit is desirable. Relaxation to SC/ST/OBC (Non creamy layer)/ Differently abled as per the UGC Regulations 2016.	**P.G. holders of AYUSH related subjects are also eligible to apply.**

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Code Number	Eligibility	Additional information
1	School of Sanskrit and Indic Studies (SSIS)	Sanskrit – SANH (906)	Master's degree or equivalent in Sanskrit or in any allied subject with at least 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). Knowledge of Sanskrit is desirable. OR Obtained 2 years M.Phil Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil with 55% marks with additional one year research experience of a recognized University/Institution and one publication and 55% marks or equivalent in Master's degree. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	**P.G. holders of AYUSH related subjects are also eligible to apply.**

II. PART-TIME COURSES

Sl. No.	Name of Centre	Sub. Code & Code Number	Eligibility
1	School of Sanskrit and Indic Studies (SSIS)	Pali – PALC (705)	At least Senior School Certificate (10+2) or an examination recognized as equivalent thereto with a minimum of 45% marks in aggregate.
2		Sanskrit Computational Linguistics – SCLC (706)	
3		COP in Yoga Philosophy – YOPC (707)	
4		COP in Vedic Culture – VECC (708)	
5		COP in Sanskrit – SANC (709)	

12. SCHOOL OF ENGINEERING

The School of Engineering is the youngest school established in 2018. The School of Engineering offers five-year dual degree programmes with BTech in an Engineering discipline, and a Master's (MS/MTech) programme with specializations in Social Science/Humanities/Science/Technology. This is one of the very few programmes in the country, where the student would acquire skills in Technology and its application to a sustainable development of society.

In the first half of the dual degree programme, the students would need to do compulsory foundation courses in the areas of basic sciences, humanities, social sciences and engineering sciences apart from the departmental requirements in the core engineering discipline. The students will have options of choosing open category electives from a pool of courses to develop broad inter-disciplinary knowledge base. This will give them an opportunity to pursue *MS*/*MTech* in an area outside their parent discipline. The dual degree programme in JNU is novel in the sense that it extends an opportunity to the students, especially in the fourth and fifth year of their programme to involve themselves in projects/dissertations and courses on Humanities, International Studies, Sciences, Languages, Linguistics and Social Sciences, in order to understand the demands of such disciplines and acquaint themselves with the frontier areas.

Also, the Dual degree programmes offer beyond these goals a set of special skills that would make engineers sensitive to their social and environmental responsibility. The programme would emphasize further that generating returns for society and the larger community is indispensable. With such an engaging and holistic learning approach, students will have the opportunity to become better problem solvers.

Programmes of Study

For Five years dual degree programmes, students will be admitted after 10+2 schooling **on the basis of JEE Main ranking through CSAB/ JoSAA**. The School of Engineering will offer the following Five years Dual degree programmes:

i. BTech in Computer Science and Engineering and MS/MTech in Social Sciences/ Humanities/ Science/ Technology
ii. BTech in Electronics and Communication Engineering and MS/MTech in Social Sciences/ Humanities/ Science/ Technology

The list of available MTech specializations is as below:

- Computer Science and Engineering
- VLSI

The list of available MS specializations is as below:

- Korean Studies
- Environmental Science
- Computational Biology
- Computational Finance
- Computational Linguistic
- Management & Entrepreneurship

The Credit Requirements of the Course

The minimum credit requirements for a dual* degree programme would be 183. The duration of the program is 10 semesters. Broadly, it consists of approximately 6 semesters of undergraduate engineering curriculum followed by approximately 2 semesters of postgraduate curriculum and last 2 semesters of dissertation. The curriculum for the MTech component will either be a continuation of the undergraduate Engineering discipline or one from the pool of MS specializations. The program consists of Humanities and Social Sciences, Basic Sciences, Engineering Foundation, Design and Innovation, Bachelor Core, Bachelor Elective, Open Elective, Masters Core, Masters Elective and Dissertation. There will be a compulsory dissertation (concerned specialization) in the last two semesters. The students can do additional credits through open choice of courses, which will allow them to develop broad inter-disciplinary knowledge base and opportunity to do their MS/MTech in discipline other than BTech.

* **There will be no exit option available for getting a degree before 5years.**

The outstation candidates, admitted to the programmes of study of the University, will be considered for hostel accommodation as per rules of the University subject to availability of hostel accommodation. Grant of admission in a University would not ensure automatic allotment of hostel accommodation and that the same will be offered subject to availability. No Candidate shall be eligible to register himself/herself for a full-time programme of study if he/she is already registered for any full-time programme of study in this University or any other University/Institution.

13. ATAL BIHARI VAJPAYEE SCHOOL OF MANAGEMENT AND ENTREPRENEURSHIP (ABVSME)

The **Atal Bihari Vajpayee School of Management and Entrepreneurship** in JNU will offer the following course from the academic year 2019-20.
Master of Business Administration (MBA) (2-Year Course)

Eligibility criteria for admission in the MBA programme:

The candidates having the following qualifications are eligible to apply for admission to the "**Master in Business Administration**" (MBA) programme

- A Bachelor's Degree or equivalent awarded by any of the universities incorporated by an act of the central or state legislature in India or other educational institutions established by an act of Parliament or declared to be deemed as a University under Section 3 of the UGC Act, 1956, or possess an equivalent qualification recognized by the Ministry of HRD, Government of India. The bachelor's degree or equivalent qualification obtained by the candidate must entail a minimum of three years of education after completing higher secondary schooling (10+2) or equivalent.
- For General Category candidates a minimum of 60% marks in aggregate (of all the years/semesters) or equivalent CGPA in the qualifying degree is required.
- For OBC candidates a minimum of 55% marks in aggregate (of all the years/semesters) or equivalent CGPA in the qualifying degree is required.
- For SC/ST/PWD candidates a minimum of 45% marks in aggregate (of all the years/semesters) or equivalent CGPA in the qualifying degree is required.
- Candidates appearing for the final year of bachelor's degree/equivalent qualification examination and those who have completed degree requirements and are awaiting results can also apply. If selected, such candidates will be allowed to join the programme provisionally, only if she/he submits a certificate by certain date (to be decided by the University in due course).

Process for admission in the MBA programme:

- Candidates should first apply online on the JNU website: www.jnu.ac.in
- For the details of the syllabus, please see the ABVSEM website: www.jnu.ac.in
- For any further query the Dean, ABVSME, can be contacted on: dean.abvsme@mail.jnu.ac.in
- **Application Fees:** Applicants for the MBA programme at **Atal Bihari Vajpayee School of Management and Entrepreneurship**, JNU, have to pay the following application fees (non-refundable).
- Rs. 2000 (two thousand) only for General Category and OBC applicants.
- Rs. 1000 (one thousand) only for SC/ST/PWD applicants.
- A candidate has to appear for the Common Admission Test (CAT) in 2018 conducted by IIMs. Any candidate applying to get admission into the JNU MBA programme must submit his/her **CAT Test Registration Number**.
- **JNU will use CAT scores for short-listing/selecting the candidates for the MBA programme. IIMs have no role either in the selection process or in the conduct of the programme.**
- Those having applied to the MBA programme of ABVSME, JNU, on qualifying the CAT will be shortlisted and then invited for an interview.
- **Common Admission Test** (CAT), 2018, scores will be used for short-listing candidates for interviews for admission in the MBA programme of ABVSME, JNU. At least three times the number of intake in each category would be shortlisted for interviews.
- The final list of selected candidates will be based on **CAT** scores and the marks obtained in the interview. The weightage on CAT scores shall be 70% and the weightage of marks obtained in the interviews shall be 30%.

- ABVSME, JNU, will strictly follow the reservation policy as per Government of India rules.
- Since MBA is a professional course, no additional deprivation points (as it may be the case in some other JNU courses) will be taken into consideration for admission.

Intake for the MBA programme

- ABVSME, JNU, would take 50 students each year for its MBA programme.

Foreign Students:

The Tuition fees for International Students for M.B.A. programme will be: $ 32000 for 2 years ($ 8000 per Semester).

14. SPECIAL CENTRE FOR THE STUDY OF NORTH EAST INDIA

Special Centre for the Study of North East India (SCSNEI) at JNU was established in the year 2018 as a new avatar of an earlier Programme of research and teaching. In this new form, SCSNEI not only expands its horizons, but also takes up unique steps that are rare in the country.

The Special Centre is conceived with a purpose to build corpus of academic works on North East India. It aims at holistic understanding of the region by bringing together different epistemic perspectives into a platform with strong commitment to multi-disciplinary research. While there are several researches already undertaken on the region in different Schools and Centers of the University, the unique experiment initiated by SCSNEI is the coming together of people and ideas for a better comprehension of the region. To fulfill this objective SCSNEI initiates a collaborative exercise to run its academic programmes with the partnership of eight Schools of the university, viz. School of Language, Literature and Cultural Studies; School of Social Sciences, School of International Studies, School of Environmental Studies; School of Arts and Aesthetics; School of Life Sciences; School of Bio Technology; and School of Computational and Integrative Sciences. SCSNEI provides a common platform for faculty members working in the areas of humanities, social sciences, natural sciences, and other allied disciplines, whose works are directly or indirectly linked to the studies on North East India. A further step towards fulfilling the objective is to expand the collaborative works beyond the bounds of JNU to other academic and research institutions in the country and abroad.

This area studies programme, conceptualized under special circumstances, owns added responsibility of locating North East India in the national and broader regional frames of reference. To bring the region to the centre of national discourses, SCSNEI has taken up activities of research and teaching that will not only familiarize North East India to the young academics, but also work towards positive intervention for the region and its people with an expectation of rich dividend. The Special Centre shall play the role of a catalyst towards policy intervention by developing new methods and approaches for human development and holistic growth. To fulfill these objectives, SCSNEI is committed to work closely with state institutions, corporate bodies, civil society organizations and discerning scholars.

At present, SCSNEI focuses on areas of study, such as, social change, religion and statecraft, empowerment politics, regional economic growth, livelihood studies, border trade and state policies, global capital and institutions, conflict, peace and security studies, borderland studies, intercultural discourses, aesthetics and performance studies, traditional knowledge, health, bio-diversity, folk medicine, etc. Students and researchers are encouraged not only to conduct in-depth research but also simultaneously develop social commitment to judiciously apply the freshly acquired knowledge.

Acknowledging existent gaps between the people of the region and the rest of the country SCSNEI shall focus on programmes that will also adequately emphasize on cultural connectivity and regional awareness. Developing cultural heritage site is one of the key agenda. New programmes will be developed to enable capacity building and self-sustenance. SCSNEI is committed to develop this Special Centre as a unique institution not only within JNU but also in the entire country – a most vibrant and committed research institute on North East studies.

Programme of Study

a) Admission to Ph.D. Programme

Candidates seeking admission to the Ph.D Programme are required to submit a comprehensive research proposal indicating the research problem, nature and scope, theoretical and conceptual understanding, methodology and review of literature of the work the candidate proposes to undertake. They are also expected to have initial research experience and sound knowledge on the region.
The essential qualifications are as prescribed by JNU for the Ph.D Programme.

b) Admission to M.Phil Programme

The M.Phil programme aims at enabling students to have a wider and holistic understanding of North East India and its neighbouring areas. The programme is interdisciplinary in nature and brings into focus the importance of understanding the specificities of the region

as well as its connections to wider historical processes and contemporary realities.

The structure of the M.Phil programme is as follows:

i. The total credits for the entire M.Phil programme is 24. It will consist of two semesters of coursework, followed by two semesters of dissertation writing. The total credits for coursework is 16. The dissertation with 8 credits will be written in the last two semesters. The coursework will consist of lectures, seminar presentations and participation in class discussions.

ii. Each semester will comprise of one core course and one optional course. The core courses are "Understanding North East India" and "Research Methodology".

iii. The optional courses are interdisciplinary. They cover themes which deal with a range of focused areas on the region. Students are to choose two optional courses out of the list provided by the Centre.

ELIGIBILITY:

M.Phil

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	Special Centre for the Study of North East India	North East India Studies-NESP (175)	Masters degree in Social Sciences or Humanities or Law or International Studies or Arts and Aesthetic or Environmental Studies with at least 55% marks or M.Sc in Natural Sciences with at least 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	**P.G. holders of AYUSH related subjects are also eligible to apply.**

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	Special Centre for the Study of North East India	North East India Studies-NESH (882)	Only those candidates shall be considered for admission to the Ph. D. Programme who have — (a) obtained 2 years M.Phil. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) is essential or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/ Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech. OR (b) Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	**P.G. holders of AYUSH related subjects are also eligible to apply.**

15. SPECIAL CENTRE FOR E-LEARNING (SCEL)

About SCEL:

The newly created 'Special Centre for E-Learning (SCEL)' at Jawaharlal Nehru University aims to develop and offer online courses with an aim to bring its expertise and high quality education system to those who miss out for the university's competitive entrance examination, and because of its limited on-campus space. The online courses are planned to be offered in large numbers and multiple disciplines, ranging from Certificate to Undergraduate and Post-graduate degrees, where interested students from even the remote regions of the country will get an opportunity to virtually attend the classes taught by the best faculty; access JNU's vast intellectual resources; participate in the discussion forums; take test and earn a JNU degree.

In order to fulfill the laid down conditions and the quality parameters specified under the University Grants Commission (Online Courses or Programmes) Regulations, 2018, SCEL plans to develop the infrastructure, appoint academic and administrative staffs, maintain and administer the Centralised Data Base of all the online Courses or Programmes, work for effective coordination among the faculty members offering online courses, admission branch, evaluation branch and Communication and Information Services at JNU.

16. SPECIAL CENTRE FOR MOLECULAR MEDICINE

Molecular medicine is an emerging area within biomedical sciences that aims to understand the molecular determinants of health and disease with the ultimate goal of applying this knowledge for the prevention, diagnosis and treatment of diseases. The Special Centre for Molecular Medicine (SCMM) at JNU has pioneered research and education in this field in India and is imparting Ph.D. level training in this field. The centre aims to accomplish its goal through innovative and collaborative basic and clinical research programs and has initiated many collaborative research activities with reputed national and international medical research institutes.

The objective of SCMM is to foster teaching and research activities in the study of human diseases using advanced tools of molecular and cell biology. SCMM conducts academic programs for the training of young scientists (clinical and non-clinical) who are keen to pursue a career in basic medical research. The academic programs have been designed for non-clinical biologists/chemists, with sufficient knowledge to deal with medical problems, to enable them to deliver product/processes to society and clinicians with a basic clinical degree, who understand modern biology and chemistry at the molecular level to enable them to apply this knowledge to drug development. For successful implementation of these objectives, SCMM offers the following programs of study.

To encourage students from basic sciences and medical graduates, the centre offers Ph.D. Programs in Molecular Medicine and is pursuing teaching & research activities in the following thrust areas:

1. Metabolic disorders such as cardiovascular diseases, role of iron in insulin resistance related pathogenesis, neurodegenerative disorders like Parkinson and Alzheimer diseases, and endocrine-related cancers.

2. Nuclear receptors in health and diseases: to study underlying molecular mechanisms of nuclear receptors functions with specific reference to PXR, RXR, CAR, SHP. Involvement of PXR in drug metabolism and hepatic cancer.

3. Diseases associated with cell-cell junctions and modulation of cell-cell junctions by pathogens.

4. Infectious and non-infectious diseases: hepatitis C, Leishmaniasis, Helicobacter pathogenesis, Candidiasis, Inflammatory Bowel Disease, Pathobiology of innate immune dysfunction, DNA replication and cell cycle regulation of medically important pathogens: Helicobacter pyroli and Plasmodium falciparum, application of codon-shuffling against Mycobacterium tuberculosis and Plasmodium falciparum, Mycobacterium tuberculosis and drug resistance.

5. Chemical biology, radiation biology and cell signaling; development of novel synthetic methodology for drug development and study of their mechanism of action based on genomics and proteomics against radiotherapy; cancer; development of antibiotics for gyrase resistant strains targeting topoisomerase 1A gene in bacteria.

6. Synthetic organic chemistry: Synthesis of biologically active heterocycles using novel methodology with transition metal catalyst.

7. Designing /Discovering codon shuffled de-novo peptide/protein inhibitors against essential/crucial proteins of pathogens. To study crucial host-pathogen interactions by designing codon shuffled de-novo peptide/protein inhibitors. Synthesis and selection of novel drug like de-novo peptide binders by codon shuffling method that may inhibit crucial host-pathogen interactions in Malaria and Tuberculosis diseases.

8. Diagnostics and medical proteomics, and mass spectrometry based metabolomics.

Selected students will have the option to choose their research area depending on their merit/aptitude and according to the vacancy available.

SCMM also offers **M.Sc. Programme in Molecular Medicine**. The goal of this program is to train students in modern areas and techniques of cell, molecular biology and organic chemistry in relation to human health and disease and the subsequent application of this training to identify new targets for the diagnosis and therapy of different diseases. The completion of the Human Genome project and various other genomes including pathogenic organisms has opened new opportunities for the understanding of the molecular mechanisms of diseases both from the host as well as pathogen's perspectives. Students will be trained to use the tools of modern biology including bioinformatics so as to understand, retrieve and exploit the wealth of information provided in the Genome projects to design modern and personalized medicines.

PROGRAMMES OFSTUDY

(i) Admission to Ph.D. Programme in "Molecular Medicine"

Admission procedure: Candidates appearing for above program will be selected through a JNU Computer Based Test (CBT) followed by an interview of short listed candidates.

(ii)M.Sc.Programme in "Molecular Medicine"

Duration

The duration of the academic program leading to the award of M.Sc degree in 'Molecular Medicine' shall be for a period of four semesters (two Monsoon Semesters and two Winter Semesters) with a compulsory requirement for submission of a research-based dissertation at the end of the Winter Semester of the 2nd year .

ELIGIBILITY:

M.Sc.Programme

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Centre for Molecular Medicine (SCMM)	Molecular Medicine-CMMM (233)	Bachelor's degree in any branch of Basic or Applied Sciences (including MBBS/ BVSc./B.Pharm) from recognized Universities and Institutes with at least 55% marks.

Ph.D. Programme

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	Centre for Molecular Medicine (SCMM)	Molecular Medicine-CMMH (905)	Only those candidates shall be considered for Admission to the Ph.D. programme, who have either -- (c) Obtained masters degree or equivalent from recognized University /institution in any branch of biological sciences /chemical sciences with at least 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). **OR** (d) Obtained MBBS/M.Pharm./M.VSc/MD degree with at least 55% marks (during 2013 or later) from a recognized University/Institution OR Candidates with M.Tech. degree with at least 55% marks in Biological/Chemical Sciences . **OR** (e) obtained 2 years M.Phil Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil with 55% marks with additional one year research experience of a recognized University/Institution and one publication and relevant Master's Degree with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	**P.G. holders of AYUSH related subjects are also eligible to apply.**

17. CENTRE FOR LAW AND GOVERNANCE

The manifold agendas of public policy and legal reform in India remain impoverished in the absence of substantial research in many areas that impact the everyday life of Indian citizens. Since its inception, the Centre for the Study of Law and Governance has initiated a new interest in examining how practices of governance get stabilised through law and how these practices open law to further contestation. The Centre adopts a multidisciplinary approach to framing research and teaching on the relationship between law and governance.

The study of governance, in its various forms and at different sites, is central to several contemporary issues: the reform of public institutions and public law; the creation and establishment of procedures and rules that lead to greater efficiency, transparency, and accountability; and the challenge of making governance more inclusive and participatory through the strengthening of democracy and civil society.

The Centre's interdisciplinary focus draws on critical social science approaches in its attempt to explore how practices of law and governance are embedded in political, economic, social and historical processes; how practices of law and governance are dispersed over various sites ranging from the government, bureaucracy, judiciary, community and family; the socio-legal processes that deter or provide access to justice; and notions of governmentality, sovereignty and rights in specific politico-jural regimes.

The normative ideals of justice, equity and freedom inflect the Centre's critical interrogations of existing institutions and practices of law and governance. It is in this spirit that, while the Centre's academic programme produces scholarly research in these areas, it also seeks to translate theory into practice by initiating debate, sharing research and providing a platform for dialogue between the academy, government, civil society and international agencies.

In the decade since it came into existence the Centre for the Study of Law and Governance has developed at least three attributes that make it a distinctive part of the intellectual landscape. First, the Centre is explicitly inter-disciplinary, as evidenced by the diverse academic trainings of its faculty and its student body as well as in the teaching and research programme it has fostered. Second, the Centre has developed a reputation as a location where academic rigour can be meshed with reflection on policy and advocacy. Third, the Centre has become a focal point for understanding the links between the law and governance in practice.

The ongoing research by the faculty and research students, a working paper series published by CSLG, an active seminar program and annual lectures by distinguished guests mark the other activities of the Centre. CSLG offers an M.Phil. program as well as admission to Ph.D. programme.

PROGRAMMES OF STUDY:

The Centre offers admission to Ph.D. programme and an M.Phil. Programme.

(i) Admission to Ph.D. Programme:

Given its inter-disciplinary orientation, the Centre welcomes applications from scholars with M.Phil. degrees in Law, Political Science, Public Administration, Economics, Sociology, History, Philosophy, Social Work, Development Studies and cognate areas/disciplines.

(ii) M.Phil. Programme in Law and Governance:

The notable features of the M.Phil. Programme are:

- its multi-disciplinary orientation in both course design and teaching plan;
- its ubstantive academic content;
- its distinctiveness when compared to available courses in other Indian Universities; and
- its coherence as a programme of study with a policy-orientation.

The objectives of the M.Phil. Programme in Law and Governance include the following:

- To provide an interdisciplinary perspective on the study of law and governance, by introducing the basic concepts, debates and the now extensive literature on governance and legal issues, emanating from the disciplines of political science, economics, public administration/public policy, sociology and jurisprudence.

- To equip students with the skills necessary toundertake research in areas of public policy, including a special focus on the legal implications of these issues, by developing their expertise in these diverse disciplinary areas, and so to enable a more complex and multi-faceted approach to issues of governance, public policy and law.
- To acquaint the qualified practitioner—policy-maker, civil servant, lawyer or NGO worker—with the major issues in this area.

There will be a Computer Based Test (CBT) for admission to the MPhil programme. Those shortlisted candidates will be invited for an interview. For the interview, candidates must prepare a 1000 word research proposal with a bibliography. The candidate will be questioned on his/ her domain knowledge, work experience and/or proposed research project.

ELIGIBILITY:

M.Phil

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	**Centre for the Law & Governance (CSL&G)**	**Law & Governance – CLGP (171)**	Master's degree in Law, Political Science, Public Administration, Economics, Sociology, History, Philosophy, Social Work, Development Studies and cognate areas/disciplines in the social sciences or humanities with 55% marks. Relaxation to SC/ST/OBC (Non creamy layer)/ Differently abled as per the UGC regulations 2016	**P.G. holders of AYUSH related subjects are also eligible to apply.**

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	**Centre for the Law & Governance (CSL&G)**	**Law & Governance – CLGH (907)**	Only those candidates shall be considered for admission to the Ph.D. programme who have – (f) obtained 2 years M.Phil Degree with 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil degree with 55% marks with additional one year research experience of a recognized University/Institution and one publication and Master's Degree with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). OR (g) Master's Degree in Law, Political Science, Public Administration, Economics, Sociology, History, Philosophy, Social Work, Development Studies and cognate areas/disciplines in the social sciences or humanities with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). Relaxation to SC/ST/OBC (Non creamy layer)/ Differently abled as per the UGC regulations 2016	**P.G. holders of AYUSH related subjects are also eligible to apply.**

18. SPECIAL CENTRE FOR NANOSCIENCES

Special Centre for Nanosciences (SCNS) is an inter-disciplinary research and teaching centre at JNU. The Nanoscience related research topics pursued currently include ferromagnetic nanostructures, magnetic nano composites, Ferro fluids, microwave absorbers and nano-devices, etc. The application oriented research deals with magnetic nano particles based targeted drug-delivery & treatment of cancer cells by radio-frequency-(RF) Hyperthermia, nano-biotechnology, bio-sensors, hybrid nanomaterials, anti-biofilm materials, Electron microscopy, ferroelectric/ multiferroic nanocomposites, soft condensed matter, nanoscale interface, nanomedicine (nano-based drug delivery, therapy, toxicity and bio-imaging) for infectious diseases etc.

The Centre has faculty members with background in Physics, Electronics, Biology, Materials Science and Electron Microscopy.
Presently, Common Instrumentation Facility (CIF) of the Centre has nanomaterial synthesis and characterization facilities which include XRD, UV-Vis, Raman spectrophotometer, Dynamic Light Scattering, Zeta Potential Measurement, UV-NIR Spectrophotometer, Potentiostat-Galvanostat, Contact Angle Measurement, Cell culture facility, microbiology facility, BOD incubator, Laminar Hood, Fluorescence Spectrometer, Elisa Reader, centrifuge, etc.

The Nano-electronics and microwave laboratory consists of DC and microwave probe-stations, microwave nano-devices testing facilities like Vector Network Analyzer (Keysight Inc. PNA - 44 GHz), Spectrum Analyzer (Rohde and Schwarz Inc. - 40 GHz), Microwave Power Amplifier (Marki Microwave Inc.), Signal generator (up to 32 GHz) for absorber testing, angle and temperature dependent variable-frequency Ferromagnetic Resonance (FMR) system. For DC device testing facilities like Dual channel Source

measuring unit (SMU). For nanostructure deposition, we have Pulse-laser deposition system (with 700 mJ Excimer laser), Electron-beam evaporation system, multi-target RF Sputtering and thermal evaporation system.

For *in vitro* and *in vivo* study on human cell-lines and animal (mouse and rat) model, we have automated Radio-Frequency Hyperthermia system (MSI AUTOMATION, INC.), thermal-imaging IR camera (Fluke), inverted light microscope, -20 storage facility etc. The Ferroelectrics and Multiferroics Characterization Laboratory has Impedance Analyzer (20 Hz to 120 MHz, Key Sight Technologies), Ferroelectric/ Multiferroic Hysteresis Loop Measurement Setup (aixACCT, 10 KV); Liquid Nitrogen Cryostat (77 – 800 K) etc. This Laboratory is involved in the study of size dependent properties of Ferroelectric and Piezoelectric Materials, Multiferroics, Electrocaloric Materials, Structural Phase Transitions in Ferroic Perovskites and Functional Nanomaterials for various Applications.

Nanobio laboratory is equipped with human cell lines culture and storage facility (-20^{o}C and -80 ^{o}C) and Fluorescence Microscope for study of nanotoxicity and nanobio interactions. We have Microfluidic based biosensor with mask less lithography system, Electrospinning setup for synthesis of nanofibres for various applications and Multichannel Electrochemical analyzer for detection of multianalytes on a single electrode. Research facilities are also available for study of Water remediation using nanostructured materials, Optical detection of analytes in environment and clinical samples and Bio-imaging of fluorescent materials.

Thin-film laboratory has a RF-DC magnetron sputtering system. Thin-films and bulk materials of functional oxides are being synthesized using mixed oxide and wet chemistry methods. Lead-free ferroelectrics and anti-biofilm materials are also currently being investigated. TEM investigations are an integral part of the research and Ion milling machine is available for preparing TEM samples.
The investigation of the research laboratory is primarily focussed on nanomedicine (nano-based drug delivery, therapy, toxicity and fluorescent bioimaging) for infectious diseases. Nanomedicine laboratory is equipped with facilities for synthesis of nano-based antimicrobials for infectious diseases and study of their molecular mechanisms of action.

A wide range of analytical facilities including Transmission Electron Microscopy, Scanning Electron Microscopy, PPMS, Confocal Microscope, Confocal-Raman-AFM, XRD and other on-line cell imaging facilities are available at the Advanced Instrumentation and Research Facility (AIRF), a central facility of JNU.

PROGRAMME OF STUDY

(h) Admission to Ph.D. programme in Nanoscience

Suitable courses may be prescribed for candidates admitted to the Ph.D. programme.

(ii) M.Tech. programme in Nanoscience /Nanoelectronics

The admission to M.Tech. will be based on an All India Computer Based Test (CBT) conducted by the University at different centers spread all over the country. Admission will be offered to candidates finally selected on the basis of their performance in the test.

ELIGIBILITY:

M.Tech Programme in Nanoscience (NS) & Nanoelectronics (NE)

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Special Centre for Nano Sciences	Nanoscience – NNST (182)	Master Degree in any branch of Science, or B.E/B.Tech in any branch of engineering & Technology with 55% marks of a recognised University/Institution.
2		Nanoelectonics – NNET (190)	Master degree in Electronics or B.E./B.Tech in Electronics & Communication/Electrical Engineering with 55% marks of a recognised University/Institution.

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	Special Centre for Nano Sciences	Nano Sciences – NNSH (908)	Candidates shall be considered for admission to the Ph.D. programme on the following basis: (a) Obtained 2 years M.Phil Degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/viva) or one year M.Phil degree with 55% marks with additional one year research experience of a recognized University/Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech. OR (b) Master's degree in the relevant field with 55% marks of a recognized University/Institution or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016	**P.G. holders of AYUSH related subjects are also eligible to apply.**

19. SPECIAL CENTRE FOR DISASTER RESEARCH

Social Science is growing into and developing an understanding of technology and natural science which can bring human safety and sustainable development. This objective requires transdisciplinary interaction, understanding and knowledge. The universe is one holistic habitat for humanity to survive. It may also be man's last habitat if we continue to allow the magnitude, frequency and recurrence of disasters to increase. In consideration of this objective the Special Centre for Disaster Research aims to build upon an appropriate relationship between social sciences, ICT and geospatial sciences on one hand and between the government and academic research on the other hand. The objective of teaching and research in disaster studies is to understand how disasters affect development, national resources and human and nonhuman lives. It also highlights the need for ecologically sensitive land use policies through GIS mapping and demarcation of fragile ecological areas. The centre looks into the new areas of information and communication research (ICT), Artificial Intelligence and preparedness to disasters, ecosystem and communities, smart cities and urban development. The research would also define the parameters of scientific preparedness, technology of mitigation and institutional accountability. Much of disaster prevention is about transparency, accountability, constitutional and environmental law which are helped through a basic understanding of geospatial sciences, Computational intelligence and community resilience. Those who are ready for a more versatile and contemporary thought processes are encouraged to apply.

Programme of Study:

(i) Ph.D. programme in Disaster Studies
(ii) M.A. programme in Disaster Studies

ELIGIBILITY:

Master's Programme

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility
1	Special Centre For Disaster Research (SCDR)	Disaster Studies - DSSM (239)	Bachelor's degree in any social sciences /natural sciences/ any other professional stream with 55% marks from a recognized University/Institution.

PhD Programme

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Eligibility	Additional information
1	Special Centre For Disaster Research (SCDR)	Disaster Studies - DSSH (911)	Only those candidates shall be considered for admission to the Ph. D. Programme who have — (a) obtained 2 years M.Phil. degree with at least 55% marks of a recognized University/Institution (with dissertation/seminar/Viva) is essential or one year M.Phil. with 55% marks with additional one year research experience of a recognized University/ Institution, and one publication and 55% marks or equivalent in Master's degree/B.E/B.Tech. OR (b) Master's Degree/BE/B.Tech with 55% marks or equivalent Grade 'B' in UGC 7-point scale (or an equivalent Grade in a point scale wherever Grading system is followed). Relaxation to SC/ST/OBC (Non creamy layer)/Differently abled as per the UGC Regulations 2016.	**P.G. holders of AYUSH related subjects are also eligible to apply.**

III. RESERVATIONS OF SEATS FOR SC/ST/OBC/PWD CANDIDATES

The admissions will be given as per the reservation policy of the Government of India.

RESERVATION OF SEATS FOR SCHEDULE CASTE (SC)/TRIBE (ST) APPLICANTS

•15 % of the total numbers of seats are reserved for applicants belonging to Scheduled Caste and 7.5% for Scheduled Tribes.

•Applicant must note that Certificate from any person/ authority, other than the Competent Authority empowered to issue such certificate, shall not be accepted in any case. If the applicant happens to belong to SC or ST, applicant's caste/ tribe must be listed in the appropriate category Govt. of India schedule. **The Caste Certificate should clearly state**:

(a) Name caste/ tribe of the candidate,
(b) whether applicant belongs to SC or ST,
(c) District and the State or Union Territory of applicant's usual place of residence and
(d) The appropriate Govt. of India schedule under which the candidate's caste/ tribe is approved as SC or ST.

•If the applicants do not have the SC or ST caste/ tribe certificate at the time of (i.e. final registration after selection), the applicant may upload the acknowledgement slip of the SC or ST caste/tribe certificate application. However, at the time of admission, the applicant will have to produce the valid SC or ST caste/tribe certificate. If an SC or ST applicant seeks admission under unreserved category, the applicant should satisfy the minimum eligibility requirement for that category.

•SC/ST students who get admission under open merit (unreserved) will not be included in the reserved quota, i.e. (15% + 7.5%)

RESERVATION OF SEATS FOR OTHER BACKWARD CLASSES (NON-CREAMY LAYER, CENTRAL LIST) APPLICANTS

•27% seats will be reserved for the applicants belonging to Other Backward Classes (OBCs) (non-creamy layer, central list).

•At the time of admission to an OBC applicant, the University will ensure that the caste of the candidate must be included in the Central List of OBC (the OBC status is to be determined on the basis of the Central List of OBCs notified by the Ministry of Social Justice and Empowerment on the recommendations of the National Commission for Backward Classes available on the following website: http:/ ncbc.nic.in/ backward classes/index.html.

•The certificate must mention non-creamy layer status of the applicant (Non-creamy layer status issued by an authority mentioned in DOPT Office Memorandum no. 36012/22/93-Estt. (SCT) dated 15.11.1993).

•The OBC applicants who belong to the 'Non-Creamy Layer' and whose caste appears in the Central List of the OBCs only, shall be eligible to be considered for admission under the OBC category (Validity period of OBC certificate in respect of 'creamy layer' status of

the applicants as per DOPT Office Memorandum No.36036/2/2013-Estt. (Res-I) dated 31 March 2017 or as amended time to time). The validity of the non-creamy layer certificate shall be for the financial year 2018-19.

•If the applicant does not have the latest OBC non-creamy layer certificate at the time of upload, the applicant may upload old OBC non-creamy layer certificate or latest acknowledgement slip of OBC non-creamy layer certificate application. However, at the time of admission, the applicant will have to invariably produce the latest OBC non-creamy layer certificate.

THE FOLLOWING ARE EMPOWERED TO ISSUE THE SC/ST/OBC CERTIFICATE:

(a) District Magistrate/ Additional District Magistrate/ Collector/ Deputy Commissioner/ Addl. Deputy Commissioner/ Deputy Collector/ 1st class Stipendiary Magistrate/ City Magistrate/ Sub-Divisional Magistrate/ Taluka Magistrate/ Executive Magistrate/ Extra Assistant Commissioner.
(b) Chief Presidency Magistrate/ Addl. Chief Presidency Magistrate/ Presidency Magistrate.
(c) Revenue Officer not below the rank of Tehsildar.
(d) Sub-Divisional Officer of the area where the Applicant and/ or his family normally resides.
(e) Administrator/ Secretary to the Administrator/ Development Officer (Lakshadweep Islands).

RESERVATION OF SEATS FOR PERSONS WITH DISABILITIES (PWD)

•As per the provisions of Rights of Persons with Disabilities Act, 2016, not less than five percent (5%) seats are reserved in admission for Persons with Benchmark Disabilities, where "person with benchmark disability" means a person with not less than forty percent (40%) of a specified disability where specified disability has not been defined in measurable terms and includes a person with disability, as certified by the certifying authority.

•Reservation of 5% seats in respect of PWD candidates shall be done horizontally, as per the Government of India Guidelines/Policy.

•The following specified categories of disabilities as mentioned in the Schedule to the Rights of Persons with Disabilities Act, 2016 [See clause (zc) of section 2 of Rights of Persons with Disabilities Act, 2016] are eligible to get the benefit of the said reservation:

1. Physical disability—

A. **Locomotor disability** (a person's inability to execute distinctive activities associated with movement of self and objects resulting from affliction of musculoskeletal or nervous system or both), including—

(a) "leprosy cured person"means a person who has been cured of leprosy but is suffering from—

(i) loss of sensation in hands or feet as well as loss of sensation and paresis in the eye and eye-lid but with no manifest deformity;

(ii) manifest deformity and paresis but having sufficient mobility in their hands and feet to enable them to engage in normal economic activity;

(iii) extreme physical deformity as well as advanced age which prevents him/her from undertaking any gainful occupation, and the expression "leprosy cured" shall construed accordingly;

(b) "cerebral palsy"means a Group of non-progressive neurological condition affecting body movements and muscle coordination, caused by damage to one or more specific areas of the brain, usually occurring before, during or shortly after birth;

(c) "dwarfism" means a medical or genetic condition resulting in an adult height of 4 feet 10 inches (147 centimeters) or less;

(d) "muscular dystrophy" means a group of hereditary genetic muscle disease that weakens the muscles that move the human body and persons with multiple dystrophy have incorrect and missing information in their genes, which prevents them from making the proteins they need for healthy muscles. It is characterised by progressive skeletal muscle weakness, defects in muscle proteins, and the death of muscle cells and tissue;

(e) "acid attack victims" means a person disfigured due to violent assaults by throwing of acid or similar corrosive substance.

B. Visual impairment—

(a) "blindness" means a condition where a person has any of the following conditions, after best correction—

(i) total absence of sight; or

(ii) visual acuity less than 3/60 or less than 10/200 (Snellen) in the better eye with best possible correction; or

(iii) limitation of the field of vision subtending an angle of less than 10 degree.

(b) "low-vision" means a condition where a person has any of the following conditons, namely:—

(i) visual acuity not exceeding 6/18 or less than 20/60 upto 3/60 or upto 10/200 (Snellen) in the better eye with best possible corrections; or

(ii) limitation of the field of vision subtending an angle of less than 40 degree up to 10 degree.

C. Hearing impairment—

(a) "deaf" means persons having 70 DB hearing loss in speech frequencies in both ears;

(b) "hard of hearing" means person having 60 DB to 70 DB hearing loss in speech frequencies in both ears;

D. "Speech and language disability" means a permanent disability arising out of conditions such as laryngectomy or aphasia affecting one or more components of speech and language due to organic or neurological causes.

2. Intellectual disability, a condition characterised by significant limitation both in intellectual functioning (rasoning, learning, problem solving) and in adaptive behaviour which covers a range of every day, social and practical skills, including—

(a) "specific learning disabilities" means a heterogeneous group of conditions wherein there is a deficit in processing language, spoken or written, that may manifest itself as a difficulty to comprehend, speak, read, write, spell, or to do mathematical calculations and includes such conditions as perceptual disabilities, dyslexia, dysgraphia, dyscalculia, dyspraxia and developmental aphasia;

(b) "autism spectrum disorder" means a neuro-developmental condition typically appearing in the first three years of life that significantly affects a person's ability to communicate, understand relationships and relate to others, and is frequently associated with unusal or stereotypical rituals or behaviours.

3. Mental behaviour,—

"mental illness" means a substantial disorder of thinking, mood, perception, orientation or
memory that grossly impairs judgment, behaviour, capacity to recognise reality or ability to meet the ordinary demands of life, but does not include retardation which is a conditon of arrested or incomplete development of mind of a person, specially characterised by subnormality of intelligence.

4. Disability caused due to—

(a) chronic neurological conditions, such as—

(i) "multiple sclerosis" means an inflammatory, nervous system disease in which the myelin sheaths around the axons of nerve cells of the brain and spinal cord are damaged, leading to demyelination and affecting the ability of nerve cells in the brain and spinal cord to communicate with each other;

(ii) "parkinson's disease" means a progressive disease of the nervous system marked by tremor, muscular rigidity, and slow, imprecise movement, chiefly affecting middle-aged and elderly people associated with degeneration of the basal ganglia of the brain and a deficiency of the neurotransmitter dopamine.

(b) Blood disorder—

(i) "haemophilia" means an inheritable disease, usually affecting only male but transmitted by women to their male children, characterized by loss or impairment of the normal clotting ability of blood so that a minor would may result in fatal bleeding;

(iii) "thalassemia" means a group of inherited disorders characterised by reduced or absent amounts of haemoglobin.

(iv) "sickle cell disease" means a hemolytic disorder characterised by chronic anemia, painful events, and various complications due to associated tissue and organ damage; "hemolytic" refers to the destruction of the cell membrane of red blood cells resulting in the release of hemoglobin.

5. Multiple Disabilities (more than one of the above specified disabilities) include deaf blindness which means a condition in which a person may have combination in which a person may have combination of hearing and visual impairments causing severe communication, developmental, and educational problems.

6. Any other category as may be notified by the Central Government.

Candidates claiming reservation as per the disability Act 2016, shall be required to upload the required Medical Certificate/and produce the original Medical Certificate in the required format for the relevant category of disability i.e. from V, VI and VII, as the case may be. Required proforma of from V, VI and VII are given under the heading Certificates and other documents required at the time of viva voce and admission.

Relaxation for admission to the programmes for M.Tech, MPH, PGDT, M.A., M.Sc., MCA, B.A.(Hons.)1st year and part-time programmes (except for B.Tech and MBA, the criteria for the said courses are given separately in the concerned section of the e-Prospectus): The SC/ST and Person with Disability (PWD) candidates who have passed the qualifying examination irrespective of their percentage of marks are eligible to appear in the Entrance Examination. All OBC category (non-creamy layer) candidates are eligible to 10% relaxation in the percentage of marks in the qualifying examination in relation to open category.

Relaxation for admission to M.Phil programmes

A relaxation of 5% marks from 55% to 50% or an equivalent relaxation of grade, may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/Differently-abled and other categories of candidates as per the decision of the UGC from time to time, or for those who had obtained their Master's Degree prior to 19th September, 1991. The eligibility marks of 55% (or an equivalent grade in point scale wherever grading system is followed) and the relaxation of 5% to the categories mentioned above are permissible based only on the qualifying marks without including the grace mark procedures.

Relaxation for admission to Ph.D programmes.

A relaxation of 5% marks from 55% to 50%, or an equivalent relaxation of grade may be allowed for those belonging to SC/ST /OBC (non-creamy layer)/Differently-abled and other categories of candidates as per the decision of the UGC from time to time;
All SC/ST /OBC and PWD candidates are required to submit certificate in respect of their claims from the authorized officers as notified by the Government of India for the purpose from time to time.

Candidates belonging to SC/ST/OBC/PWD category who are selected on their own merit with General Category candidates are not counted under reserved quota.

IV. RESERVATION FOR ECONOMICALLY WEAKER SECTIONS (EWSs)

In accordance with the provisions of the constitution (One Hundred and Third Amendment) Act 2019, and with reference to OM No. 20013/01/2018-BC-II dated 17th January, 2019 of Ministry of Social Justice and Empowerment, enabling provision of reservation for the economically weaker Sections (EWSs) who are not covered under the existing scheme of reservation for the Scheduled Castes, the Scheduled Tribes and the Socially and Educationally Backward Classes in Admission. Reservation shall be extended to EWSs category candidates in all programmes except M.Phil. and Ph.D. programmes. Guidelines issued by Government of India from time to time regarding criteria for Income & Assets, issuing authority/verification of certificate shall be followed by the University for implementing EWSs reservation.

Quantum of Reservation

The persons belonging to EWSs who are not covered under the scheme of reservation for SCs, STS and OBCs shall get 10% reservation in Admission to various programmes of study except M.Phil. and Ph.D. programmes.

Criteria of Income & Assets:

Persons who are not covered under the existing scheme of reservations for the Scheduled Castes, the Scheduled Tribes and the Socially and Educationally Backward Classes and whose family has gross annual income below **Rs. 8.00 lakh (Rupees eight lakh only)** are to be identified as EWSs for the benefit of reservation. Family for this purpose will include the person who seeks benefit of reservation, his/her parents and siblings below the age of 18 years as also his/her spouse and children below the age of 18 years. The income shall include income from all sources i.e. salary, agriculture, business, profession etc. and it will be income for the financial year prior to the year of application, also persons whose family owns or possesses any of the following assets shall be excluded from being identified as EWSs, irrespective of the family income:

i. 5 acres of Agricultural Land and above;
ii. Residential flat of 1000 sq. ft. and above;
iii. Residential plot of 100 sq. yards and above in notified municipalities;
iv. Residential plot of 210 sq. yards and above in areas other than the notified municipalities.

Income and Asset Certificate issuing Authority

The income and assets of the families as mention in Critria of Income & Assets would be required to be certified by an officer not below the rank of Tehsildar in the States/UTs in the prescribed format as given in Annexure-I.

Annexure-I

Government of ……..
(Name & Address of the authority issuing the certificate)

INCOME & ASSEST CERTIFICATE TO BE PRODUCED BY ECONOMICALLY WEAKER SECTIONS

Certificate No. _____ **Date: _____**

VALID FOR THE YEAR _____

This is to certify that Shri/Smt./Kumari _____ son/daughter/wife of _____ permanent resident of _____, Village/Street _____ Post Office _____ District _____ in the State/Union Territory _____ Pin Code _____ whose photograph is attested below belongs to Economically Weaker Sections, since the gross annual income* of his/her 'family"** is below Rs. 8 lakh (Rupees Eight Lakh only) for the financial year _____. His/her family does not own or possess any of the following assets***:

I. 5 acres of agricultural land and above;
II. Residential flat of 1000 sq. ft. and above;
III. Residential plot of 100 sq. yards and above in notified municipalities;
IV. Residential plot of 200 sq. yards and above in areas other than the notified municipalities.

2. Shri/Smt./Kumari _____ belongs to the _____ caste which is not recognized as a Scheduled Caste, Scheduled Tribe and Other Backward Classes (Central List)

Recent Passport size attested photograph of the applicant

Signature with seal of Office _____

Name _____

Designation _____

***Note 1.:** Income covered all sources i.e. salary, agriculture, business, profession, etc.

****Note 2:** The term **"Family"** for this purpose include the person, who seeks benefit of reservation, his/her parents and siblings below the age of 18 years as also his/her spouse and children below the age of 18 years

*****Note 3:** The property held by a "Family" in different locations or different places/cities have been clubbed while applying the land or property holding test to determine EWS status.

V. GUIDELINES FOR PROVIDING SCRIBE TO THE CANDIDATES WITH BENCHMARK DISABILITY

The University in compliance of the Guidelines circulated by Ministry of Social Justice & Empowerment vide Office Memorandum No. F.No. 34-02/2015-DD-III dated 29th August, 2018 will meticulously follow all the mentioned Guidelines/Procedure for conducting examination for Person With Benchmark Disability 2018:

(i) In case of persons with disabilities in the category of blindness, locomotor disability (both arm affected-BA) and cerebral palsy, the facility of scribe/reader/lab assistant shall be given, if so desired by the person.

(ii) In case of other category of persons with benchmark disabilities, the provision of scribe/reader/lab assistant can be allowed on production of a certificate to the effect that the person concerned has physical limitation to write, and scribe is essential to write examination on his behalf, from the Chief Medical Officer/Civil Surgeon/Medical Superintendent of a Government health care institution as per proforma at **APPENDIX-I**.

(iii) The candidate has the discretion of opting for his own scribe/reader/lab assistant or request NTA for the same. NTA may also identify the scribe/reader/lab assistant to make panel as per the requirements of the examination.

(iv) In case the candidate is allowed to bring his own scribe, the qualification of the scribe should be one step below the qualification of the candidate taking examination. The persons with benchmark disabilities opting for own scribe/reader should submit details of the own scribe as per proforma at **APPENDIX-II** (kindly follow the instructions while filling online application form).

(v) All the candidates with benchmark disabilities who are eligible for availing the facilities of scribe as per Guidelines circulated by Ministry of Social Justice & Empowerment vide Office Memorandum No. F.No. 34-02/2015-DD-III dated 29th August, 2018 or appearing in the exam on their own shall be eligible for compensatory time as per Government of India norms.

APPENDIX-I

Certificate regarding physical limitation in an examinee to write

This is to certify that, I have examined Mr/Ms/Mrs _____ (name of the candidate with disability), a person with _____ (nature and percentage of disability as mentioned in the certificate of disability), S / o / D / o _____, a resident of _____ (Village/District/State) and to state that he/she has physical limitation which hampers his/her writing capabilities owing to his/her disability.

Signature
Chief Medical Officer/ Civil Surgeon/ Medical Superintendent of a
Government health care institution
Name & Designation
Name of Government Hospital/Health Care Centre with Seal

Place:

Date:

Note:
Certificate should be given by a specialist of the relevant stream/disability (eg. Visual impairment – Ophthalmolgist, Lcomotor disability – Prthopaedic specialist/PMR).

APPENDIX-II

Letter of Undertaking for Using Own Scribe

I _____, a candidate with _____ (name of the disability) appearing for the _____ (name of the examination) bearing Roll No. _____ at _____ (name of the centre) in the District _____, _____ (name of the State). My qualification is _____.

I do hereby state that _____ (name of the scribe) will provide the service of scribe/reader/lab assistant for the undersigned for taking the aforesaid examination.

I do hereby undertake that his qualification is _____. In case, subsequently it is found that his qualification is not as declared by the undersigned and is beyond my qualification, I shall forfeit my right to admission and claims relating thereto.

(Signature of the candidate with Disability)

Place:

Date:

VI. DEPRIVATION POINTS

Details of Deprivation points awarded to candidates

Deprivation Points **(upto a maximum of 12 points**) are given to the candidates of the following categories:

1. ***A candidate would get separate points for each educational level i.e. 10th/ High School/ Matriculation/ 12th level/ Intermediate, B.A./B.Sc. and M.A./M.Sc. from either a Quartile 1 or Quartile 2 District as given below:***

Quartile 1 Marks

Programme of study applied for	*10th/12th	UG	PG
UG.	*6*		
PG	*3*	3	

Quartile 2 Marks

Programme of study applied for	*10th/12th	UG	PG
UG	*4*		
PG	*2*	2	

Note for 10th and 12th class quartile

If 10th from Q1 and 12th from Q1	***Then benefit of Q1***
If 10th from Q1 and 12th from Q2	***Then benefit of Q1***
If 10th from Q2 and 12th from Q1	***Then benefit of Q1***
If 10th from Q2 and 12th from Q2	***Then benefit of Q2***

List of Districts quartile drawn from each state in the form of Quartile 1 & Quartile 2 by using the following four parameters as per the provisional figures of the Census of India 2011 are listed below for information of intending candidates:

1. **Percent female illiteracy**;
2. **Percent agricultural workers**;
3. **Percent rural population***; and*
4. **Percentage of household having no latrine within the premises**.

Candidates hailing from Districts of Quartile 1 or 2 (The Districts in which the candidates reside) and have passed and/or appearing in their respective qualifying examination through Distant Education programme are also eligible for award of deprivation points, as the case may be. They should indicate the State, District and District Code under respective column of the Application Form. They should also indicate in respective Column of the application that they have passed and/or appearing in the qualifying examination through Distant Education programme.

2. All Kashmiri Migrants are eligible for grant of 05 (five) deprivation points on production of registration documents from the notified authorities certifying their Kashmiri Migrant Status.

3. All female/Transgender candidates are eligible for deprivation points as per details given below:

SC/ST/OBC/PH/Quatile 1/Quartile 2	deprivation points
Other Candidates (UR not falling	Deprivation Points
under either Quartile 1/Quartile 2)	

This benefit of deprivation points will be given only to UG/PG level courses other than B.Tech, MBA, M.Phil. and Ph.D. programmes.

DETAILS OF THE STATE-WISE LISTS OF VARIOUS DISTRICTS OF QUARTILE 1 AND 2 DRAWN BY THE UNIVERSITY (As per the provisional figures of the Census of India 2011)

State	District Name & Code			
	Quartile 1	Distt. Code	Quartile 2	Distt. Code
ANDHRA PRADESH	Mahbubnagar	0101	Prakasam	0151
	Srikakulam	0102	Adilabad	0152
	Vizianagaram	0103	Nalgonda	0153
	Kurung Kumey	0104	Kurnool	0154
	Anjaw	0105	Medak	0155
			Anantapur	0156
			Khammam	0157
			Nizamabad	0158
			Warangal	0159
			Karimnagar	0160
ARUNACHAL PRADESH			East Kameng	0251
			Upper Subansiri	0252
			Changlang	0253
			Tirap	0254
			Upper Siang	0255
ASSAM			Kokrajhar	0351
			Chirang	0352
			Dhemaji	0353
			Baksa	0354
			Darrang	0355
			Dhubri	0356
			Udalguri	0357
			Karbi Anglong	0358
			Morigaon	0369
BIHAR	Madhepura	0401	Bhojpur	0451
	Araria	0402	Rohtas	0452
	Supaul	0403	Begusarai	0453
	Purnia	0404	Bhagalpur	0454
	Banka	0405		
	Saharsa	0406		
	Madhubani	0407		
	Katihar	0408		
	Kishanganj	0409		
	Pashchim Champaran	0410		
	Sheohar	0411		
	Purba Champaran	0412		
	Sitamarhi	0413		
	Samastipur	0414		
	Khagaria	0415		
	Jamui	0416		
	Nawada	0417		
	Darbhanga	0418		
	Arwal	0419		
	Kaimur (Bhabua)	0420		
	Gopalganj	0421		
	Saran	0422		
	Vaishali	0423		
	Gaya	0424		
	Siwan	0425		
	Jehanabad	0426		
	Aurangabad	0427		
	Lakhisarai	0428		
	Buxar	0429		
	Muzaffarpur	0430		
	Sheikhpura	0431		
	Nalanda	0432		

State	District Name & Code Quartile 1	State	District Name & Code Quartile 2	State
CHHATISGARH	Bijapur	0501	Raigarh	0551
	Dakshin Bastar Dantewada	0502	Rajnandgaon	0552
	Narayanpur	0503	Bilaspur	0553
	Kabeerdham	0504	Dhamtari	0554
	Bastar	0505	Koriya	0555
	Surguja	0506	Korba	0556
	Jashpur	0507		
	Mahasamund	0508		
	Uttar Bastar Kanker	0509		
	Janjgir - Champa	0510		
GUJARAT	Dohad	0601	Sabar Kantha	0651
	Narmada	0602	Patan	0652
	Tapi	0603	Surendranagar	0653
	Banas Kantha	0604		
	The Dangs	0605		
	Panch Mahals	0606		
HARYANA	Mewat	0701		
HIMACHAL PRADESH			Chamba	0851
			Kullu	0852
JAMMU & KASHMIR	Ramban	0901	Rajouri	0951
	Reasi	0902	Punch	0952
	Kishtwar	0903	Doda	0953
			Shupiyan	0954
			Kulgam	0955
			Udhampur	0956
			Kathua	0957
			Kupwara	0958
JHARKHAND	Godda	1001	Kodarma	1051
	Garhwa	1002	Hazaribagh	1052
	Dumka	1003	Saraikela-Kharsawan	1053
	Latehar	1004		
	Chatra	1005		
	Gumla	1006		
	Khunti	1007		
	Pakur	1008		
	Simdega	1009		
	Pashchimi Singhbhum	1010		
	Giridih	1011		
	Jamtara	1012		
	Sahibganj	1013		
	Palamu	1014		
	Lohardaga	1015		
	Deoghar	1016		
KARNATAKA	Yadgir	1101	Chamarajanagar	1151
	Raichur	1102	Koppal	1152
			Bijapur	1153
			Mandya	1154
			Bagalkot	1155
			Chitradurga	1156
			Bidar	1157
			Gulbarga	1158
			Chikkaballapura	1159
			Belgaum	1160
			Gadag	1161
			Tumkur	1162
			Haveri	1163
			Hassan	1164

tate	istrict Name & Code uartile 1	tate	istrict Name & Code uartile 2	tate
MADHYA PRADESH	Alirajpur	1201	Datia	1251
	Jhabua	1202	Betul	1252
	Dindori	1203	Balaghat	1253
	Barwani	1204	Rewa	1254
	Sheopur	1205	Anuppur	1255
	Sidhi	1206	Damoh	1256
	Tikamgarh	1207	Sehore	1257
	Rajgarh	1208	Morena	1258
	Shivpuri	1209	Neemuch	1259
	Mandla	1210	Vidisha	1260
	Panna	1211	Ratlam	1261
	Singrauli	1212	Bhind	1262
	Khargone (West Nimar)	1213	Chhindwara	1263
	Ashoknagar	1214	Katni	1264
	Dhar	1215	Dewas	1265
	Umaria	1216	Narsimhapur	1266
	Shajapur	1217	Raisen	1267
	Guna	1218	Satna	1268
	Chhatarpur	1219	Burhanpur	1269
	Seoni	1220	Harda	1270
	Khandwa (East Nimar)	1221		
	Mandsaur	1222		
	Shahdol	1223		
MAHARASHTRA	Nandurbar	1301	Gadchiroli	1351
			Jalna	1352
			Hingoli	1353
			Bid	1354
			Osmanabad	1355
			Parbhani	1356
			Washim	1357
			Dhule	1358
			Nanded	1359
			Yavatmal	1360
			Buldana	1361
			Latur	1362
MEGHALAYA			Jaintia Hills	1451
MIZORAM			Lawngtlai	1551
NAGALAND			Mon	1651
			Kiphire	1652
			Tuensang	1653
ORISSA	Nabarangapur	1701	Baleshwar	1751
	Malkangiri	1702	Nayagarh	1752
	Nuapada	1703	Kendrapara	1753
	Kalahandi	1704	Bhadrak	1754
	Rayagada	1705	Dhenkanal	1755
	Koraput	1706	Ganjam	1756
	Gajapati	1707	Jajapur	1757
	Baudh	1708	Anugul	1758
	Kandhamal	1709		
	Debagarh	1710		
	Mayurbhanj	1711		
	Balangir	1712		
	Subarnapur	1713		
	Bargarh	1714		
	Kendujhar	1715		

State	District Name & Code Quartile 1	State	District Name & Code Quartile 2	State
RAJASTHAN	Pratapgarh	1801	Nagaur	1851
	Banswara	1802	Udaipur	1852
	Jalor	1803	Dhaulpur	1853
	Barmer	1804	Alwar	1854
	Jhalawar	1805	Pali	1855
	Dungarpur	1806	Churu	1856
	Karauli	1807	Jodhpur	1857
	Jaisalmer	1808		
	Chittaurgarh	1809		
	Bundi	1810		
	Dausa	1811		
	Tonk	1812		
	Sawai Madhopur	1813		
	Baran	1814		
	Rajsamand	1815		
	Sirohi	1816		
	Bharatpur	1817		
	Bhilwara	1818		
TAMIL NADU	Ariyalur	1901	Perambalur	1951
			Viluppuram	1952
			Dharmapuri	1953
			Tiruvannamalai	1954
			Pudukkottai	1955
			Krishnagiri	1956
UTTAR PRADESH	Shrawasti	2001	Ghazipur	2051
	Balrampur	2002	Etah	2052
	Bahraich	2003	Mahoba	2053
	Siddharthnagar	2004	Unnao	2054
	Gonda	2005	Azamgarh	2055
	Mahrajganj	2006	Shahjahanpur	2056
	Kaushambi	2007	Ambedkar Nagar	2057
	Chitrakoot	2008	Pilibhit	2058
	Budaun	2009	Deoria	2059
	Kushinagar	2010	Faizabad	2060
	Lalitpur	2011	Hamirpur	2061
	Sitapur	2012	Kanpur Dehat	2062
	Sant Kabir Nagar	2013	Mainpuri	2063
	Bara Banki	2014	Mirzapur	2064
	Basti	2015	Ballia	2065
	Kheri	2016	Kannauj	2066
	Hardoi	2017	Chandauli	2067
	Sultanpur	2018	Sant Ravidas Nagar (Bhadohi)	2068
	Rae Bareli	2019	Auraiya	2069
	Pratapgarh	2020	Mahamaya Nagar	2070
	Kanshiram Nagar	2021	Farrukhabad	2071
	Banda	2022	Jalaun	2072
	Sonbhadra	2023	Gorakhpur	2073
	Jaunpur	2024	Rampur	2074
	Fatehpur	2025	Jyotiba Phule Nagar	2075
			Mau	2076
			Etawah	2077

State	District Name & Code Quartile 1	State	District Name & Code Quartile 2	State
UTTARAKHAND			Uttarkashi	2151
			Bageshwar	2152
			Rudraprayag	2153
			Tehri Garhwal	2154
			Almora	2155
			Champawat	2156
WEST BENGAL	Puruliya	2201	Bankura	2251
	Uttar Dinajpur	2202	Birbhum	2252
			Maldah	2253
			Dakshin Dinajpur	2254
			Paschim Medinipur	2255

Note: Reservation and Benefit of deprivation point are given on the basis of particulars furnished by the candidates in the relevant field of the online application form. In case of failure to produce documentary evidence at the time of admission/registration, the candidate will be declared as ineligible for admission. In case of submission of false information by the candidate, his/her admission will be cancelled, ipso-facto.

VII. SUPERNUMERARY SEATS

a) WIDOWS/WARDS OF DEFENCE PERSONNEL

As per UGC letter dated 07.06.2013 regarding implementation of 5% reservation (supernumerary seats) the Academic Council in its 140th meeting held on 27.05.2016 has considered the contents of the above letter and decided to make reservations of supernumerary seats for widows/wards of Armed Forces Personnel killed/disabled in action or during peace time for Admission to University programmes.

1. Widows/Wards of Defence personnel killed in action;
2. Wards of serving personnel and ex-servicemen disabled in action;
3. Widows/Wards of Defence personnel who died in peace time with death attributable to military service; and
4. Wards of Defence personnel disabled in peace time with disability attributable to military service

(Supernumerary seats meant for Widows/wards Defence Personnel may be earmarked for UG/PG/Part-time programmes only except for B.Tech, MBA, M.Phil and Ph.D. programme).

b) CANDIDATES FROM JAMMU & KASHMIR

The University has decided for creation of 02 seats under supernumerary quota for candidates from Jammu & Kashmir.

Out of 02 seats, 01 seat will be allocated for B.A. programme and another 01 seat for M.A. programme. The candidates for these seats will be selected on the basis of securing highest marks among the non shortlisted candidates in the merit & qualified otherwise.

c) WARDS OF JNU EMPLOYEES (GROUP C & D)

Programme	Number of Seats
B.A. (Hons.) Programme 1st year	**03**
M.A./M.Sc./MCA Programame	**02**

VIII. TRAVEL CONCESSION

The University endeavours to attract students from all over the country. With this objective in view all outstation candidates called for viva-voce on the basis of Computer Based Test (CBT) for admission to various programmes of study will be paid second class rail fare (both ways by shortest route from the place from where they are called for viva-voce i.e. mailing address given in the Application Form) for the distance over and above 300 kms. **on production of valid train tickets.** The fare for the first 300 kms. each way shall be borne by the candidates themselves. **Candidates wishing to claim reimbursement of fare are advised to retain with them Train/Bus ticket(s). Such Candidates invited to viva- voce from a distance of less than 300 kms. including local ones shall not be reimbursed Train/Bus fare under any circumstances.**

IX. LIBRARY

Dr. B. R. Ambedkar Central Library was established in the year 1969 to support the educational and research programmes of the University by providing physical and online access to information. It is housed in Nine-storey tower building with a carpet area of about one lakh sq. ft.

In accordance with the objectives of the University, the Central Library has the objectives and aims to procure, organize and disseminate information in different formats. It works with the objective of supporting and promoting the use of rich and diverse collection among the users. it is committed to preserve and house the collection for posterity and further enhance and support the academic environment by providing seamless access to information resources.

Timings: Library is open 24x7 throughout the year, except three national holidays and Holi festival. The Library circulation services remain open from 9.00 a.m.to 8.00 p.m. throughout the year. During the examination days, the library services are extended up to 12 midnight for 45 days in each semester.

Central Library, JNU is fully automated and is using Virtua, Integrated Library Management Software for housekeeping jobs in different sections. The Library electronic resources can be accessed through the remote access platform 24X7, anytime and anywhere.

Physical Collection: Library has a collection of 5 Lac + volumes which includes books, theses, dissertation, bound volume of journals, newsletters, Govt. and UN report, encyclopedias, dictionaries, thesaurus, glossaries, CDs ROM collection, Charts, Maps, micro rolls, audio/video cassettes etc. Library is a depositary of all Govt. publications and publications of some important International Organisations like WHO, European Union, United Nations and its allied agencies etc.

Print /E-Books/E-Journals and Online Databases: Library subscribs to 48 newspapers, 51 magazines, and 32 online databases. Besides this library receives subscription of 14 databases through UGC Infonet. It has a unique collection of one lakh plus e-Books from various international publishers.

Some of the services provided by the Dr. B. R. Ambedkar Central Library are as follows:
Information Desk: To provide information about Library and its collections and services.

Information Browsing Unit: Library provides a separate reading room for Faculty Members. Besides, reading facilities, computers with scanning facilities have also been made available in the Reading Room.

New Books Display: New Books purchased by the Library are displayed on every Monday. All these Books are kept for consultation at the Circulation Counter.

Digital Library Services: The library provides digital services for online resources accessible through IP authentication and remote access through single sign on facility. It also has a very interactive user oriented website (http:/ /www.jnu.ac.in/library) for various library services, collection and information 24x7 anytime anywhere.

Helen Keller Unit: In order to meet the special needs of the visually Challenged students of the University, a separate unit named Helen Keller is located at the Ground Floor. Twenty computers and scanners are available with screen reading and speech software to facilitate visually challenged scholars in their studies. All the students have been provided digital voice reorders. Laptops are also issued to the visually challenged students of the University at M.Phil and Ph.D levels.

Institutional Repository: Central Library, JNU is in the process of creating an Institutional Repository of faculty publications using Dspace. At present full text of the project International Migrations and Diaspora Studies (IMDS) is available at http://lib.jnu.ac.in/sites/default/files/imds/imds.htm.

Cyber Library: Cyber Library is located at the Ground Floor of Central Library with 200 Computers for the students and research scholars to access the available online resources and search the catalogue of the Library.

Single Window Search: At present Central Library, JNU has provided single window access system to all e-resources available at Central Library. The discovery services can be accessed from JNU library home page as well as through remote access server.

Online Press-Clippings: The press clipping information service was started in 1974 in the JNU Library to cater to the information needs of the faculty and scholars of School of International Studies on topical issues. It collects all important, relevant and up-to-date news items, editorial comments and articles on developments in the international and bilateral relations, political, economic, socio-cultural, environmental issues etc. At present, the clippings are culled from 21 national and international newspapers of English language. The press clippings collection consists of over 8 lacs newspaper articles, which are readily accessible to the JNU Academic Community through the JNU Library press Clippings WEBOPAC.

Electronic Theses and Dissertations: Approximately 20,000 digital copy of Theses and Dissertations are available in JNU Library database and can be accessed through Library Web-OPAC. Also, approximately 5000 Ph.D. theses have submitted to INFLIBNET and are accessible worldwide through the Shodhganga platform.

In addition to the above, Library extends the follows services:

- Access to CD-ROMs, books / journals and statistical data through Automation Unit.
- Overnight issue facilities of textbooks in all disciplines through textbook section.
- Inter library loan of books and Document Delivery Services from other libraries.
- Locker facility for JNU Researchers, Faculty and Visually & Physically Challenged users.
- Consultation facility for Research Scholars of other Universities/Institutions

EVENT/ACADEMIC ACTIVITIES

- Book Release/Book Talk: Central Library, JNU is organising book release programme in collaboration with various Schools/Centres. Book talks and other discussions are also organised by the Library.
- JNU Forum for Mutual Learning: It is a student initiative with support of library. Faculty may also contribute in it. http://www.jnu.ac.in/Library/JNUFOML/about.htm.
- Author Workshops/Seminar etc.: Central Library, JNU has organised many lecture series, author workshops, training workshops, user education, orientation and seminar etc. for the benefit of faculty and students. It is being done on regular basis.

EXIM Bank The Exim Bank Library, part of Central Library and has a special collection of 14,167 Economics books and 2735 back volumes of 56 journals. Automated Library Services, inter-library loan, reference and photocopying facilities are provided to the users of Exim Bank Library.

Other Branch Libraries:

Archives on Contemporary History of India.
Centre for Historical Studies Library.
Centre for Political Studies Library.
Centre for Law and Governance Library.
School of Computer and System Sciences Library.
Academic Staff College Library.
SIS Reading Hall.

Besides, many Schools/Centre's have their own libraries under the DSA Programme. Please visit us http://lib.jnu.ac.in

X. FELLOWSHIPS/SCHOLARSHIPS/ AWARDS

UGC-CSIR Junior Research Fellowships:

Only those candidates will be eligible for the award of fellowships who qualify in the national level test conducted by the University Grants Commission/CSIR and other similar test for award of Junior Research Fellowship as per the norms of the relevant organization.

UGC-Scholarships and Fellowships

The University Grants Commission invites applications for the award of various Scholarships and Fellowships every year for the candidates pursuing higher studies in Universities/Colleges. The details of the schemes are available at UGC website www.ugc.ac.in.

AYUSH Fellowship

The Ministry of AYUSH, Government of India offers Ph.D. Fellowship programmes, AYUSH National Eligibility Test (AYUSH-NET) equivalent to UGC/CSIR NET. It intends to sponsor annually 200 candidates (125 PG of AYUSH and 75 PG of Science & technology streams) for pursuing Ph.D. on AYUSH research topics.

State Government Fellowships:

Some of the States of the Indian Union have instituted at the School of International Studies one or two fellowships for scholars coming from their respective States. Some State Governments have also provided contingency grants.

The general terms and conditions governing the award of these Governments fellowships are given below:

1. The fellow must devote his whole time to approved courses of research and study at the University.
2. He shall not accept or hold any appointment paid or otherwise or receive any emolument, salary, stipend, etc. from any other source during the tenure of the award. Junior Research Fellows with the consent of the Guide/Head of the Department may assist the University/Institution in its teaching programmes, if called upon to do so, including tutorials, evaluation of test papers, laboratory demonstration work, semi-nar, symposia, etc. provided that such work under-taken by him/her is not likely to hamper his own research programme on hand.

3. He shall obtain prior permission of the University for appearing at any examination conducted by any other University or public body.

4. The fellowship shall be terminated at any time if the progress and conduct of the fellow is found to be unsatisfactory.

The fellowship shall ordinarily be tenable for a period of one year in the first instance but may be renewed for the second, third and fourth years if the student continues to maintain satisfactory progress. However, a research fellow who has displayed research ability but not completed his work may be considered for extension of fellowship for a further period of one year at the end of four years period.

Merit-cum-Means Scholarships:

A number of Merit-cum-Means scholarships are available for deserving and meritorious students whose parent's/ guardian's income does not exceed Rs. 2,50,000/- per annum or as may be laid down from time to time. The payment of scholarships will be governed by the rules in force in the University from time to time.

Ford Foundation Scholarships:

A limited number of Ford Foundation Scholarships of the value of Rs. 700/- per month are available for students of the M.A. Programme of the School of International Studies. The Scholarships will be awarded purely on merit subject to the proviso that at least half of them will go to female students.

In addition, the following Endowments (Scholarships)/ Fellowships/ Awards are also available to students pursu-ing studies in the University:

Scholarships/Fellowships:

1. **Okita Memorial Fellowship** - There are two Fellowships each of the value of Rs.5000/- p.m. with an annual contingency grant of Rs.10,000/- awarded by the ICCR on the recommendation of the University for 2 years. This is open to meritorious Indian students in JNU who are registered for M.Phil and MA 2nd year programme in various Centres of SIS/ SLL&CS/SSS pursuing studies/research in any of the areas of specialization bearing on Japan or on India's Relations with Japan.

2. **G Parthasarathi Endowment Fellowship** – There are four Fellowships including the one in Memory of Late Chandrasekhar Prasad the student leader in JNU of Rs.1000/- p.m., each awarded to students initially for a period of one year, renewable by another year on the basis of academic performance, to students coming from economically weaker sections of society, particularly Scheduled Caste/ Scheduled Tribe/ Backward Class, and Physically Challenged (Handicapped) students.

3. **Australian High Commission Fellowship** – There isScholarship of Rs. 3500/- per month plus annual contingency grant of Rs.6000/-. The Fellowship is awarded to a Ph.D. student for a period of two years working on a subject concerning Australian Study in the Centre of CIPS; CAIS; and CSAS/SIS.

4. **Special Fellowships for SC/ST and PH students** - Four Fellowships are awarded @ Rs.12000/- p.m.(for one semester or two semesters) for students hailing from deprived sections of society i.e. Scheduled Caste/ Scheduled Tribe and Physically Challenged (Handicapped) with a view to preparing them for taking up teaching and/or research as career. These fellowships are to be used for most deserving among them who have completed two years of Ph.D. or after having completed M.Phil. are on the verge of completion of Ph.D.

5. **Dr. Sheila Zurbrigg Fellowship** – This one time assistance of a maximum of Rs. 2000/ - is awarded to one deserving student of the Centre of Social Medicine and Community Health, School of Social Sciences.

6. **Tendulkar Scholarship** – This Scholarship of Rs.400/-p.m. is awarded for a period of two years to 2 students of various Centres of School of Social Sciences by rotation.

7. **Prof. Nurul Hasan Scholarship** – Two Scholarshipsof Rs.1500/- p.m. each are awarded for a period of one year to students of second year M.A./M.Sc./MCA students with the highest CGPA at the end of the first year, one of which shall be for Social Science subjects and the other for Science subjects, for promotion of education and other Ideals and values for which Prof. Hasan worked during his lifetime.

8. **Jawahar Bhawan Trust Scholarship** - These Scholarships are of the value of Rs.1000/-p.m. awarded to 10 students for a period of one year (covering two semesters) and may be renewed for subsequent semester(s) subject to the condition that the student maintains CGPA of 5.5 at the end of third semester of MA/M.Sc. and fifth semester in case of MCA.

9. **Prof. M J K Thavaraj MCM Scholarship** – There are 2 Scholarships of worth Rs.300/- each p.m. and Rs.2000/-as contingency are awarded on merit to M.A.(Economics) first year students of School of Social Sciences.

10. **Nippon Foundation (Japan) -** Two Fellowships are awarded every year out of the endowment of US$ 1 million given by Nippon Foundation. The fellowship holders will enjoy this prestigious Fellowship for a period of 3 years. At a given point of time from third year onwards, six students of M.Phil. programme will be awarded the Fellowship.

11. **Com. H L Parwana Research Stipend -** Com. H L Parwana Research stipend of Rs.5000/- per month is awarded to M.Phil. student of School of International Studies or School of Social Sciences working in the areas of Banking, Trade Union and Allied Areas.

12. **Fox International Fellowship of Yale University** - Annually awarded to one or two students of Ph.D programme in any of the following fields: economics, finance, political science, international relations, law and contemporary history. They should therefore have completed 3 semesters of Ph.D. programme but should not have completed more than 6 semesters of the said programme.

13. **Swamy Pranavananda Memorial Research Fellowship** - Awarded annually to a M.Phil. student pursuing studies for promotion in the Indian Philosophy, Culture and Civilization.

14. **D S Gardi Sanskrit Scholarships** - Annually awarded to two M.A. students of Sanskrit Studies for a period of two years. These scholarships are awarded on the basis of performance of the students in the first semester.

15. **Dr. Prafulla K. Pani Research Fellowship -** This short-term fellowship of @ Rs. 8000/- p.m. will be awarded to only one student at a time for pursuing research at Special Centre for Molecular Medicine in the relevant areas of molecular medicine.

16. **Posco Fellowship** - A cash prize in India Rupees equivalent to US$500/- (approximately) is awarded every year to 10 undergraduate meritorious students of Korean language programme of CKS/SLL&CS on the basis of selection at Centre/School level.

17. **Prof. Gouri Shankar Singhal Merit Scholarship** – One scholarship to M.Sc. (SLS) 2nd year student value of Rs.1000/- per month for one year who obtained highest CGPA at the end of third semester to be selected at school level on the basis firstly of merit and secondly of need.

18. **The Nirman Foundation Fellowships** – Upto six fellowships are awarded annually to M.A. students at the Centre for Political Studies. The criteria for the awards include (i) interest and motivation in pursuing an academic career and (ii) deprivation.

19. **Shinnyo Scholarship -** An award of cash prize of Rs.2000/- per month for two years for two under graduate students and Rs.3000/- per month for two years for two M.A. students of Japanese Language Programme, selected on merit.

20. **Sungum Sudhar Scholarship Endowment:** Starting from 2018, 1-3 scholarships @ 16,000/- per month for a period of 03 years, for each scholar, depending on the availability of qualified students. The scholarship expenses of selected students who will be receiving advanced and specific learning in the areas of Sanskrit, History and Philosophy to obtain their Ph.D Degrees. The recipients of this scholarship will be called **"Sungum Sudhaar Research Scholar".** Rs. 03 Lakhs will be reserved for inviting at least one Foreign Speaker and one renowned Indian Scholar to speak on Indian Philosophical subjects like Rigveda/Upanishads expressing Ancient Bharatiya Wisdom.

Awards:

1. **The President of India Gold Medal** – This Gold Medal and Certificate is awarded annually to one student adjudged best for excellence in academic performance literary activities, music, participation in hos-tel life, sports, good character and conduct.

2. **Dr. Arpita Mishra Award -** Annual certificate of Meritcum cash award of Rs.5000/- is awarded to the best M.Phil. (Linguistics) student on completion of his/her course work every year.

3. **Rafael Iruzubieta Award** – Cash awards are awarded annually to the best 2 MA students of Spanish Studies, SLL&CS. The cash prize for the awardees will be determined on the availability of funds/interest accruing the endowment.

4. **A N Bhat Memorial Prize** – Cash prize of Rs.5000/- is awarded annually to the most meritorious student of third semester of MA (Economics) programme of School of Social Sciences based on his/her performance in the 1st year of MA Programme.

5. **Vimla Saran Gold Medal** – A Gold Medal is awardedannually to one student of MA (Chinese) in SLL&CS.

6. **Sajjad Zaheer and Razia Zaheer Award** – Award money plus certificate are awarded every year for one male and one female MA Urdu literature student with the best performance in MA first year. The interest amount for a particular year will be equally divided into two parts one for male and other for female student.

7. **Juhi Prasad Award** – Cash prize of Rs.2000/- is awarded annually to the best girl student of B.A. in Spanish in the the Centre of Spanish, Portuguese, Italian & Latin American Studies, of School of Lan-guage, Literature and Culture Studies.

8. **Devendra Kumar Gupta Award** – Gold Medal plus Certificate is awarded annually to one B.A. student of the Centre of French and Francophone Studies of School of Language, Literature and Culture Studies.

9. **School of Physical Sciences Gold Medal:** This Gold Medal is awarded selectively for outstanding performance in the M.Sc.(Physics).

10. **Ranjan Roy Memorial Prize:** The Centre for Economic Studies and Planning awards the Ranjan Roy Memorial Prize (worth Rs. 6000/-) to the best student completing the M.A. (Economics) programme from the Centre.

11. **Prof. T K Oommen Cash Award** - Awarded annually to a topper student of M.A. Sociology who qualify the said progrmme.

12. **Prof. K J Mahale Cash Award -** Awarded annually to a topper student of M.Phil. (French).

13. **Award of Prof. S Marcandane Memorial Gold Medal** - A Gold medal and a certificate is awarded annually to topper student of M.A. (French) programme.

14. **Ms. Kanu Priya Bharadwaj Memorial Award: -** A Gold Medal and a certificate is awarded annually to the best M.A. student of the School of Arts & Aesthetics.

15. **Pande Medal -** A Gold Medal and a Certificate of Merit, instituted by Prof H.C Pande (retired), are awarded annually to the Best Student of B.A (Hons) of the Centre of Russian Studies of SLL&CS.

16. **Smt Jaswant Kaur Khurana merit Award -** An award of Rs.15000/- lumsum and a Gold medal is awarded every year to the student of Life Scieces obtaining highest rank at the conclusion of the M.Sc. and M.Phil. programme on the bais of selection at School level.

17. **Madam Kim Yang Shik Award: -** An award of Rs.7500/- each is awarded every year to a student of B.A. (Hons.) and M.A. Korean, on the basis of selection done at the centre level.

18. **Late Prof. S.B. Verma Memorial Lecture: -** Two Gold Medals are to be awarded annually one each for M.A. Topper and B.A. Topper students of Japanese Studies.

19. **Late Smt. Sharada Sinha Prize: -** will be given out of the interest accrued from the said amount once in two years to a doctoral thesis which has been judged the "Best" by the School for publication on any aspect of history of Science, technology, environment and medicine (STEM), or history of education or history of media. The award will be administered by the Dean, School of Social Sciences.

Each fellowship and award will be operated as per the terms & conditions attached to it from time to time.

Applications for the above Fellowships/Scholarships/ Awards are invited from registered and eligible students every year through Chairpersons of Centres/Deans of Schools and are awarded on the recommendations of the Committees constituted for the purpose. **Details can be obtained from**

Room No. 20 (Ground Floor) Scholarship/Fellowship Section, Administration Block, J.N.U., New Delhi – 110067.

There is also a provision for students coming from weaker sections of society under the "Earn as you Learn" scheme.

XI. FACILITIES FOR FIELD WORK

The University facilitates (subject to the availability of funds and foreign exchange) field work by students engaged in research programme if the nature of the project or non-availability of adequate source material necessitates *on-the-spot* study and investigation. The area to be visited by the scholars and the period of field trip is determined on merit according to the requirements in each case.

XII. LINGUISTIC EMPOWERMENT

Linguistic Empowerment Cell (LEC) is committed to empowerment and capacity building programs for students who need linguistic skills for their academic pursuits in JNU. LEC runs foundation courses in English for students who may not have had English as a medium of instruction prior to coming to JNU and who may find it difficult to grasp what is offered in the regular programs in their respective centres and schools. LEC also conducts courses for students who wish to learn academic writing skills. Learners can opt for the 8 to 10 am slot or the 4 to 6 pm slot depending on the timing of their regular programs. Foreign students from non-English speaking countries are encouraged to do these courses. Students are awarded certificates of proficiency after the completion of two successive semesters.

Intensive short term programs are conducted in the summer and winter break in order to address the specific concerns of language in academic writing for research students.

LEC organizes lessons in "Communication Skills in Hindi" for foreign to students as well, so as to enable them to integrate well in the social and cultural life on the campus. LEC also organizes basic courses in Sanskrit for beginners. In accordance with the principles of social justice and empowerment, JNU also organizes special classes twice a week in Indian Sign Language for students, staff, faculty and other JNU-ites, to empower them to communicate with the deaf. Participants are awarded special certificates after the end of the two semester long program.

For registration and queries regarding these courses please write to linguistic.e.c@gmail.com.

XIII. HOSTEL FACILITIES

It is important to note that in view of the limited hostel accommodation, the candidates should clearly understand that the grant of admission to a full-time programme of study in the University

a. Would not ensure allotment of hostel accommodation
b. Accommodation will be offered to the eligible applicants subject to availability
c. Candidates admitted to Part-Time programmes of study are not eligible for hostel accommodation
d. No request for out of turn allotment of hostel on medical ground will be entertained.

1 All selected students who need Hostel/Dormitory accommodation will be required to apply in the prescribed application form obtainable from the Office of the Dean of Students. Admission in the Hostel/Dormitory is in accordance with the merit secured in the Entrance Examination held by the University in the respective programmes of study. **The last date for receipt of application form for hostel allotment is 18th August.**

2 **15% for SC, 7.5% for ST, 27% for OBC and 5% for PwD seats are reserved in the regular hostels. However, all SC/ST students from P-I category will be allotted hostels/dormitory on 100% priority basis as per seat availability.** All SC/ST students except residents of Delhi will be provided hostel as per availability. The SC/ST/PwD students are exempted from payment of hostel fee (room rent). This is applicable only to those SC/ST/PwD students who are not in receipt of any fellowships/scholarships and whose parents/guardians income is below Rs.1, 00,000/-per annum.

3 The criteria for allotment of hostel accommodation by the University is as under:

First Priority (P-I)

a. Students admitted to full-time programs in the current year, who have passed their qualifying examinations from places outside Delhi and are not resident of Delhi except those who are admitted to a program at a level at which the student already has a degree or has pursued/pursuing studied/studying in JNU at the same level with hostel accommodation.
b. Students who are not from NCT of Delhi but have passed their qualifying examinations from Delhi and stayed in recognized University/College hostel, subject to their furnishing documentary evidence from the Head of the Institution regarding the details of their stay.
c. Students who have passed their qualifying examinations from Delhi by making their own private arrangement for accommodation, but at the same time do not have their family/official residence of parents in Delhi, provided they submit satisfactory proof such as address proof and other related documents, as approved by IHA which shows that they belong to other states.

Second Priority (P-II)

(a) Outstation students, who are admitted to a programme of study after passing their qualifying examination after a gap of 2 years but not more than 5 years before admission to JNU.

(b) Outstation students, who are admitted to a programme of study at a level at which the student already has a degree or has pursued or has taken admission in any institute pursuing studies from an institution from outside Delhi or an institution from Delhi or from JNU (at the same level) without hostel accommodation except in the case of lateral entry in IInd year at graduate level course.

Explanation:- For all purpose "resident of Delhi" mentioned in Clause 2.1 means the resident of National Capital Territory (NCT) Delhi and "outstation" means outside NCT Delhi.

Third Priority (P III)

The applicants who do not come under Priority I and II may be considered under P III category.

In this category the following sections may be considered such as:

a. Students who reside in NCT Delhi.
b. Who joins any course after 5 years of gap after passing the qualifying examination.
c. Students admitted under study-leave and sponsored candidates.
d. Any other category referred by the competent authority.

"Inclusion/exclusion in the above categories will be subject to decision taken by the Competent Authority.

Who have already availed JNU hostel facilities for the same level of course, are not eligible for hostel.

The Hostel applicants will not be allowed to change the address and other information furnished/documents submitted along with the application, during the current academic year except in the case of change in parents' official residence due to transfer/retirement.
(List of documents to be attached with the Hostel Form--
----------see Annexure)

4. **Hostel charges as applicable to be paid at the time of allotment of hostel/dormitory.**

5. **Hostel residents are expected to observe the rules and regulations prescribed for them as well as all the requirements of corporate life and the social norms that living together demands.**

6. **Failure to observe discipline or violation of rules may make a student liable to disciplinary action which may result in the withdrawal of hostel facilities.**

In case it is found at later stage that incorrect information has been furnished or some material facts have been concealed, the student is liable to eviction from the hostel besides such other action which the University may deem fit to take against him/her.

ANNEXURE

DOCUMENTS TO BE ATTACHED WITH HOSTEL FORM

1. Photocopy of the Admission Folio.
2. Copy of the subject Folio from the school/Centre.
3. Photocopy of **Passport/Voter ID/Aadhar Card/Domicile Certificate** (issued by the SDM/Tehsildar) **–** any of the **TWO** showing permanent address. The original document should be produced at the time of hostel allotment. **No other address proof will be entertained in this regard.**
4. Copy of Electricity Bill/Water Bill/House Tax Receipt/Paying Guest Receipt (any one) is mandatory for outstation students who were living or lived in private accommodation in Delhi during their studies.
5. Outstation Students whose parents are working in Delhi should submit a certificate from their parent's employer mentioning that they haven't been allotted any Residential accommodation in Delhi by the employer.
6. Those students who have more than one year Gap period but not above 5 years after qualifying examination, have to submit the migration certificate dully attested by the Admission Branch of JNU and work experience certificate from the employer, if any.
7. Outstation students who were staying in Delhi with their parents are transferred/retired should submit Transfer/Retirement order of parents with official resident vacating certificate from the employer.
8. Hostel resident certificate for those who are staying/stayed in college & other recognised hostels/Paying Guest accommodation.
9. Photocopies of the Anti Ragging affidavits.
10. Copies of Admission Offer Letter, Medical Insurance Certificate, Passport and Visa [Only for Foreign Nationals]
11. One recent colour passport size photograph.

XIV. UNIVERSITY HEALTH CENTRE

Location: University Health Centre (UHC) is located near the north gate of South West of Ganga Hostel.

Staff: Dean of Students is the Head of the Department of University Health Centre. The staff of the University Health Centre (UHC) comprises of CMO (SAG), I/C Health Centre, Senior Medical Officer and Medical Officer, Part time doctors for General OPD, Part time Specialists, a Part time Homoeopathic Physician, a Staff Nurse, Pharmacists, a Senior Technical Assistant, Technical Assistant, Lab Technician and other supportive staff functions under the overall supervision and administrative control of the Chief Medical Officer (SAG), I/C Health Centre. It also has staff for control of mosquito-borne-diseases.
JNU is an educational institute, has its own Health Centre with medical facilities. Students who wish to avail additional facilities are advised to obtain medical insurance cover or any other medical coverage at their own cost to meet expenses on hospitalization, consultation in OPD of any hospital, investigation etc.

OPD Services:

1. Doctors of the University Health Centre provide primary health care. The student can just walk in for consultations and treatment.
2. Specialist: Consultations with the specialists in Internal Medicine, Psychiatry, ENT, Ophthalmology, Skin, Orthopedic, Gynecology, Cardiology, Pediatrics, General Surgery (consultation only) and Dental O.P.D is also available at the U.H.C.
3. Homoeopathic Physician provides services in homoeopathic system of medicine.
4. Counselors are also there in Health centre to provide Counseling.
5. Medicines are provided free of cost to students from the pharmacy of the Health Centre as per university rules through Govt. Medical Stores Depot and local purchase from approved chemist inside the campus.
6. Laboratory facility provides spectrum of routinely available Hematological. Biochemical and Microbiology tests.
7. Routine Immunization (only for tetanus).
8. Referral services to public hospitals for specialized treatment/hospitalization and other services which are not covered by the U.H.C.
9. Medical examinations for academic pursuits in the University.
10. The facilities (wife and children only) of married students can avail of such medical facilities as are available at the Health Centre on payment of medical fees for the family. They are provided with medicines which are available in the Health Centre. The student may contact the Health Centre to get further information. In case of spouse of female student medical facility is provided up to the age 25 years or till they start earning, whichever may be earlier.
11. When the Health Centre is not open, all the patients are advised to go to government hospital or any other hospital. No reimbursement is permissible for students as per UGC norms.

Ambulance: - Two Ambulances are available at the Health Centre for 24 hrs. A doctor is also available at night from 9 P.M. to 8 A.M. with the ambulance. Mobile numbers to contact the ambulance in emergency are also printed on the O.P.D cards/Medical Booklets.

Emergency Ambulance mobile numbers: **9971728866 & 9971728877**

Services not covered:

1. Dental services like making of denture, root canal treatment etc.
2. Medical examination/certifications for employment outside JNU, Insurance, legal and other non-academic purpose.
3. Laboratory tests and X-ray for purpose other than diagnosis and treatment.

Timing: The University Health Centre functions from 8 a.m. to 2 p.m. and 3 p.m. to 9 p.m. on all working days from Monday to Saturday. In the Evening the part time doctors provide services and essential medicines are provided to meet the immediate needs of the students. Holi, Diwali, Sundays and National Holidays presently are observed as closed holidays. Health Centre functions between 8 a.m. to 2 p.m. on Gazzetted holidays.

Health Service Fee: Charged as per University Rules.

Medical Facilities for Foreign Students: Foreign Students are extended medical facilities at par with the Indian Students. The Foreign Student who wishes to avail of nursing home/private hospital facilities may obtain medical insurance cover at their expense to meet medical expenses on hospitalization etc.

For New Admission:

(i) **For Foreign Students:** Minimum Rupees One Lakh insurance cover will be mandatory for Foreign Students. They will be required to submit the copy of policy at the time of admission.

(ii) **Indian Students:** Indian Students who are admitted to JNU in future are advised to take insurance cover of RS. One Lakh at least or more if desired.

All these records/information shall be maintained in the office of Dean of Students.

For already Registered Foreign Students of JNU: Foreign Students who are already registered in JNU should also get a medical **insurance** cover and submit the relevant documents latest by 31st August, failing which they will not be allowed to register in the following semester i.e. winter semester.

Health Education: Health Education is an integral part of University Health Service.

General Policy Regarding Confidentiality: Personal and medical histories of the patients are treated with utmost confidentiality. Notification to the parents and others is generally considered to be the responsibility of the students unless the condition of the student is serious or he/she is unable to assume responsibility for informing his/her parents. OPD Card/Health Booklets with details of prescription remains with the patient/students.

Health Advisory Committee: Student representation on the Health Advisory Committee provides a liaison between the provider and the users of the service. The committee assesses, recommends programmes for development of services for benefit of the students.

XV. UNIVERSITY EMPLOYMENT, INFORMATION AND GUIDANCE BUREAU

Under the auspices of Delhi Administration, the University has an Employment, Information and Guidance Bureau. The Bureau helps the JNU alumni in seeking employment besides providing vocational guidance. Specifically, the objectives of the Bureau are:

(i) to register students alumni of this University for full-time and part-time jobs, consistent with their educational qualifications and job preferences;

(ii) to sponsor the names of those registered as and when vacancies are flashed by the Delhi University Employment Exchange, Central Employment Exchange of the Ministry of Labour and the exchanges/ agencies;

(iii) to maintain the record for the registered students during their stay at JNU.

Under a decision of the Delhi Administration the Bureau registers and sponsors names of JNU students on the basis of graduate degrees obtained prior to joining JNU. This should help a much larger number of JNU students in getting jobs through the Bureau.

XVI. GAMES AND SPORTS

A student, at the University level is aware of the importance of physical activities and organised Sports and Games programmes which should be combined with his/ her academic pursuits. JNU provides the basic facilities for such activities in terms of the sport fields/courts and also playing equipment, both for practice and competitions.

The University's Sports Office is located in the Sports Stadium, and is being looked after by one full-time Asst. Director of Physical Education. Presently the following games are organised under the framework of a club, with elected Convener. Athletics, Badminton, Basketball, Cricket, Chess, Volleyball, Mountaineering & Trekking, Wt -Lifting, Power-Lifting & Body Building, Taekwondo, Football, Tennis, Table-Tennis & Yoga. The election of the Convenor(s) is normally done in September each year. Annual competitions in all games are conducted by the Club with the help of the Sports Office.

Each Hostel has separate facilities for recreation which includes outdoor courts for Basketball, Badminton and Volleyball as also facilities for indoor games like Table - Tennis, Chess, Carrom, etc. Each hostel gets an annual grant towards recreation and is spent by the Hostel Committee in consultation with Warden (Recreation).

The Sports Office also runs a Yoga Centre. Yoga Classes are held both in the morning and evening. In addition workshops, special lectures, demonstrations and short courses are also conducted throughout the year.

XVII. CULTURAL ACTIVITIES

Cultural activities among the student community on the campus are promoted through various cultural clubs namely: Debating, Drama, Film, Fine Arts, Literary, Music and Dance, Nature and Wild Life, Photography, and UNESCO.

Each club functions under the supervision of the elected students conveners and the members of their executive committee who are elected every year by the student members of the respective clubs.

The University has a Culture Committee headed by a Cultural Coordinator to promote the functioning of the clubs and organizing of various cultural activities from time to time.

Only a nominal annual fee is charged to enable a large number of students to become members of clubs that they are interested in. A student can hold membership of more than one club.

XVIII. INTERNAL COMPLAINTS COMMITTEE (ICC)

Please visit : https://jnu.ac.in/icc www.jnu.ac.in/icc

XIX. ANTI RAGGING POLICY OF THE UNIVERSITY

In order to prohibit, prevent and eliminate the scourge of ragging, the University has implemented the regulations notified by the University Grants Commission on curbing the Menace of Ragging in Higher Educational Institutions, 2009 in view of the directions of the Hon'ble Supreme Court of India. The students found guilty of ragging are awarded punishment as prescribed in the UGC regulations. All candidates selected for admission will be required to submit an Affidavit from their parents.

UGC regulations on curbing the menace of ragging in higher educational institutions, 2009:

Excerpts from the UGC regulation (CPP- II) dated 17th June, 2009 (Full text is available in every hostel, Dean of Students office and JNU Website)

In exercise of the powers conferred by Clause (g) of sub-section (1) of Section 26 of the University Grants Commission Act, 1956, the University Grants Commission hereby makes the following Regulations, namely;

1.1 These regulations shall be called the “UGC regulations on curbing the Menace of Ragging in Higher Educational Institutions, 2009”.

2. Objectives:-

To prohibit any conduct by any student or students whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness a fresher or any other students, or indulging in rowdy or in disciplined activities by any student or students which causes or is likely to cause annoyance, hardship or psychological harm, or to raise fear or apprehension thereof in any fresher or any other student or asking any student to do any act which such student will not in the ordinary course do and which has the effect of causing or generating a sense of shame, or torment or embarrassment so as to adversely affect the physique or psyche of such fresher or any other students, with or without an intent to derive a sadistic pleasure or showing off power, authority or superiority by a student over any fresher or any other student; ‘3nd thereby, to eliminate ragging in all its forms from universities, deemed universities and other higher educational institutions in the country by prohibiting it under these Regulations, preventing its occurrence and punishing those who indulge in ragging as provided for in these Regulations and the appropriate law in force.

2. What constitutes Ragging: - Ragging constitutes one or more of any of the following acts:

a. any conduct by any student or students whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness a fresher or any other student;
b. indulging in rowdy or in disciplined activities by any student or students which causes or is likely to cause annoyance, hardship, physical or psychological harm or to raise fear or apprehension thereof in any fresher or any other student;

c. asking any student to do any act which such student will not in the ordinary course do and which has the effect of causing or generating a sense of shame, or torment or embarrassment so as to adversely affect the physique or psyche of such fresher or any other student;
d. act by a senior student that prevents, disrupts or disturbs the regular academic activity of any other student or a fresher;
e. exploiting the services of a fresher or any other student for completing the academic tasks assigned to an individual or a group of students.
f. any act of financial extortion or forceful expenditure burden put on a fresher or any other student by students;
g. any act of physical abuse including all variants of it: sexual abuse, homosexual assaults, stripping, forcing obscene and lewd acts, gestures, causing bodily harm or any other danger to health or person;
h. any act or abuse by spoken words, emails, post, public insults which wOlild also include deriving perverted pleasure, vicarious or sadistic thrill from actively or passively participating in the discomfiture to fresher or any other student;
i. any act that affects the mental health and self-confidence of a fresher or any other student with or without an intent to derive a sadistic pleasure or showing off power, authority or superiority by a student over any fresher or any other student. - .

6.1 (g) A student seeking admission to a hostel forming part of the institution, or seeking to reside in any temporary premises not forming part of the institution, including a private commercially managed lodge or hostel, shall have to submit additional affidavits countersigned by his/her parents/guardians in the form prescribed in Annexure I and Annexure II to these Regulations respectively along with his/her application.

6.2 (e)The institution shall. on the arrival of senior students after the first week or after the second week, as the case may be, schedule orientation programmes as follows, namely;

(i) Joint sensitization programme and counseling of both fresher and senior students by a professional counsellor, referred to in clause (i) of Regulation 6.1 of these Regulations;

(ii) joint orientation programme of freshers and seniors to be addressed by the Head of Institution and the anti-ragging committee; (iii) organization on a large scale of cultural, sports and other activities to provide a platform for the freshers and seniors to interact in the presence of faculty members; (iv) in the hostel, the warden should address all students; and may request two junior colleagues from the college faculty to assist the warden by becoming resident tutors for a temporary duration; (v) as far as possible faculty members should dine with the hostel resident in their respective hostels to instill a feeling of confidence among the freshers. 6.2 (O) Every student at the time of his/her registration shall inform the institution about his/her place of residence while pursuing the course of study, and in case the student has not decided his/her place of residence or intends to change the same, the details of his place of residence shall be provided immediately on deciding the same; and specifically in regard to a private commercially managed lodge or hostel where he/she has taken up residence.

6.2 (p) The Head of the institution shall, on the basis of the information provided by the student under clause (0) of Regulation 6.2, apportion sectors to be assigned to members of the faculty, so that such member of faculty can maintain vigil and report any incident of ragging outside the campus or en route while commuting to the institution using any means of transportation of students, whether public or private.

6.3 Every institution shall constitute the following bodies; namely

a. Every institution shall constitute a committee to be known as the Anti:. Ragging Committee to be nominated and headed buy the (i)Head of the institution, and (ii)consisting of representatives of civil and (iii)police administration,(iv)local media,(v)Non government Organizations involved in youth activities, representatives of faculty members, (vii)representatives of parents,(viii)representatives of students belonging to the freshers' (ix) category as well as senior students, (x)non-teaching staff; and shall have a diverse mix of membership in terms of levels as well as gender.

b. Every institution shall also constitute a smaller body to be known as the Anti-Ragging Squad to be nominated by the Head of the Institution with such representation as may· be considered necessary for maintaining vigil, oversight and patrolling functions and shall remain mobile, alert and active At all time Provided that the Anti-Ragging Squad shall have representation of various members of the campus community and shall have no outside representation.

c. It shall be the duty of the Anti-Ragging Squad to be called upon to make surprise raids on hostels, and other places vulnerable to incidents of, and having the potential of, ragging shall be empowered to inspect such places.

d. It shall also be the duty of the Anti-Ragging Squad to conduct an on spot enquiry into any incident of ragging referred to it by the Head of the institution or any member of the faculty or any member of the staff or any student or any parent or guardian or any employee of a service provider or by any other person, as the case may be; and the enquiry report along with recommendations shall be submitted to the Anti-Ragging Committee for action under clause (a) of Regulation 9.1.

Provided that the Anti-Ragging Squad shall conduct such enquiry observing a fair and transparent procedure and the principles of natural justice and after giving adequate opportunity to the student or students accused of ragging and other witnesses to place before it the facts, documents and views concerning the incident of ragging, and considering such other relevant information as may be required.

7. Action to be taken by the Head of the institution:- On receipt of the recommendation of the Anti- Ragging Squad or on receipt of any information concerning any reported incident of ragging, the Head of institution shall immediately determine if a case under the penal laws is made out and if so, either on his own or through a member of the Anti-Ragging Committee authorized by him in this behalf, proceed to file a first Information Report (FIR), within twenty four hours of receipt of such information or recommendation, with the police and local authorities, under the appropriate penal provisions relating to one or more of the following namely;

i. Abetment to ragging;
ii. Criminal conspiracy to rag;
iii. Unlawful assembly and rioting while ragging;
iv. Public nuisance created during ragging;
v. Violation of decency and morals through ragging;
vi. Injury to body, causing hurt or grievous hurt;
vii. Wrongful restraint;
viii. Wrongful confinement; ix. Use of criminal force;
x. Assault as well as sexual offences or unnatural offences;
xi. Extortion;
xii. Criminal trespass;
xiii. Offences against property;
xiv. Criminal intimidation;
xv. Attempts to commit any or all of the above mentioned offences against the victim(s);
xvi. Threat to commit any or all of the above mentioned offences against the victim(s);
xvii. Physical or psychological humiliation;
xviii. All other offences following from the definition of “Ragging”.

Provided that the Head of the .institution shall forthwith report the occurrence of the incident of ragging to the District Level Anti - Ragging Committee and the Nodal officer of the affiliating University, if the institution is an affiliated institution.

Provided further that the institution shall also continue with its own enquiry initiated under clause 9 of these Regulations and other measures without “”waiting for action on the part of the police/local authorities and such remedial action shall be initiated and completed immediately and in no case later than a period of seven days of the reported occurrence of the incident of ragging.

8. Administrative action in the event of ragging:-

8.1 The institution shall punish a student found guilty of ragging after following the procedure and in the manner prescribed here in under:

(a) The Anti-Ragging Committee of the institution shall take an appropriate decision, in regard to punis4ment or otherwise, depending on the facts of each incident of ragging and nature and gravity of the incident of ragging established in the recommendations of the Anti- Ragging Squad. (b) The Anti Ragging Committee may, depending on the nature and gravity of the guilt established by the Anti-Ragging Squad ,award, to those found guilty ,one or more of the following punishments, namely;

I. Suspension from attending classes and academic privileges.
II. Withholding! with drawing scholarship / fellowship and other benefits.
III. Debarring from appearing in any test/examination or other evaluation process.
IV. Withholding results.
V. Debarring from representing the institution in any regional, national or international meet, tournament, youth festival, etc.
VI. Suspension/expulsion from the hostel. vii. Cancellation of admission.
VII. Rustication from the institution for period ranging from one to four semester.
VIII. Expulsion from the institution and consequent debarring from admission to any other institution for a specified period.
IX. Provided that where the persons committing or abetting the act of ragging are not identified, the institution shall resort to collective punishment.

(C) An appeal against the order of punishment by the Anti-Ragging Committee shall lie,

(i) In case of an order of an institution, affiliated to or constituent part, of a university, to the Vice-Chancellor of the University;
(ii) In case of an order of a university, to its Chancellor.
(iii) In case of an institution of national importance created by an Act of Parliament, to the Chairman or Chancellor of the institution, as the case may be.

AFFIDAVIT BY THE STUDENT

(on a Non Judicial Stamp Paper of Rs.10/-)

I,_____(full name of student with admission/registration/enrolment number) s/o d/o Mr./Mrs./Ms. _____, having been admitted to J**AWAHARLAL NEHRU UNIVERITY, NEW DELHI** have received a copy of the UGC Regulations on Curbing the Menace of Ragging in Higher Educational Institutions, 2009, (hereinafter called the " Regulations"), carefully read and fully understood the provisions contained in the said Regulations.

(i) I have, in particular, perused clause 3 of the Regulations and am aware as to what constitutes ragging.

(ii) I have also, in particular, perused clause 7 and clause 9.1 of the Regulations and am fully aware of the penal and administrative action that is liable to be taken against me in case I am found guilty of or abetting ragging, actively or passively, or being part of a conspiracy to promote ragging.

(iii) I hereby solemnly aver and undertake that

I will not indulge in any behavior or act that may be constituted as ragging under clause 3 of the Regulations.

I will not participate in or abet or propagate through any act of commission or omission that may be constituted as ragging under clause 3 of the Regulations.

(iv) I hereby affirm that, if found guilty of ragging, I am liable for punishment according to clause 9.1of the Regulations, without prejudice to any other criminal action that may be taken against me under any penal law or any law for the time being in force.

(v) I hereby declare that I have not been expelled or debarred from admission in any institution in the country on account of being found guilty of, abetting or being part of a conspiracy to promote, ragging; and further affirm that, in case the declaration is found to be untrue, I am aware that my admission is liable to be cancelled.

Declared this _____ day of _____ month of _____ year.

_____
Signature of deponent
Name: _____
Centre /School_____

VERIFICATION

Verified that the contents of this affidavit are true to the best of my knowledge and no part of the affidavit is false and nothing has been concealed or misstated therein.

Verified at _____ on this the _____ of _____, _____.
(place) (day) (month) (year)

_____
Signature of deponent

Solemnly affirmed and signed in my presence on this the _____ of _____, _____ after
(day) (month) (year)
reading the contents of this affidavit.

OATH COMMISSIONER

AFFIDAVIT BY PARENT/GUARDIAN

(on a Non Judicial Stamp Paper of Rs.10/-)

I, Mr./Mrs./Ms._____(full name of parent/guardian) father/mother/guardian of,_____(full name of student with admission/ registration/ enrolment number), having been admitted to_____ (name of the institution), have received a copy of the UGC Regulations on Curbing the Menace of Ragging in Higher Educational Institutions, 2009, (hereinafter called the " Regulations"), carefully read and fully understood the provisions contained in the said Regulations.

1) I have, in particular, perused clause 3 of the Regulations and am aware as to what constitutes ragging.

2) I have also, in particular, perused clause 7 and clause 9.1 of the Regulations and am fully aware f the penal and administrative action that is liable to be taken against my ward in case he/she is found guilty of or abetting ragging, actively or passively, or being part of a conspiracy to promote ragging.

3) I hereby solemnly aver and undertake that

   a. My ward will not indulge in any behavior or act that may be constituted as ragging under clause 3 of the Regulations.

   b. My ward will not participate in or abet or propagate through any act of commission or omission that may be constituted as ragging under clause 3 of the Regulation.

4) I hereby affirm that, if found guilty of ragging, my ward is liable for punishment according to clause 9.1of the Regulations, without prejudice to any other criminal action that may be taken against my ward under any penal law or any law for the time being in force.

5) I hereby declare that my ward has not been expelled or debarred from admission in any institution in the country on account of being found guilty of, abetting or being part of a conspiracy to promote, ragging; and further affirm that, in case the declaration is found to be untrue, the admission of my ward is liable to be cancelled.

Declared this _____ day of _____ month of _____ year.

_____
Signature of deponent
Name:
Address:
Telephone/Mobile No.:

VERIFICATION

Verified that the contents of this affidavit are true to the best of my knowledge and no part of the affidavit is false and nothing has been concealed or misstated therein.

Verified at (place)_____ on this the (day)_____ of (month)_____, (year)_____.

_____
Signature of deponent

Solemnly affirmed and signed in my presence on this the (day)_____ of (month)_____, (year)_____

after reading the contents of this affidavit

OATH COMMISSIONER

XX. RULES OF DISCIPLINE AND PROPER CONDUCT OF STUDENTS OF JNU

Preamble

Whereas by virtue of section 5(10)* of the JNU Act read with Statute 32(1)** of the Statutes of the University, the Vice-Chancellor has been vested with all the powers relating to discipline and disciplinary action in relation to students and whereas Statute 32(5)*** empower the University to frame detailed rules of discipline and proper conduct; and now in pursuance of the same the Vice-Chancellor has approved the following rules of discipline and proper conduct among the students of the University.

1. Short title and Commencement

i) These Rules shall be called "The JNU Students' Discipline and Conduct Rules", hereafter referred to as the "Rules".

ii) These Rules shall come into force with effect from the date of notification****.

2. Application of Rules

i) These Rules shall apply to all students of the University (including part-time students) whether admitted prior to the commencement of these Rules or after the commencement of these Rule.

ii) Any breach of discipline and conduct committed by a student inside or outside the JNU Campus shall fall under the purview of these Rules.

iii) Without prejudice to the generality of the power to enforce discipline under Statue 32 of the Statutes of the University, the acts mentioned in Rules 3 shall amount to acts of misconduct or indiscipline or both.

* *To regulate and enforce discipline among students and employees of the university and to take such disciplinary measures in this regards as may be deemed necessary.*

** *All powers relating to discipline and disciplinary action in relation to students shall vest in the Vice-Chancellor.*

*** *Without prejudice to the powers of the Vice-Chancellor and the Chief Proctor as aforesaid, detailed rules of discipline and proper conduct shall be framed. The Principals or, as the case may be, the Heads of the colleges, Institutions, Departments, Special Centres or Specialised Laboratories may frame such supplementary rules as they deemed necessary for the aforesaid purposes. Every student shall provide himself with a copy of these rules.*

**** *These Rule shall come into force w.e.f. 19th June 2000.*

3. Categories of misconduct and indiscipline Category-I

i) All acts of violence and all forms of coercion such as gheraos, sit-ins or any variation of the same which disrupt the normal academic and administrative functioning of the University and or any act which incites or leads to violence.

ii) Gheraos, laying siege or staging demonstrations around the residence of any member of the University Community or any other form of coercion, intimidation or disturbance of right to privacy of the residents of the campus.

iii) Sexual harassment of any kind which shall also include: unwelcome sexual proposition/ advancements, sexually graphic comments of a body unwelcome touching, patting pinching or leering of parts of the body or persistent offensive or unwelcome sexual jokes and or comments.

Category-II

iv) Committing forgery, tampering with the Identity Card or University records, impersonation, misusing University property (movable or immovable), documents and records, tearing of pages of, defacing, burning or in any way destroying the books, journals, magazines and any material of library or unauthorised photocopying or possession of library books, journals, magazines or any other material.

v) Hunger strikes, dharnas, group bargaining and any other form of protest by blocking entrance or exit of any of the academic and/or administrative complexes or disrupting the movements of any member of the University Community.

vi) Furnishing false certificates or false information in any manner to the University.

vii) Any act of moral turpitude.

viii) Eve-teasing or disrespectful behaviour or any misbehaviour with a girl student, women staff member/ visitor.

ix) Arousing communal caste or regional feelings or creating disharmony among students.

x) Use of abusive, defamatory, derogatory or intimidatory language against any member of the University Community.

xi) Causing or colluding in the unauthorised entry of any person into the Campus or in the unauthorised occupation of any portion of the University premises, including halls or residence by any person.

xii) Unauthorised occupation of the hostel rooms or unauthorised acquisition and use of University furniture in one's hostel room or elsewhere.

xiii) Indulging in acts of gambling in the University premises.

xiv) Consuming or possessing dangerous drugs or other intoxicants in the University premises.

xv) Damaging or defacing, in any form any property of the University or the property of any member of the University community.

xvi) Not disclosing one's identity when asked to do so by a faculty member or employee of the University who is authorised to ask for such identity.

xvii) Improper behaviour while on tour or excursion.

xviii) Coercing the medical staff to render medical assistance to persons not entitled for the same or any other disorderly behaviour in the Health Centre.

xix) Blockade or forceful prevention of any normal movement of traffic, violation of security safety rules notified by the University.

xx) Any other offence under the law of land.

xxi) Ragging in any form

xxii) Accommodating unauthorized guests or other persons in the halls of residence.

xxiii) Engaging in any attempt at wrongful confinement of any member of the faculty, staff, student or anyone camping inside the Campus.

xxiv) Any intimidation of or insulting behavior towards a student, staff or faculty or any other person.

xxv) Any other act which may be considered by the V.C. or any other competent authority to be an act of violation of discipline and conduct.

4. Punishment

The competent authority may impose any of the following punishments on any student found guilty of any of the acts of indiscipline or misconduct mentioned in Category-I or Category-II as the case may be, in Rule 3.

Category I:

1) Cancellation of admission or withdrawal of degree or denial of registration for a specified period.

2) Rustication upto four semester period and/or declaring any part or the entire JNU Campus out of bounds.

3) Expulsion

Category II

1) Admonition/Reprimand

2) Fine upto Rs. 20,000/-

3) Recovery of any kind, such as scholarship/fellowship, any dues, cost of damages, etc.

4) Withdrawal of any or all facilities available to a student as per, JNU Rules (such as Scholarship/Fellowship, hostel etc)

5) Stoppage of any or all academic processes.

6) Declaring any Halls of Residence, premises, building or the entire JNU Campus out of bounds to any students.

7) Rustication upto two semesters.

5. General

1) No punishment shall ordinarily be imposed on a student unless he/she is found guilty of the offence for which he/she has been charged by a proctorial or any other inquiry after following the normal procedure and providing due opportunity to the student charged for the offence to defend himself.

2) In case the Vice-Chancellor or any competent authority is of the opinion that on the basis of the available material and evidence on record a prima facie case exists against a student he may order suspension of the student including withdrawal of any or all facilities available to a bona fide student pending proctorial or any other inquiry.

3) Notwithstanding any punishment mentioned in Rule 4, the Vice-Chancellor may keeping in view the gravity/nature of misconduct/act of indiscipline, the manner and the circumstances in which the misconduct/indiscipline has been committed award a punishment in excess of or less than or other than what has been mentioned thereon for reasons to be recorded.

6. Interpretation

In case any dispute arises with regard to the interpretation of any of these Rules, the matter shall be referred to the Vice-Chancellor, whose decision thereon shall be final.

XXI. FEE AND MODE OF PAYMENT

Candidates selected for various programmes of study will be required to pay the following fees:

"A" Indian Nationals

	Fee Component	Programme			
		Ph.D, M.Phil, M.Tech, MPH	M.A./M.Sc./MCA /B.A. (Hons.)	PG Dipoloma in Big Data Analytics (PGDT)	Part-Tiime
1	Tuition Fee (Annual)	Rs. 240.00***	Rs.216.00***	Rs.10000.00	Rs.120.00
2	Sports Fee (Annual)	Rs.16.50	Rs.16.50	Rs.16.50	Rs.16.50
3	Literary & Cultural Fee (Annual)	Rs.16.50	Rs.16.50	Rs.16.50	Rs.16.50
4	Library Fee (Annual)	Rs.6.00	Rs.6.00	Rs.6.00	Rs.6.00
5	Medical fee (Annual)	Rs.9.00	Rs.9.00	Rs.9.00	----
6	Medical Booklet	Rs.12.00	Rs.12.00	Rs.12.00	----
7	Students Aid Fund (Annual)	Rs.4.50	Rs.4.50	Rs.4.50	----
8	*Admission Fee	Rs.5.00	Rs.5.00	Rs.5.00	Rs.5.00
9	*Enrolment Fee	Rs.5.00	Rs.5.00	Rs.5.00	Rs.5.00
10	*Security Deposit (Refundable)	Rs.40.00	Rs.40.00	Rs.40.00	Rs.40.00
11	Identity Card Folder	Rs.10.00	Rs.10.00	Rs.10.00	Rs.10.00
12	Student Hostel and General Information Guide	Rs.15.00	Rs.15.00	Rs.15.00	----
13	National Service Scheme (NSS)	Rs.20.00	Rs.20.00	Rs.20.00	----

The fees are subject to revision

**To be paid at the time of Enrolment in the University.*
****To be realised in two instalments.*

Students shall deposit tuition fee: (i) First Instalment at the time of admission
Second instalment at the time of registration in the Winter Semester i.e. January.
(ii) Annual Fees shall be paid at the commencement of each academic year

- In the event of student being enrolled simultaneously for a full -time course and one part-time course, he will be charged, in addition to all the fees and other charges for the full-time course, only the tuition fee in respect of part-time course.

- **If a student does not pay the fees on time, a fine shall be levied as per rules of the University.**

"B" Foreign Nationals

For Ph.D, M.Phil., M.Tech., MPH, M.A., M.Sc., MCA, B.A.(Hons.) and Part-Time Programmes of study:

(i) Tuition Fee: (a) @ US $1500 per semester for courses in science disciplines;
(b) @ US $1000 per semester for courses in humanities and social sciences;
(ii) Incidental charges: @ US $ 200 per semester will be charged from both the above categories.

Note:
a. Name of the defaulter, which shall be put up on the Notice Board, shall be removed from the rolls of the University.
b. No request for fee waver will be considered.
c. GST charges as applicable will be payable over the above stated fees

"C" The Fee Structure of School of Engineering

The tuition fee structure for the students, admitted to the School of Engineering, is as follows.

S. No.	Head of Fee	Odd Semester & Even Semester			
		GENERAL/ OBC			SC/ST/PH
		Economically Most Backward Students (Income below Rs 1 Lac)	Other Economically Backward Students (Income Rs 1 Lac to 5 Lac)	Income above Rs 5 Lac	All
1.	Tuition Fee per semester	0	20,833.00	62,500	0

The Institute fee structure for all categories of the students, admitted to the School of Engineering, is as follows.

S. No.	Head of Fee	In Rupees
1.	Student Activity Fee (per sem.)	2500
2.	University Development Fund (per sem.)	1000
3.	Admission Fee (One Time)	1000
4.	Examination Fee (per sem.)	1000
5.	Medical Insurance (per year)	500
6.	Alumni Fee (One Time)	1000
7.	Registration Fee (per sem.)	1000
8.	Security Deposit (Refundable: One Time)	5000
9.	Medical fee (Annual)	9
10.	Medical Booklet	12

"D" Fee structure for the MBA programme (Indian Citizens)

- The structure of tuition fees for Indian Citizens who have secured admission in the MBA programme at **Atal Bihari Vajpayee School of Management and Entrepreneurship**, JNU is as follows:

a. General Category Students: Rs. 12 Lacs for the entire MBA Full Time Programme payable in equal instalments (4 Semesters)

b. OBC Students (Non-creamy Layer): Rs. 8 Lacs for the entire MBA Full Time Programme payable in equal instalments (4 Semesters)

c. SC/ST/PWD Students: Rs. 6 Lacs for the entire MBA Full Time Programme payable in equal instalments (4 Semesters)

The University fee structure for *all categories* of students, who are Indian citizens and have been admitted to the MBA programme of "ABV School of Management and Entrepreneurship", JNU, is as follows.

S. No.	Head of Fee	In Rupees
1.	Student Activity Fee (per semester)	2500
2.	University Development Fund (per semester)	1000
3.	Admission Fee (One Time)	1000
4.	Examination Fee (per semester)	1000
5.	Medical Insurance (per year)	500
6.	Alumni Fee (One Time)	1000
7.	Registration Fee (per semester)	1000
8.	Security Deposit (Refundable: One Time)	5000
9.	Medical fee (Annual)	9
10.	Medical Booklet	12

XXII. FREESHIP

Limited number of student-ships are available to needy and deserving Indian Students as per University Rules.

XXIII. STUDENTS' AID FUND

The University has instituted “Students Aid Fund" out of the contributions from the students and staff of the University and collections from other sources. The objectives of the fund are:

1. to render financial assistance to the poor and deserving students for payment of tuition fees, examination fees, purchase of text-books, stationery etc.

2. to meet any other need of the students considered to be genuine by the freeship committee of the School concerned; Provided that the funds shall not be utilized for award of scholarships/fellowships or stipends or for payments of prizes, rewards etc. to students.

A student requiring financial assistance shall apply in the prescribed form, (through the Chairperson of the Centre), to the Dean of the School. Application for a loan may be made in the same form, (through the Chairperson of the Centre and the Dean of the School), to the Dean of Students.

THE G. PARTHASARATHI ENDOWMENT FUND FOR ECONOMICALLY WEAKER SECTIONS - The University has created a Fund called "The G. Parthasarthi Endowment Fund for Economically Weaker Sections" for providing financial assistance to students coming from economically weaker sections of society including SCs/STs/Backward Classes and Physically Challenged (Handicapped) students. Students belonging to the above categories and who are not in receipt of any scholarship/fellowship or financial assistance from any other sources are eligible to apply for financial assistance, loan or advance out of the above fund and their requests shall be considered subject to availability of funds so as to help the needy students.

XXIV. CERTIFICATES AND OTHER DOCUMENTS REQUIRED AT THE TIME OF VIVA VOCE AND ADMISSION

1. Certificates and documents required to be submitted by candidates for admission to Ph.D. and M.Phil. at the time of viva-voce examination.

(i) Testimonials from two persons one of whom should be a former teacher of the candidate;

(ii) A complete list of subjects/papers taken by the candidate for the certificates/degrees mentioned in Sl. No. 2;

(iii) A copy of at least one of the published papers of the candidate, if any, which he/she considers to be the most representative of his/her intellectual interest and ability.

(iv) A brief note (one copy) stating the candidate's area of specialised interest of research, if any, and his future professional goals, and such other additional information that may help his/her selection to the programme of study.

(v) A research proposal of around 500 words is to be submitted by the candidate at the time of viva-voce.

(vi) Foreign National candidates are required to submit statement of purpose (SoP) for Ph.D. and M.Phil programmes.

2. Certificates and documents required to be submitted by all candidates selected for admission to various programmes of study at the time of admission/registration.

(i) Enrolment Form

(ii) Central Library Application Form

(iii) Five copies of recent passport size photographs

(iv) Two sets of self-attested copies of the Matriculation, Higher secondary, Pre-University or Indian School Certificate or Senior School Certificate (10+2), or an equivalent examination certificate showing the age/date of birth of the candidate.

(v) A Character Certificate from the Head of the Institution last attended

(vi) Two sets of self-attested copies of the statement of marks obtained by the candidate and passing certificate/degree of Senior School, Bachelor's Degree/Master's Degree examination etc; or their equivalent examination

(vii) **For SC/ST candidates:** Two self-attested copies of SC/ ST certificate in the prescribed format in support of claim for admission against reserved quota. Candidates should bring original caste/ category certificate at the time of admission/ registration (Format is as given in Page No. 106).

(viii) **For OBC candidates:** Two self-attested copies of OBC certificate along with recently issued OBC Non-creamy layer certificate. The validity of the non-creamy layer certificate shall be for the financial year 2018-19. Candidates should bring original caste/ category certificate at the time of admission/ registration (Format is as given in Page No. 107-108).

(ix) **For PwD candidates:** Two copies of Disability certificate in the prescribed format issued by the Competent Medical Authority indicating the nature and extent (including percentage) of Physical Disability in support of their claim for admission against PWD quota. Candidate should bring original Disability as per Disability Act 2016 at the time of admission/ registration (Form No. V, VI and VII as given in Page No. 109, 110 & 111).

(x) **For EWS candidates:** Two copies of the Income and asset certificate to be certified by an officer not below the rank of Tehsildar in the States/UTs in the prescribed format as given in Page No. 74

(xi) Migration Certificate (in original) from the Head of the Institution/University last attended:

a) All those candidates who have passed their qualifying examination prior to 2019 must produce the Migration Certificate from the University from where they have passed their qualifying examination at the time of admission/registration failing which they will not be granted admission.
b) Candidates who have passed their qualifying examination in 2019 and are not in a position to submit the Migration Certificate at the time of admission, should submit the same as early thereafter as possible, but not later than 30th October, failing which the University reserves the right to cancel their admission.

(xii) Two Anti-Ragging Affidavits (one to be signed by the candidate and the other to be signed by the parent/guardian of the candidate) on non-judicial Stamp Paper of Rs.10/- each as per the given format (ANNEXURE) duly attested by a Notary Public is required to be submitted at the time of registration. Candidate may retain one copy each of the Anti-Ragging Affidavit for submitting at IHA (Inter Hall Administration) Counter (For Anti-Ragging Affidavits format please see section 15(d) of the E-Prospectus).

(xiii) Candidates pursuing their studies with some other University/Institution are required to submit discontinuation certificate signed by appropriate authority from their respective University/Institution at the time of registration/admission, failing which admission shall not be granted. They are also required to submit the Migration Certificate subsequently within the stipulated time.

(xiv) Candidate submitting the internet downloaded mark sheets are advised to submit the same with due authentication/signatures of Competent Authority of their respective university/institution.

(xv) The admission of candidates who have passed their qualifying examination from a Foreign University will be subject to their qualification being found equivalent to the qualifications prescribed by the University.

(xvi) The candidates, enjoying employed status and selected for admission to any programme of study in the University, are required to produce **LEAVE SANCTION ORDER/RELIEVING ORDER AT THE TIME OF ADMISSION/ REGISTRATION** from their employer for the duration of the programme permitting them to pursue their studies at the University, failing which the offer of admission shall stand withdrawn. In case of resignation, the candidates are required to submit Relieving Order from their employer at the time of admission/registration.

(xvii) Online payment while filling up the pre-enrolment portal for accepting the offer of admission:

Ph.D., M.Phil., M.Tech, MPH	Rs. 280.00*
PGDT	Rs. 10,159.50*
M.A./M.Sc./M.C.A, B.A. (Hons.)	Rs. 268.00*
Part Time	Rs. 219.00*

*** Plus GST, as applicable**

(xviii) Following documents will be submitted by the candidate (in original) at the Admission Counter in a separate envelope while taking admission/registration:

a) Provisional Certificate of the qualifying examination,
b) Migration certificate
c) Character Certificate
d) Anti-ragging Affidavits
e) Discontinuation certificate

(xix) All the selected candidates have to upload the necessary certificates in the pre-enrolment portal while accepting the offer of admission.

Important: *The candidates, will be allowed to register only IN PERSON. The candidates are also required to produce all originals of the above certificates/documents for verification at the time of registration/admission. In the absence of any of the original certificates/documents, registration/admission shall not be allowed.*

FORM OF CASTE CERTIFICATE TO BE PRODUCED BY THE CANDIDATESBELONGING TO SC/ST CATEGORIES

Form of Certificate as prescribed in M.H.A,O.M. NO.42/21/49-N.G.S., dated 28-1-1952 as revised in Dept. of Per.& A.R., Letter No.36012/6/76-Estt.(S.C.T.), dated 29-10-1977, to be produced by a candidate belonging to a Scheduled Caste or Scheduled Tribe in support of his claim.

FORM OF CASTE CERTIFICATE

This is to certify that Shri/Shrimathi*/Kumari* _____ Son/daughter* of _____ of village/town* _____ in District/ Division* _____ of the State/ Union Territory*_____ belongs to the _____

Caste/Tribe* which is recognized as aScheduled CasteScheduled Tribe*
Under:
The Constitution (Scheduled Castes)Order, 1950.

*The Constitution (Scheduled Tribes) Order, 1950.
*The Constitution (Scheduled Castes) (Union Territories) Order, 1951.
*The Constitution (Scheduled Tribes) (Union Territories) Order, 1951.
(As amended by the Scheduled Castes and Schedules Tribes Lists (Modification Order)1956, the Bombay Reorganization Act, 1960, the Punjab Reorganization Act, 1966, the State of Himachal Pradesh Act, 1970, the North-Eastern Areas (Reorganization) Act, 1971 and the Scheduled Castes and Schedules Tribes Orders(Amendment) Act, 1976.)
*The Constitution (Jammu and Kashmir) Scheduled Castes Order, 1956;
*The Constitution(Andaman and Nicobar Islands) Scheduled Tribes Order, 1959, as amended by the Scheduled Castes and Scheduled Tribes Orders(Amendment)Act, 1976;
*The constitution(Dadra and Nagar Haveli) Scheduled Castes Order, 1962; *The Constitution (Dadra and Nagar Haveli) Scheduled Tribes Order, 1962; *The Constitution (Pondicherry) Scheduled Castes Order,1964;
*The Constitution (Uttar Pradesh, Scheduled Tribes Order, 1967;
*The Constitution (Goa, Daman and Diu) Scheduled Castes Order, 1968;
*The Constitution (Goa,
Daman and Diu) Scheduled Tribes Order, 1968;] *The Constitution (Nagaland) Scheduled Tribes Order,1970;
*The Constitution (Sikkim) Scheduled Castes Order, 1978;
*The Constitution (Sikkim) Scheduled Tribes Order, 1978;
*The Constitution (Jammu and Kashmir) Scheduled Tribes Order, 1989. *The Constitution (Scheduled Castes) Order (Amendment) Act, 1990. *The Constitution (Scheduled Tribes) Order Amendment Act, 1991.
*The Constitution(Scheduled Tribes) Order Second Amendment Act,1991.

2. **This certificate is issued on the basis of the Scheduled Castes/Scheduled Tribes Certificate issued to Shri/Shrimathi* _____ father/mother*of Shri/Shrimathi/Kumari* _____ of village/town* _____ in District/Division*_____of the State/Union Territory* _____ who belong to the Caste/Tribe* which is recognized as a Scheduled Caste/Scheduled Tribe* in the State/Union Territory* _____ issued by the _____ dated _____.

3. Shri/Shrimathi*/Kumari*_____and /or* his/her* family ordinarily reside(s) in village/town*_____of _____District/Division* of the State/Union Territory* of _____

Signature_____
Designation_____
(With seal of office)

State _____
Union Territory
Place_____
Date_____

Note:- The term "Ordinarily resides" used here will have the same meaning as in Section 20 of the Representation of the Peoples Act, 1950.

(iii) ***Please delete the words which are not applicable.***
Applicable in the case of SCs, STs persons who have migrated from one State/UT.

The authorities competent to issue Caste Certificates are indicated below:

(i) District Magistrate / Additional Magistrate / Collector / Deputy Commissioner / Additional Deputy Commissioner/ Deputy Collector / Ist Class Stipendiary Magistrate / Sub-Divisional Magistrate / Taluka Magistrate / Executive Magistrate / Extra Assistant Commissioner (not below the rank of Ist Class Stipendiary Magistrate).
(ii) Chief Presidency Magistrate / Additional Chief Presidency Magistrate / Presidency Magistrate.
(iii) Revenue Officer not below the rank of Tehsildar, and
Sub-Divisional Officer of the area where the candidate and / or his family resides.

OBC Non-Creamy Layer (NCL) Certificate Format

FORM OF CERTIFICTE TO BE PRODUCED BY OTHER BACKWARD CLASSES NCL) APPLYING FOR ADMISSION TO CENTRAL EDUCATIONAL INSTITUTIONS (CEIs), UNDER THE GOVERNMENT OF INDIA

This to certify that Shri/Smt./Kum* _____ Son/ Daughter* of Shri/Smt.* _____ of Village/ Town*_____ District/ Division* _____ in the State/Union Territory _____ belongs to the _____ community that is recognized as a backward class under Government of India**, Ministry of Social justice and Empowerment's Resolution No. _____ dated _____***.

Shri/Smt./Kum.* _____ and his/ her family ordinarily reside(s) in the _____ District/Division of the _____ State/ Union Territory. This is also to certify that he/she does NOT belong to the persons/ sections (Creamy Layer) mentioned in Column 3 of the Schedule to the Government of India, Department of Personnel & Training O.M. No. 36012/22/93 Estt. (SCT) dated 08/09/93 which is amended vide OM No. 36033/2004 Estt. (Res.) dated 09/03/2004, further amended vide OM No. 36036/2/2013 Estt. (Res.) dtd. 30/05/2014****.

Place:

Dated:

District Magistrate/
Deputy Commissioner/
Any other Competent Authority
(With seal of the Office)

---

*- Please delete word(s) which are not applicable.
**- As listed in the Annexure (for FORM OBC NCL).
***- The authority issuing the certificate needs to mention the details of Resolution of Government of India, in which the caste of the candidate is mentioned as OBC.
****- As amended from time to time.

NOTE:
(a) The term 'Ordinarily resides' used here will have the same meaning as in Section 20 of the Representation of the people Act, 1950.
(b) The authorities competent to issue Caste Certificates are indicated below:
(i) District Magistrate/ Additional Magistrate/ Collector/ Deputy Commissioner/ Additional Deputy Commissioner/ Deputy Collector/ 1st Class Magistrate/ Sub Divisional magistrate/ Taluka Magistrate/ Executive Magistrate/ Extra Assistant Commissioner (not below the rank of 1st Class Stipendiary Magistrate).
(ii) Chief Presidency Magistrate/ Additional Chief Presidency Magistrate/ Presidency Magistrate.
(iii) Revenue Office not below the rank of Tehsildar' and
(iv) Sub Divisional Officer of the area where the candidate and/or his family resides.

Declaration by the Candidate in Lieu of OBC-NCL Certificate

Name of the Candidate:_____

Address: _____

_____

_____

Mobile No: _____

E mail: _____

Passport Size Photo

I understand that as per the new guidelines from the Ministry of Personnel, Public Grievances and pensions, GoI, I am required to submit OBC-NCL certificate issued on **or after April 2018**.
Since I have not been able to collect the said certificate on time, I may kindly be allowed to appear in JNUEE 2019-20 provisionally and I will upload the OBC-NCL certificate (issued on or after April 1, 2018) at the University web portal at the earliest. I understand that failure to do so will lead to the withdrawal of OBC-NCL benefit. I also understand that, if qualified, my category will be adjusted accordingly in the Common Rank list.

Signature of Father/ Mother

Name: _____

Date: _____

Signature of Applicant:

Date:

Form - V

Certificate of Disability

(In case of amputation or complete permanent paralysis of limbs or dwarfism and in case of blindness)

[See rule 18 (1)]

(Name and Address of the Medical Authority issuing the Certificate)

Recent passport size attested photograph (Showing face only) of the person with disability.

Certificate No. _____ Date: _____

This is to certify that I have carefully examined Shri/Smt./Kum._____ Son/wife/daughter of Shri _____ Date of birth (DD/MM/YY) _____ Age _____ Years, male/female _____ registration No. _____ Permanent resident of House No. _____ Ward/Village/Street _____ Post office _____ District _____ State _____, whose photograph is affixed above, and am satisfied that:

(A) he/she is a case of:

- Locomotor disability
- dwarfism
- blindness

(Please tick as applicable)

(B) The diagnosis in his/her case is _____.

(A) he/she has _____% (in figure) _____ percent (in words) permanent locomotor disability/ dwarfism/ blindness in relation to his/her _____ (Part of body) as per guidelines (_____ number and date of issue of the guidelines to be specified).

2. The applicant has submitted the following documents as proof of residence:-

Nature of Document	Date of Issue	Details of authority issuing certificate

(Signature and Seal of Authorised Signatory of notified Medical Authority)

Signature/thumb impression of the person in whose favour certificate of disability is issued

Form – VI

Certificate of Disability
(In case of multiple disabilities)
[See rule 18 (1)]
(Name and Address of the Medical Authority issuing the Certificate)

Recent passport size attested photograph (Showing face only) of the person

Certificate No. _____ Date: _____

This is to certify that we have carefully examined Shri/Smt./Kum. _____ Son/wife/daughter of Shri _____ Date of birth (DD/MM/YY) _____ Age _____Years, male/female _____.
Registration No. _____ Permanent resident of House No. _____Ward/Village/Street _____ Post Office _____ District _____ State _____ whose photograph is affixed above, and am satisfied that:

(A) he/she is a case of Multiple Disability. His/her extent of permanent physical impairment/disability has been evaluated as per guidelines (_____ number and date of issue of the guidelines to be specified) for the disabilities ticked below, and is shown against the relevant disability in the table below:

Sl. No.	Disability	Affected part of body	Diagnosis	Permanent physical impairment/mental disability (in %)
1.	Locomotor disability	@		
2.	Muscular Dystrophy			
3.	Leprosy cured			
4.	Dwarfism			
5.	Cerebal Palsy			
6.	Acid attack Victim			
7.	Low vision	#		
8.	Blindness	#		
9.	Deaf	£		
10.	Hard of Hearing	£		
11.	Speech and Language disability			
12.	Intellectual Disability			
13.	Specific Learning Disability			
14.	Autism Spectrum Disorder			
15.	Mental Illness			
16.	Chronic Neurological Conditions			
17.	Multiple sclerosis			
18.	Parkinson's disease			
19.	Haemophilia			
20.	Thalassemia			
21.	Sickle Cell disease			

(B) In the light of the above, his/her over all permanent physical impairment as per guidelines (_____ number and date of issue of the guidelines to be specified), is as follows:-

In figure:- _____ percent
In words:- _____ percent

2. This condition is progressive/non-progressive/likely to improve/ not likely to improve.
3. Reassessment of disability is:
(i) Not necessary,
Or
(ii) is recommended/after _____ years _____ months, and therefore this certificate shall be valid till _____ _____ ____
(DD) (MM) (YY)

@ - e.g. Left/right/both arms/legs
# - e.g. Single eye
€ - e.g. Left/Right/both ears

4. The applicant has submitted the following document as proof of residence:-

Nature of document	Date of issue	Details of authority issuing certificate

5. Signature and seal of the Medical Authority.

Name and Seal of Member	Name and Seal of Member	Name and Seal of the Chairperson

Signature/thumb impression of the person in whose favour certificate of disability is issued.

Form - VII

Certificate of Disability

(In case other than those mentioned in forms V and VI)

(Name and Address of the Medical Authority issuing the Certificate)

[See rule 18 (1)]

Recent passport size attested photograph

(Showing face only) of the person with disability.

Certificate No. _____ Date: _____

This is to certify that we have carefully examined Shri/Smt/Kum._____ Son/wife/daughter of Shri_____ Date of birth (DD/MM/YY) _____ Age____ Years, male/female _____ Registration No. _____ Permanent resident of House No. _____ Ward/Village/Street _____ post office _____ District _____ State _____, whose photograph is affixed above, and am satisfied that he/she is a case of _____disability. His/her extent of percentage physical impairment/disability has been evaluated as per guidelines (_____ number and date of issue of the guidelines to be specified) and is shown against the relevant disability in the table below:-

Sl. No.	Disability	Affected part of body	Diagnosis	Permanent physical impairment/mental disability (in %)
1.	Locomotor disability	@		
2.	Muscular Dystrophy			
3.	Leprosy cured			
4.	Cerebal Palsy			
5.	Acid attack Victim			
6.	Low vision	#		
7.	Deaf	£		
8.	Hard of Hearing	£		
9.	Speech and Language disability			
10.	Intellectual Disability			
11.	Specific Learning Disability			
12.	Autism Spectrum Disorder			
13.	Mental illness			
14.	Chronic Neurological Conditions			
15.	Multiple sclerosis			
16.	Parkinson's disease			
17.	Haemophilia			
18.	Thalassemia			
19.	Sickle Cell disease			

(Please strike out the disabilities which are not applicable)

2. The above condition is progressive/non-progressive/likely to improve/ not likely to improve.

3. Reassessment of disability is:

(i) not necessary, or

(ii) is recommended/after _____ years _____ months, and therefore this certificate shall be valid till (DD)/(MM)/(YY) _____ _____ ____

@ - e.g. Left/right/both arms/legs

- e.g. Single eye/ both eyes

€ - e.g. Left/Right/both ears

4. The applicant has submitted the following document as proof of residence:-

Nature of document	Date of issue	Details of authority issuing certificate

(Authorised Signatory of notified Medical Authority)

(Name and Seal)

Signature/thumb impression of the person in whose favour certificate of disability is issued.

Countersigned

{Countersignature and seal of the Chief Medical officer/medical superintendent/Head of Government hospital, in case the Certificate is issued by a medical authority who is Not a Government servant (with seal)}

Note: In case this certificate is issued by a medical authority who is not a Government servant, it shall be valid only if countersigned by the Chief Medical Officer of the District.

XXV. ADMISSION PROCEDURE FOR FOREIGN STUDENTS

Every year foreign nationals are admitted to various programmes of study under the following categories:-

(a) Self-financing Students

i) through Entrance Examination and/or viva voce

ii) through 'In Absentia"

(b) Under the Cultural Exchange Fellowship Programme of Govt. of India.

(c) As Casual Students to audit/credit the courses (not leading to award of any degree)

Foreign nationals seeking admission in any of the categories under (a) and (b) above will have to satisfy the minimum eligibility criteria for admission to the various programmes of study as prescribed by the University.

(a) SELF FINANCING STUDENTS

(I) THROUGH ENTRANCE EXAMINATION AND/OR VIVA-VOCE: (For those foreign national who are in India)

All Foreign Nationals present in India will be required to appear in the entrance examination and/or viva voce subject to their fulfilling minimum eligibility requirement as prescribed for Indian students subject to equivalence of their qualification and production of Student Visa/Research Visa, as the case may be. The candidate has to apply online for the Entrance Examination/viva-voce.

(II) THROUGH 'IN-ABSENTIA' CATEGORY:

Foreign Nationals who are applying from their respective countries will be considered 'In Absentia' and there is a separate Application Form for them, which can be downloaded from the official website of JNU. They are required to send Application Form (alongwith the copies of the certificates etc. on the basis of which admission is sought by them) through post to Section Officer (Admission-II), Room No. 20, Administrative Block, Jawaharlal Nehru University, New Delhi - 110067. A Bank Draft of US $42 or INR Rs3024/- (including GST) drawn in favour of **JAWAHARLAL NEHRU UNIVERSITY** payable at **NEW DELHI** is to be enclosed with the filled in downloaded Application Form towards the processing fee of application form.

Candidates already in India during entrance examination and/or viva voce will not be considered for admission under in absentia/under Cultural Exchange programme of Government of India and they will have to go through the process of entrance examination and/or viva voce for admission to various programmes of study.

(b) UNDER CULTURAL EXCHANGE PROGRAMME OF GOVERNMENT OF INDIA:

The students seeking admission under the Cultural Exchange Fellowship Programme of Government of India are required to approach the Indian Council for Cultural Relations, (ICCR), Azad Bhavan, I.P State, New Delhi-110001, India. In the event of their selection, the Council will be informed about their selection.

(c) CASUAL STUDENTS TO AUDIT/CREDIT COURSE(S):

Foreign Nationals may join the University for a semester or two to audit/credit the course(s) in any of the Centre/Schools of Study. If admission is given for auditing, Certificate of participation will be issued by the faculty Incharge of the course and if admission is given for credit, End-Semster Grade Sheet will be issued by the University, subject to the condition that they will be attending the semester classes and appearing in the End-Semester Examination.

Note: The admission of Foreign students for M.Phil and Ph.D. programmes may be considered in compliance with UGC 2016 Regulations regarding number of research scholars faculty (i.e. Professor/Associate Professor/Assistant Professor) can supervise. Foreign students shall be offered seats only if seats are left vacant in any discipline after being offered to Indian Candidates who have appeared in JNUEE – 2019-20.

SELECTION

In the event of their selection, candidates will be informed about their selection and their admission will be subject to the following conditions:-

1. Equivalence of their qualifications as prescribed by the University for various programmes of study.
2. Production of Student-Visa/Research Visa (as the case may be) in accordance with the revised visa policy of Government of India as also a xerox copy of their Passport together with the original documents for verification.
3. Medical-cum-Fitness Certificate
4. Insurance of Rs.1.00 lakh (minimum)

For details of programmes/courses and their eligibility criteria please check e-Prospectus 2019-20 already uploaded on the official website of JNU

For any other information, please contact:

Shri M.K. Pachauri,
Joint Registrar (Admissions),
Administrative Block,
Jawaharlal Nehru University,
New Delhi – 110067
Phone no.: 91-11-26704047, 26742617
dr_admissions@mail.jnu.ac.in

Ms. Meenakshi Bhardwaj
Section Officer (Admission-II) Room No.20
Administrative Block, Jawaharlal Nehru University,
New Delhi - 110067
Phone Nos.: 91-11-26704022 & 26738719
E-mail : admission_foreign@mail.jnu.ac.in
Fax Nos.: 91-11-26742692, 26742898

XXVI. INTAKE FOR THE YEAR 2019-20

M.Phil. (Through JNUEE)

Sl. No.	Department	Sub code	Intake	Seat Matrix					
				UR	SC	ST	PWD	OBC	Total
I	**School of International Studies**								
1	Centre for Canadian, US and Latin American Studies:								
	i) M.Phil. in United States Studies	USSP	04	2	1	0	0	1	4
	ii) M.Phil. in Latin American Studies	LAMP	02	1	0	0	0	1	2
	iii) M.Phil. in Canadian Studies	CANP	01	1	0	0	0	0	1
2	Centre for European Studies								
	M.Phil. in European Studies	EUPP	03	2	0	0	0	1	3
3	Centre for International Trade & Development								
	i) M.Phil. in Trade & Development	ITDP	10	5	1	1	1	3	10
4	Centre for East Asian Studies								
	i) M.Phil. in Japanese Studies	JPIP	03	2	0	0	0	1	3
	ii) M.Phil. in Chinese Studies	CHIP	05	3	1	0	0	1	5
	iii) M.Phil. in Korean Studies	KOIP	01	1	0	0	0	0	1
5	Centre for International Politics, Organization & Disarmament								
	i) M.Phil. in International Politics	INPP	06	3	1	0	0	2	6
	ii) M.Phil. in International Organization	ORGP	05	3	1	0	0	1	5
	iii) M.Phil. in Diplomacy and Disarmament	DADP	08	4	1	1	0	2	8
6	Centre for South Asian Studies								
	M.Phil. in South Asian Studies	SASP	06	3	1	0	0	2	6
7	Centre for Indo-Pacific Studies								
	M.Phil. in Indo-Pacific Studies	IPSP	05	3	1	0	0	1	5
8	Centre for Inner Asian Studies								
	M.Phil. in Inner Asian Studies	IASP	02	1	0	0	0	1	02
9	Centre for West Asian Studies								
	M.Phil. in West Asian Studies	WASP	07	3	1	1	0	2	7
10	Centre for African Studies								
	M.Phil. in African Studies	AFSP	05	3	1	0	0	1	5
11	Centre for Russian & Central Asian Studies								
	M.Phil. in Russian & Central Asian Studies	RCAP	18	9	3	1	1	5	18
12.	Centre for Comparative Politics and Political Theory								
	M.Phil. in Comparative Politics and Political Theory	CPTP	01	1	0	0	0	0	1
II	**School of Social Sciences**								
1.	Centre for Economic Studies & Planning								
	M.Phil. in Economics Studies & Planning	ECOP	10	5	1	1	1	3	10
2.	Centre for Historical Studies								
	i) M.Phil. in Ancient History	ANCP	10	5	1	1	1	3	10
	ii) M.Phil. in Medieval History	MEDP	10	5	1	1	1	3	10
	iii) M.Phil. in Modern History	MODP	11	5	2	1	1	3	11
3.	Centre for Political Studies								
	M.Phil. in Political Studies	POLP	24	12	4	2	1	6	24

Sl. No.	Department	Sub code	Intake	Seat Matrix					
				UR	SC	ST	PWD	OBC	Total
4.	Centre for the Study of Regional Development								
	i) M.Phil. in Geography	GEOP	15	8	2	1	1	4	15
	ii) M.Phil. in Economics	ECNP	07	3	1	1	0	2	7
5.	Centre for Social Medicine & Community Health								
	M.Phil. in Social Sciences in Health	CSMP	10	5	1	1	1	3	10
6.	Centre for the Study of Social Systems								
	M.Phil. in Social Systems	SOCP	21	11	3	2	1	5	21
7.	Zakir Husain Centre for Educational Studies								
	M.Phil. in Educational Studies	EDUP	10	5	1	1	1	3	10
8.	Centre for Studies in Science Policy								
	M.Phil. in Studies in Science Policy	SSPP	06	3	1	0	0	2	6
9.	Centre for Philosophy								
	M.Phil. in Philosophy	SPHP	04	2	1	0	0	1	4
10.	Centre for Women Studies								
	M.Phil. in Women Studies	WSPP	1	1	0	0	0	0	1
11.	Centre for the Study of Social Exclusion and Inclusive Policy								
	M.Phil. in Social Exclusion and Inclusive Policy	SEIP	05	3	1	0	0	1	5
12	Centre for Media Studies								
	M.Phil. in Media Studies	CMSP	04	2	1	0	0	1	4
III	**School of Language, Literature & Culture Studies**								
1.	Centre for French and Francophone Studies								
	M.Phil. in French	FRNP	13	6	2	1	1	4	13
2.	Centre for German Studies								
	M.Phil. in German	GERP	08	4	1	1	0	2	8
3.	Centre for Indian Languages								
	i) M.Phil. in Hindi	HNDP	15	8	2	1	1	4	15
	ii) M.Phil. in Urdu	URDP	11	5	2	1	1	3	11
	iii) M.Phil. in Hindi Translation	HTLP	03	2	0	0	0	1	3
	iv) M.Phil. in Tamil	TAMP	01	1	0	0	0	0	1
4.	Centre for Russian Studies								
	M.Phil. in Russian	RSNP	07	3	1	1	0	2	7
5	Centre for Spanish, Portuguese, Italian and Latin American Studies								
	i) M.Phil. in Spanish	SPNP	08	4	1	1	0	2	8
	ii) M.Phil in Portuguese	PRTP	01	1	0	0	0	0	1
6.	Centre for Japanese Studies								
	M.Phil in Japanese	JAPP	01	1	0	0	0	0	1
7	Centre for Korean Studies								
	M.Phil in Korean	KORP	01	1	0	0	0	0	1
8	Centre for Chinese, South East Asian Studies								
	M.Phil. in Chinese	CHNP	05	3	1	0	0	1	5
9	Centre for Persian and Central Asian Studies								
	M.Phil. in Persian	PERP	09	5	1	1	1	2	9

Sl. No.	Department	Sub code	Intake	Seat Matrix					
				UR	SC	ST	PWD	OBC	Total
10	Centre for Arabic and African Studies								
	M.Phil. in Arabic	ARBP	13	6	2	1	1	4	13
11	Centre for Linguistics								
	M.Phil. in Linguistics	LINP	07	3	1	1	0	2	7
12	Centre for English Studies								
	M.Phil. in English	ENGP	08	4	1	1	0	2	8
IV	**School of Computer & Systems Sciences**								
	M.Phil. in Computer & Systems Sciences	SCSP	06	3	1	0	0	2	6
V	**School of Environmental Sciences**								
	M.Phil. in Area –I	ONEP	02	1	0	0	0	1	2
	M.Phil.. in Area-IV	FORP	03	2	0	0	0	1	3
VI	**School of Arts and Aesthetics**								
	M.Phil. in Visual Studies	VSAP	07	3	1	1	0	2	7
	M.Phil. in Theater and Performance Studies	TPSP	07	3	1	1	0	2	7
	M.Phil. in Cinema Studies	CNSP	05	3	1	0	0	1	5
VII	**School of Sanskrit and Indic Studies**								
	M.Phil. in Sanskrit	SANP	06	3	1	0	0	2	6
VIII	**Centre for the Study of Law & Governance**								
	M.Phil. in Law and Governance	CLGP	11	5	2	1	1	3	11
IX	**Special Centre for North East India Studies**								
	M.Phil. in North East India Studies	NESP	01	1	0	0	0	0	1

M.Phil. (Through NET-JRF)

Sl. No.	Department	Sub code	Intake	Seat Matrix					
				UR	SC	ST	PWD	OBC	Total
I	**School of International Studies**								
1	Centre for International Trade & Development								
	i) M.Phil. in Trade & Development	ITDP	02	1	0	0	0	1	2
II	**School of Social Sciences**								
1.	Centre for Economic Studies & Planning								
	M.Phil. in Economics Studies & Planning	ECOP	10	5	1	1	1	3	10
III	**School of Language, Literature & Culture Studies**								
1.	Centre for French and Francophone Studies								
	M.Phil. in French	FRNP	02	1	0	0	0	1	2
2.	Centre for German Studies								
	M.Phil. in German	GERP	04	2	1	0	0	1	4
3.	Centre for Indian Languages								
	i) M.Phil. in Hindi	HNDP	07	3	1	1	0	2	7
	ii) M.Phil. in Urdu	URDP	05	3	1	0	0	1	5
	iii) M.Phil. in Hindi Translation	HTLP	02	1	0	0	0	1	2
	iv) M.Phil. in Tamil	TAMP	01	1	0	0	0	0	1

Sl. No.	Department	Sub code	Intake	Seat Matrix					
				UR	SC	ST	PWD	OBC	Total
4.	Centre for Russian Studies								
	M.Phil. in Russian	RSNP	03	2	0	0	0	1	3
5.	Centre for Chinese, South East Asian Studies								
	M.Phil. in Chinese	CHNP	05	3	1	0	0	1	5
6.	Centre for Persian and Central Asian Studies								
	M.Phil. in Persian	PERP	02	1	0	0	0	1	2
7.	Centre for Linguistics								
	M.Phil. in Linguistics	LINP	02	1	0	0	0	1	2
IV	**School of Computer & Systems Sciences**								
	M.Phil. in Computer & Systems Sciences	SCSP	05	3	1	0	0	1	5
V	**School of Environmental Sciences**								
	M.Phil. in Area-II	TWOP	02	1	0	0	0	1	2
	M.Phil. in Area-III	THRP	03	2	0	0	0	1	3

Ph.D. (Through JNUEE)

Sl. No.	Department	Sub code	Intake	Seat Matrix					
				UR	SC	ST	PWD	OBC	Total
I	**School of International Studies**								
1	Centre for European Studies								
	Ph.D. in European Studies	EUPH	09	5	1	1	1	2	9
2	Centre for International Trade & Development								
	i) Ph.D. in Trade & Development	ITDH	03	2	0	0	0	1	3
3	Centre for East Asian Studies								
	i) Ph.D. in Chinese Studies	CHIH	05	3	1	0	0	1	5
	ii) Ph.D. in Korean Studies	KOIH	02	1	0	0	0	1	2
4	Centre for International Politics, Organization & Disarmament								
	i) Ph.D. in Diplomacy and Disarmament	DADH	04	2	1	0	0	1	4
5.	Centre for Comparative Politics and Political Theory								
	Ph.D. in Comparative Politics and Political Theory	CPTH	04	2	1	0	0	1	4
6.	Ph.D. in Energy Studies	ESPH	01	1	0	0	0	0	1
II	**School of Social Sciences**								
1.	Centre for Economic Studies & Planning								
	Ph.D. in Economics Studies & Planning	ECOH	10	5	1	1	1	3	10
2.	Centre for Historical Studies								
	i) Ph.D.. in Ancient History	ANCH	13	6	2	1	1	4	13
	ii) Ph.D.. in Medieval History	MEDH	06	3	1	0	0	2	6
	iii) Ph.D.. in Modern History	MODH	08	4	1	1	0	2	8
3.	Centre for Political Studies								
	Ph.D.. in Political Studies	POLH	16	8	3	1	1	4	16

Sl. No.	Department	Sub code	Intake	Seat Matrix					
				UR	SC	ST	PWD	OBC	Total
4.	Centre for the Study of Regional Development								
	i) Ph.D. in Geography	GEOH	23	12	3	2	1	6	23
	ii) Ph.D. in Economics	ECNH	08	4	1	1	0	2	08
5.	Centre for Social Medicine & Community Health								
	Ph.D. in Social Science in Health	CSMH	05	3	1	0	0	1	5
6.	Centre for Philosophy								
	Ph.D. in Philosophy	SPHH	16	8	3	1	1	4	16
7.	Centre for Women Studies								
	Ph.D. in Women Studies	WSPH	02	1	0	0	0	1	2
8.	Center for Informal Sector and Labour Studies								
	Ph.D. in Informal Sector and Labour Studies	ISLH	15	8	2	1	1	4	15
9.	Group of Adult Education								
	Ph.D. in Adult Education	GAEH	06	3	1	0	0	2	6
III	**School of Language, Literature & Culture Studies**								
1.	Centre for French and Francophone Studies								
	Ph.D. in French	FRNH	27	14	4	2	1	7	27
2.	Centre for German Studies								
	Ph.D. in German	GERH	09	5	1	1	1	2	9
3.	Centre for Indian Languages								
	i)Ph.D. in Hindi	HNDH	15	8	2	1	1	4	15
	ii) Ph.D. in Urdu	URDH	02	1	0	0	0	1	2
	iii.) Ph.D. in Tamil	TAMH	01	1	0	0	0	0	1
4.	Centre for Russian Studies								
	Ph.D. in Russian	RSNH	15	8	2	1	1	4	15
5.	Centre for Japanese Studies								
	Ph.D in Japanese	JAPH	06	3	1	0	0	2	6
6	Centre for Korean Studies								
	Ph.D in Korean	KORH	07	3	1	1	0	2	7
7	Centre for Chinese, South East Asian Studies								
	Ph.D. in Chinese	CHNH	20	10	3	2	1	5	20
8	Centre for Persian and Central Asian Studies								
	Ph.D. in Persian	PERH	02	1	0	0	0	1	2
9.	Centre for Arabic and African Studies								
	Ph.D. in Arabic	ARBH	06	3	1	0	0	2	6
IV	**School of Computer & Systems Sciences**								
	Ph.D. in Computer & Systems Sciences	SCSH	13	6	2	1	1	4	13
V	**School of Environmental Sciences**								
	Ph.D. in Area –I	ONEH	03	2	0	0	0	1	3
	Ph.D. in Area-IV	FORH	06	3	1	0	0	2	6

Sl. No.	Department	Sub code	Intake	Seat Matrix					
				UR	SC	ST	PWD	OBC	Total
VI	**School of Life Sciences**								
	Ph.D. in Life Sciences	SLSH							
	Group –I (GON)	GONH	06	3	1	0	0	2	6
	Group –II (GTW)	GTWH	14	7	2	1	1	4	14
	Group –III (GTR)	GTRH	06	3	1	0	0	2	6
	Group –IV (GFO)	GFOH	06	3	1	0	0	2	6
	Group –V (GFI)	GFIH	07	3	1	1	0	2	7
VII	**School of Physical Sciences**								
	Ph.D. in Physical Sciences	PHYH	10	5	1	1	1	3	10
	Ph.D. in Chemical Sciences	CHEH	03	2	0	0	0	1	3
	Ph.D. in Mathematics	MATH	02	1	0	0	0	1	2
VIII	**School of Arts and Aesthetics**								
	Ph.D. in Visual Studies	VSAH	02	1	0	0	0	1	2
	Ph.D. in Theater and Performance Studies	TPSH	02	1	0	0	0	1	2
	Ph.D. in Cinema Studies	CNSH	02	1	0	0	0	1	2
IX	**School of Computational and Integrative Sciences**								
	Ph.D. in computational Biology and Bioinformatics	CBBH							
	Track-I	TROH	08	4	1	1	0	2	8
	Track-II	TRTH	04	2	1	0	0	1	4
	Track-III	TRDH	03	2	0	0	0	1	3
X	**School of Biotechnology**								
	Ph.D. in Biotechnology	SBTH	05	3	1	0	0	1	5
XI	**Centre for Molecular Medicine**								
	Ph.D. Molecular Medicine	CMMH	10	5	1	1	1	3	10
XII	**School of Sanskrit and Indic Studies**								
	Ph.D. in Sanskrit	SANH	21	11	3	2	1	5	21
XIII	**Centre for the Study of Law & Governance**								
	Ph.D. Law and Governance	CLGH	14	7	2	1	1	4	14
XIV	**Centre for Nano Sciences**								
	Ph.D. in Nano Science	NNSH	10	5	1	1	1	3	10
XV	**Special Centre for North East India Studies**								
	Ph.D. in North East India Studies	NESH	11	5	2	1	1	3	11
XVI	**Special Centre for Disaster Research**								
	Ph.D. in Disaster Studies	DSSH	04	2	1	0	0	1	4

Ph.D. (Through NET-JRF)

Sl. No.	Department	Sub code	Intake	Seat Matrix					
				UR	SC	ST	PWD	OBC	Total
I	**School of International Studies**								
1	Centre for European Studies								
	Ph.D. in European Studies	EUPH	02	1	0	0	0	1	2
2	Centre for International Trade & Development								
	i) Ph.D. in Trade & Development	ITDH	02	1	0	0	0	1	2
3	Centre for International Politics, Organization & Disarmament								
	i) Ph.D. in Diplomacy and Disarmament	DADH	03	2	0	0	0	1	3
II	**School of Social Sciences**								
1.	Centre for Economic Studies & Planning								
	Ph.D. in Economics Studies & Planning	ECOH	10	5	1	1	1	3	10
2.	Zakir Husain Centre for Educational Studies								
	Ph.D. in Educational Studies	EDUH	04	2	1	0	0	1	4
3	Centre for Media Studies								
	Ph.D. in Media Studies	CMSH	01	1	0	0	0	0	1
III	**School of Language, Literature & Culture Studies**								
1.	Centre for French and Francophone Studies								
	Ph.D. in French	FRNH	04	2	1	0	0	1	4
2.	Centre for German Studies								
	Ph.D. in German	GERH	05	3	1	0	0	1	5
3.	Centre for Indian Languages								
	i)Ph.D. in Hindi	HNDH	07	3	1	1	0	2	7
	ii) Ph.D. in Urdu	URDH	02	1	0	0	0	1	2
4.	Centre for Russian Studies								
	Ph.D. in Russian	RSNH	05	3	1	0	0	1	5
5.	Centre for Japanese Studies								
	Ph.D in Japanese	JAPH	01	1	0	0	0	0	1
6	Centre for Chinese, South East Asian Studies								
	Ph.D. in Chinese	CHNH	10	5	1	1	1	3	10
7	Centre for Persian and Central Asian Studies								
	Ph.D. in Persian	PERH	02	1	0	0	0	1	2
8	Centre for Arabic and African Studies								
	Ph.D. in Arabic	ARBH	02	1	0	0	0	1	2
9	Centre for English Studies								
	Ph.D. in English	ENGH	03	2	0	0	0	1	3
IV	**School of Computer & Systems Sciences**								
	Ph.D. in Computer & Systems Sciences	SCSH	13	6	2	1	1	4	13
V	**School of Environmental Sciences**								
	Ph.D. in Area –I	ONEH	05	3	1	0	0	1	5
	Ph.D. in Area-II	TWOH	03	2	0	0	0	1	3
	Ph.D. in Area-III	THRH	03	2	0	0	0	1	3
	Ph.D. in Area-IV	FORH	06	3	1	0	0	2	6

Sl. No.	Department	Sub code	Intake	Seat Matrix					
				UR	SC	ST	PWD	OBC	Total
VI	**School of Life Sciences**								
	Ph.D. in Life Sciences	SLSH							
	Group –I (GON)	GONH	02	1	0	0	0	1	2
	Group –II (GTW)	GTWH	04	2	1	0	0	1	4
	Group –III (GTR)	GTRH	02	1	0	0	0	1	2
	Group –IV (GFO)	GFOH	02	1	0	0	0	1	2
	Group –V (GFI)	GFIH	02	1	0	0	0	1	2
VII	**School of Physical Sciences**								
	Ph.D. in Physical Sciences	PHYH	10	5	1	1	1	3	10
	Ph.D. in Chemical Sciences	CHEH	03	2	0	0	0	1	3
	Ph.D. in Mathematics	MATH	03	2	0	0	0	1	3
VIII	**School of Computational and Integrative Sciences**								
	Ph.D. in computational Biology and Bioinformatics	CBBH							
	Track-I	TROH	03	2	0	0	0	1	3
	Track-II	TRTH	04	2	1	0	0	1	4
	Track-III	TRDH	02	1	0	0	0	1	2
IX	**School of Biotechnology**								
	Ph.D. in Biotechnology	SBTH	14	7	2	1	1	4	14
X	**Centre for Molecular Medicine**								
	Ph.D. Molecular Medicine	CMMH	03	2	0	0	0	1	3
XI	**Centre for Nano Sciences**								
	Ph.D. in Nano Science	NNSH	04	2	1	0	0	1	4

M.Tech.

S.No.	Department	Sub code	Intake	Seat Matrix						
1.	School of Computer and Systems Sciences			UR	SC	ST	PWD	OBC	EWS	Total
	M.Tech (Computer Science & Technology)	MTCT	33	14	5	2	2	9	3	33
	M.Tech in Statistical Computing (Data Science Stream)	MTST	13	5	2	1	1	4	1	13
	M.Tech in Statistical Computing (Data Communication Stream)	MTDT	13	5	2	1	1	4	1	13
2	Special Centre for Nano Sciences									
	M.Tech in Nano Science	NNST	06	2	1	0	0	2	1	6
	M.Tech in Nano Electronic	NNET	06	2	1	0	0	2	1	6

M.P.H.

S.No.	Department	Sub code	Intake	Seat Matrix						
1	School of Social Sciences			UR	SC	ST	PWD	OBC	EWS	Total
	Centre for Social Medicine and Community Health									
	Master of Public Health	MPHT	11	4	2	1	1	3	1	11

PG Diploma

S.No.	Department	Sub code	Intake	Seat Matrix						
				UR	SC	ST	PWD	OBC	EWS	Total
1	School of Computational and Integrative Science									
	PG Diploma in Bigdata Analytics	TROT	4	2	1	0	0	1	0	4
		TRTT	5	2	1	0	0	1	1	5
		TRDT	4	2	1	0	0	1	0	4

M.A./M.Sc./MCA

S. No.	Department	Sub code	Intake	Seat Matrix						
				UR	SC	ST	PWD	OBC	EWS	Total
I.	**School of International Studies**									
1.	M.A. in Politics (with specialization in International Studies)	PISM	115	46	17	9	6	31	12	115
2.	Centre for International Trade & Development									
	M.A. in Economics (with specialization in World Economy)	EILM	39	15	6	3	2	11	4	39
3.	M.A. in International Relation and Area Studies	IRAM	50	21	7	4	3	13	5	50
II	**School of Social Sciences**									
1.	Centre for Economic Studies & Planning									
	M.A. In Economics	ECOM	96	39	14	7	5	26	10	96
2.	Centre for Historical Studies M.A. In									
	i) Ancient History	ANCM	31	13	5	2	2	8	3	31
	ii) Medieval History	MEDM	31	13	5	2	2	8	3	31
	iii) Modern History	MODM	43	18	6	3	2	12	4	43
3.	Centre for Political Studies									
	M.A. in Political Science	POLM	96	39	14	7	5	26	10	96
4.	Centre for the study of Regional Development									
	M.A. In Geography	GEOM	68	28	10	5	4	18	7	68
5.	Centre for the Study of Social System									
	M.A. in Sociology	SOCM	96	39	14	7	5	26	10	96
6.	Centre for Philosophy									
	M.A. in Philosophy	SPHM	31	13	5	2	2	8	3	31
7.	Centre for Informal Sector & Labour Studies									
8.	M.A. in Development and Labour Studies	DLSM	50	21	7	4	3	13	5	50
III	**School of Language, Literature & Culture Studies**									
1	Centre for French and Francophone Studies									
	M.A. in French and Francophone Studies	FRNM	19	8	3	1	1	5	2	19
2.	Centre for German Studies									
	i.) M.A. in German Literature	GRLM	10	4	1	1	1	3	1	10
	ii.) M.A. in German Translation/ Translation & Interpretation	GRTM	19	8	3	1	1	5	2	19
3.	Centre for Indian Languages M.A. in									
	i.) Hindi	HNDM	39	15	6	3	2	11	4	39
	ii.) Urdu	URDM	39	15	6	3	2	11	4	39

S. No.	Department	Sub code	Intake	Seat Matrix						
4.	Centre for Russian			**UR**	**SC**	**ST**	**PWD**	**OBC**	**EWS**	**Total**
	M.A. in Russian	RSNM	10	4	1	1	1	3	1	10
5.	Centre for Spanish, Portuguese, Italian and Latin American Studies									
	M.A. in Spanish	SPNM	08	3	1	1	0	2	1	8
6.	Centre for Japanese Studies									
	M.A. in Japanese	JAPM	08	3	1	1	0	2	1	8
7.	Centre for Korean Studies									
	M.A. in Korean	KORM	05	2	1	0	0	1	1	5
8.	Centre for Chinese, South East Asian Studies									
	M.A. in Chinese	CHNM	04	2	1	0	0	1	0	4
9.	Centre for Persian and Central Asian Studies									
	M.A. in Persian	PERM	19	8	3	1	1	5	2	19
	M.A. in Pashto	PUSM	06	2	1	0	0	2	1	6
10.	Centre for Arabic and African Studies									
	M.A. in Arabic	ARBM	10	4	1	1	1	3	1	10
11.	Centre in Linguistics									
	M.A. in Linguistics	LINM	39	15	6	3	2	11	4	39
12.	Centre for English Studies									
	M.A. in English	ENGM	39	15	6	3	2	11	4	39
IV	**School of Computer & Systems Sciences**									
	MCA (Master of Computer Application)	MCAM	58	23	9	4	3	16	6	58
V	**School of Environmental Sciences**									
	M.Sc. in Environmental Sciences	SESM	39	15	6	3	2	11	4	39
VI	**School of Life Sciences**									
	M.Sc. in Life Sciences	SLSM	48	19	7	4	2	13	5	48
VII	**School of Physical Sciences**									
	i. M.Sc. in Physics	SPSM	39	15	6	3	2	11	4	39
	ii. M.Sc. in Chemistry	CHEM	08	3	1	1	0	2	1	8
	iii. M.Sc. in Mathematics	MATM	19	8	3	1	1	5	2	19
VIII	**School of Computational and Integrative Science**									
	M.Sc. in Computational and Integrative Sciences	CISM								
	Track1	TROM	11	4	2	1	1	3	1	11
	Track2	TRTM	11	4	2	1	1	3	1	11
IX	**School of Arts and Aesthetics**									
	M.A. in Arts and Aesthetics	SAAM	29	12	4	2	2	8	3	29
X	**Centre for Molecular Medicine**									
	M.Sc. in Molecular Medicine	CMMM	08	3	1	1	0	2	1	8
XI	**School of Sanskrit and Indic Studies**									
	M.A. in Sanskrit	SANM	63	26	9	5	3	17	6	63
XII	**Special Centre for Disaster Research**									
	M.A. in Disaster Studies	DSSM	19	8	3	1	1	5	2	19

B.A. (Hons.) 1st year

S.No.	Department	Sub code	Intake	Seat Matrix						
I	**School of Language, Literature & Culture Studies**			**UR**	**SC**	**ST**	**PWD**	**OBC**	**EWS**	**Total**
1.	Centre for French and Francophone Studies									
	B.A. (Hons.) 1st year in French	FRNU	48	19	7	4	2	13	5	48
2.	Centre for German Studies									
	B.A.(Hons.) 1st year in	GERU	48	19	7	4	2	13	5	48
3.	Centre for Russian									
	B.A.(Hons.) 1st year in Russian	RSNU	68	28	10	5	4	18	7	68
4.	Centre for Spanish, Portuguese, Italian and Latin American Studies									
	B.A.(Hons.) 1st year in Spanish	SPNU	39	15	6	3	2	11	4	39
5.	Centre for Japanese Studies									
	B.A.(Hons.) 1st year in Japanese	JAPU	48	19	7	4	2	13	5	48
6.	Centre for Korean Studies									
	B.A.(Hons.) 1st year in Korean	KORU	39	15	6	3	2	11	4	39
7.	Centre for Chinese, South East Asian Studies									
	B.A.(Hons.) 1st year in Chinese	CHNU	44	18	7	3	2	12	4	44
8.	Centre for Persian and Central Asian Studies									
	i. B.A.(Hons.) 1st year in Persian	PERU	39	15	6	3	2	11	4	39
	ii. B.A.(Hons.) 1st year in Pashto	PUSU	19	8	3	1	1	5	2	19
9.	Centre for Arabic and African Studies									
	B.A.(Hons.) 1st year in Arabic	ARBU	39	15	6	3	2	11	4	39

Part-Time

S.No.	Department	Sub code	Intake	Seat Matrix						
				UR	**SC**	**ST**	**PWD**	**OBC**	**EWS**	**Total**
I	**School of Language, Literature & Culture Studies**									
1.	Centre for Indian Languages									
	ADOP (Mass Media) in Urdu	URDA	25	9	4	2	1	7	3	25
	COP in Urdu	URDC	25	9	4	2	1	7	3	25
2.	Centre for Korean Studies									
	DOP in Mongolian	MOND	19	8	3	1	1	5	2	19
	COP in Mongolian	MONC	19	8	3	1	1	5	2	19
3.	Centre for Persian and Central Asian Studies									
	DOP in Bhasha Indonesia	BHAD	44	18	7	3	2	12	4	44
	COP in Bhasha Indonesia	BHAC	39	15	6	3	2	11	4	39
4.	Centre for Persian and Central Asian Studies									
	COP in Pashto	PUSC	19	8	3	1	1	5	2	19
5.	Centre for Arabic and African Studies		0	0	0	0	0	0	0	0
	DOP in Hebrew	HEBD	13	5	2	1	1	4	1	13
	COP in Hebrew	HEBC	25	9	4	2	1	7	3	25

S.No.	Department	Sub code	Intake	Seat Matrix						
				UR	SC	ST	PWD	OBC	EWS	Total
II	**School of Sanskrit and Indic Studies**									
	COP in Pali (PAL)	PALC	25	9	4	2	1	7	3	25
	COP in Sanskrit Computational Linguistics	SCLC	25	9	4	2	1	7	3	25
	COP in Sanskrit	SANC	25	9	4	2	1	7	3	25
	COP in Yoga Philosophy	YOPC	25	9	4	2	1	7	3	25
	COP in Vedic Culture	VECC	25	9	4	2	1	7	3	25

XXVII. ELIGIBILITY OF CANDIDATES WHO ARE DUE TO APPEAR IN THE QUALIFYING EXAMINATION

The candidates who are due to appear in their respective qualifying examination may also apply. In the event of their selection they will be entitled to admission only if they have secured the minimum prescribed percentage of marks in their qualifying examination and they submit all documents including final marks-sheets of qualifying examination before the deadline fixed for registration.

XXVIII. TIME-TABLE FOR ADMISSION

1.	Start of Online Application Process	-	15.03.2019
2.	Closing of Online Application Process	-	15.04.2019
3.	Last date of successful transaction of fee Through Credit/Debit Card/Net-Banking up to 11.50 pm up to bank hours of 16 April, 2019	-	16.04.2019
4.	Correction in particulars of Application Form on website only	-	17.04.2019 to 19.04.2019
5.	Downloading of Admit Card from NTA website	-	22.04.2019
6.	Date of Entrance Examination	-	27th, 28th, 29th and 30th May, 2019
7.	Display of recorded responses and Answer Keys for inviting challenges on NTA,s website	-	To be announce later by NTA
8.	Declaration of M.Phil. and Ph.D. result for viva-voce	-	10th June, 2019 (Tentative)
9.	Holding of viva-voce examination	-	26th June to 3rd July, 2019 (Tentative)
10.	Publication of Merit Lists for Admissions to various programmes of study:		
	--where viva voce is not prescribed	-	Latest by 18.06.2019 (Tentative)
	--where viva voce is prescribed	-	Latest by 08.07.2019 (Tentative)
11.	Pre-enrolment registration and payment of fee with blocking of seats		
	-- where viva voce is not prescribed	-	20th June to 30th June, 2019
	--where viva voce is prescribed	-	9th July to 15th July, 2019
12.	Admission/Registration Schedule of selected candidates*:		
	i) For B.A. (Hons.) 1st Year	-	10th July, 2019
	ii) For M.A./M.Sc./M.C.A.	-	11th, 12th and 13th July, 2019
	iii) For M.Phil., Ph.D., M.Tech., MPH, PGD	-	15th, 16th and 17th July, 2019
	iv) For Part Time	-	18th July, 2019
13.	Release of Final List after registration, wherever considered necessary	-	By 22nd July, 2019

14. Registration for Final List - 24th July, 2019

15. Deadline for Admission/Registration - 14th August, 2019

* B.Tech. + M.Tech./MS courses Registration as per the scheduled communicated by JOSAA.

Note:

i. The candidates invited for viva-voce/those finally selected for admission will be intimated to this effect on their e-mail account or candidates can access the intimation by logging to their registered account on the JNU website. They are advised to make timely arrangements to appear for the viva-voce and for joining the programme, as the case may be. The University will not issue any paper intimation to the candidates. Candidates are advised to regularly check JNU website for updates.

2 Candidates are advised to check JNU admission link regularly on website.

3 It will be in the interest of candidates selected for admission to report for registration and join the programme of study immediately after the commencement of registration process.

XXIX. EXAM CENTRE STATE WISE

Sl. No.	State	Name of Examination Centre
1	**ANDHRA PRADESH**	Chittoor
2		Kakinada
3		Nellore
4		Rajahmundry
5		Tirupati
6		Vijayawada
7		Visakhapatnam
8	**ARUNACHAL PRADESH**	Naharlagun
9	**ASSAM**	Guwahati
10		Silchar
11	**BIHAR**	Darbhanga
12		Aurangabad
13		Patna
14		Purnia (Purnea)
15		Gaya
16		Bhagalpur
17	**Chandigarh (UT)**	Chandigarh
18	**CHHATISGARH**	Bilaspur
19		Raipur
20	**DELHI**	Delhi
21	**GUJARAT**	Ahmedabad
22		Gandhinagar
23		Anand

Sl. No.	State	Name of Examination Centre
24		Rajkot
25		Surat
26		Vadodara
27		Mehsana
28	**HARYANA**	Ambala
29		HIssar
30		Kurukshetra
31		Panipat
32		Gurugram
33		Karnal
34		Faridabad
35	**HIMACHAL PRADESH**	Shimla
36		Hamirpur
37	**JAMMU & KASHMIR**	Jammu
38	**JHARKHAND**	Dhanbad
39		Jamshedpur
40		Ranchi
41	**KARNATAKA**	Bangalore
42		Belgaum
43		Dharwad
44		Gulbarga
45		Hubli
46		Mangaluru
47		Manipal
48		Mysuru
49	**KERALA**	Alappuzha
50		Thiruvananthapuram
51		Ernakulam/Kochi
52		Kannur
53		Kottayam
54		Kollam
55		Kozhikode
56	**MADHYA PRADESH**	Gwalior
57		Sagar
58		Jabalpur
59		Bhopal
60		Indore
61		Satna
62		Ujjain
63	**MAHARASHTRA**	Mumbai

Sl. No.	State	Name of Examination Centre
64		Nagpur
65		Pune
66		Aurangabad (Maharashtra)
67		Kolhapur
68		Nanded
69		Nasik
70		Navi Mumbai
71		Amravati
72		Jalgaon
73		Thane
74	**MANIPUR**	Imphal
75	**MEGHALAYA**	Shillong
76	**MIZORAM**	Aizwal
77	**NAGALAND**	Dimapur
78	**ORISSA**	Bhubaneshwar
79		Sambalpur
80		Balasore
81		Cuttack
82		Rourkela
83	**Puducherry**	Puducherry
84	**PUNJAB**	Amritsar
85		Bhatinda
86		Ludhiana
87		Jalandhar
88		Mohali
89		Patiala
90		Sangrur
91	**RAJASTHAN**	Jaipur
92		Jodhpur
93		Udaipur
94		Ajmer
95		Alwar
96		Bikaner
97		Kota
98		Sikar
99	**SIKKIM**	Gangtok
100	**TAMIL NADU**	Chennai
101		Coimbatore
102		Madurai
103		Nagarcoil

Sl. No.	State	Name of Examination Centre
104		Tiruchirappalli
105	**TELANGANA**	Hyderabad
106		Warangal
107	**TRIPURA**	Agartala
108	**UTTAR PRADESH**	Lucknow
109		Varanasi
110		Allahabad
111		Bareilly
112		Ghaziabad
113		Gorakhpur
114		Noida
115		Agra
116		Aligarh
117		Kanpur
118		Meerut
119	**UTTARAKHAND**	Dehradun
120		Roorkee
121		Haldwani
122	**WEST BENGAL**	Kolkata
123		Siliguri
124		Kalyani
125		Hooghly
126		Asansol
127	**UNION TERRITORIES**	Goa (Panaji/Madgaon)

Note:

The University reserves the right to change/cancel any Centre of Examination within India/abroad without assigning any reason.

XXX. DATE SCHEDULE FOR ENTRANCE EXAMINATION

Session-I: 27th May, 2019 (9.30 A.M. to 12.30 Noon)

Programme	Field of Study Code	Field of Study	School
M.Phil.	WASP (119)	West Asian Studies	SIS
M.Phil	HNDP (127)	Hindi	SL
M.Phil.	TAMP (129)	Tamil	SL
M.Phil.	ECOP(136)	Economics Studies & Planning	SSS
M.Phil.	SESP - ONEP(153)/ /FORP(156)	Environmental Sciences	SES
M.Phil.	VSAP(163)	Visual Studies	SAA
M.Phil.	CPTP(120)	Comparative Politics & Political Theory	SIS
M.Phil.	URDP(128)	Urdu	SL
M.Phil.	SEIP (152)	Social Exclusion and Inclusive Policy	SSS
Ph.D	NESH (882)	North East India Studies	CNES
Ph.D	SESH (ONEH-885, & FORH-888)	Environmental Sciences	SES
Ph.D	DADH (838)	Diplomacy and Disarmament	SIS
M.A.	LINM(214)	Linguistics	SL
M.A.	POLM(220)	Political Science	SSS
M.Sc.	SESM (223)	Environmental Science	SES

Session-II: 27th May, 2019 (2.30P.M. to 5.30 P.M.)

Programme	Field of Study Code	Field of Study	School
M.Phil.	DADP (112)/ORGP (111)	Diplomacy and Disarmament/ International Organisation	SIS
M.Phil.	NESP(175)	North East India Studies	CNES
M.Phil.	PRTP (133)	Portuguese	SL
Ph.D	VSAH (900)	Visual Studies	SAA
Ph.D	CPTH(845)	Comparative Politics and Political Theory	SIS
Ph.D	HNDH (855)	Hindi	SL
Ph.D	URDH (856)	Urdu	SL
Ph.D	TAMH (857)	Tamil	SL
Ph.D	ECOH (865)	Economics Studies & Planning	SSS
Ph.D	DSSH (911)	Disaster Studies	CDR
MPH	MPHT (145)	Master of Public Health	SSS
M.Tech	MTCT (157)	Computer & System Sciences	SCSS
M.A.	HNDM(210)	Hindi	SL
M.A.	ENGM(215)	English	SL
M.A.	URDM(211)	Urdu	SL
M.A.	ECOM(216)	Economics	SSS
M.Sc.	CMMM(233)	Molecular Medicine	CMM
COP	PALC (705), SCLC (706), YOPC(707), VECC (708), SANC(709)	Pali, Sanskrit Computational Linguistics, Yoga Philosophy, Vedic Culture, Sanskrit	SSIS

Session-III: 28th May, 2019 (9.30 A.M. to 12.30 Noon)

Programme	Field of Study Code	Field of Study	School
M.Phil.	ITDP(106)	International Trade and Development	SIS
M.Phil.	SOCP(146)	Social System	SSS
M.Phil.	PERP(121)	Persian	SL
M.Phil.	ARBP (122)	Arabic	SL
M.Phil.	CHNP(124)	Chinese	SL
M.Phil.	RSNP(181)	Russian	SL
M.Phil.	FRNP(125)	French	SL
M.Phil.	GERP(126)	German	SL
M.Phil.	JAPP (123)	Japanese	SL
M.Phil.	SPNP (132)	Spanish	SL
M.Phil.	KORP (172)	Korean	SL
M.Phil.	INPP (110)	International Politics	SIS
M.Phil.	TPSP(164)	Theatre and Performance Studies	SAA
Ph.D	PHYH (898)	Physical Sciences	SPS
Ph.D.	ECNH (872)	Regional Development Economics	SSS
Ph.D.	POLH (869)	Political Studies	SSS
Ph.D.	CHIH (832)/ KOIH (834)	Chinese and Korean Studies	SIS
Ph.D.	EUPH (829)	European Studies	SIS
M.C.A.	MCAM(224)	Master of Computer Applications	SCSS
M.A.	SPHM(229)	Philosophy	SSS
M.A.	DSSM (239)	Disaster Studies	CDR
B.A. (Hons.) 1st Yr. Cluster 1	FRNU(406), GERU(407), RSNU(408), SPNU(409)	French, German, Russian & Spanish	SL

Session-IV: 28th May, 2019 (2.30 P.M. to 5.30 P.M.)

Programme	Field of Study Code	Field of Study	School
M.Phil.	CHIP(107)/JPIP (108)/ KOIP (109)	Chinese, Japanese and Korean Studies	SIS
M.Phil.	POLP (140)	Political Studies	SSS
M.Phil.	ECNP (143)	Regional Development Economics	SSS
M.Phil.	LINP (134)	Linguistics	SL
M.Phil.	EUPP(104)	European Studies	SIS
Ph.D	ITDH (831)	International Trade & Development	SIS
Ph.D	SBTH (904)	Biotechnology	SBT
Ph.D.	CHNH (852)	Chinese	SL
Ph.D.	GERH (854)	German	SL
Ph.D.	RSNH (860)	Russian	SL
Ph.D.	KORH (851)	Korean	SL
Ph.D.	PERH(848)	Persian	SL
Ph.D.	JAPH (850)	Japanese	SL
Ph.D.	ARBH (849)	Arabic	SL
Ph.D.	FRNH (853)	French	SL
Ph.D	MATH (897)	Mathematical Sciences	SPS
Ph.D	TPSH(901)	Theatre and Performance Studies	SAA
M.A.	ANCM(219)/ MEDM(218)/MODM(217)	History	SSS
M.Sc.	SLSM(225)	Life Science	SLS
M.A.	EILM(202)	Economics (with specialization in World Economy)	SIS
COP	PUSC (701), MONC(702) BHAC (703), URDC(704), HEBC (710)	Pashto, Mongolian, Bahasa Indonesia, Urdu, Hebrew	SL

Session V: 29th May, 2019 (9.30 A.M. to 12.30 Noon)

Programme	Field of Study Code	Field of Study	School
M.Phil.	ANCP (139)/MEDP (138)/ MODP(137)	Historical Studies	SSS
M.Phil.	SCSP (158)	Computer and System Sciences	SCS
M.Phil.	HTLP (130)	Hindi Translation	SL
M.Phil.	RCAP (114)	Russian & Central Asian Studies	SIS
Ph.D	CMMH (905)	Molecular Medicine	CMM
Ph.D	GAEH (883)	Adult Education	SSS
M.Sc.	TROM (232)/ TRTM (238)	Computational and Integrative Sciences	SCIS
M.A.	SAAM(235)	Arts and Aesthetics	SAA
M.A.	IRAM (234)	International Relations and Area Studies	SIS
B.A. (Hons.) 1st Yr. Cluster 2	JAPU (403), KORU(404), CHNU(405)	Japanese, Korean, Chinese	SL

Session-VI: 29th May, 2019 (2.30 P.M. to 5.30 P.M.)

Programme	Field of Study Code	Field of Study	School
M.Phil.	SASP(115)	South Asian Studies	SIS
M.Phil.	IASP (117)	Inner Asia Studies	SIS
M.Phil.	EDUP (147)	Educational Studies	SSS
M.Phil.	SSPP (148)	Studies in Science Policy	SSS
M.Phil.	ENGP (135)	English	SL
M.Phil.	IPSP (116)	Indo-Pacific Studies	SIS
Ph.D.	GONH (892), GTWH (893) GTRH (894), GFOH (895), GFIH (896)	Life Science	SLS
Ph.D.	SCSH (890)	Computer & Systems Sciences	SCS
Ph.D.	ANCH (868)/MEDH(867)/ MODH (866)	Historical Studies	SSS
Ph.D.	NNSH (908)	Nano Sciences	CNS
Ph.D.	ESPH (847)	Energy Studies Programme	SIS
M.Sc.	SPSM(226)	Physics	SPS
M.A.	GEOM(221)	Geography	SSS
M.A.	PISM(201)	Politics (with specialization in International Studies)	SIS
Advanced Diploma	URDA(502)	Urdu in Mass Media	SL

Session-VII: 30th May, 2019 (9.30 A.M. to 12.30 Noon)

Programme	Field of Study Code	Field of Study	School
M.Phil.	CNSP (165)	Cinema Studies	SAA
M.Phil.	SPHP (149)	Philosophy	SSS
M.Phil.	CSMP (144)	Social Science in Health	SSS
M.Phil.	WSPP (176)	Women's Studies	SSS
M.Phil.	CANP (101)/ USSP (102)/LAMP (103)	Canadian, United States and Latin American Studies	SIS
Ph.D.	GEOH (871)	Regional Development Geography	SSS
Ph.D	SANH (906)	Sanskrit	SSIS
Ph.D	CHEH (899)	Chemical Science	SPS
Ph.D	Track 1 – TROH (903)/ Track 2 – TRTH (909)/ Track 3 – TRDH (910)	Computational Biology & Bioinformatics	SCIS
Ph.D.	CLGH(907)	Law & Governance	CLG
M.A.	SANM(228)	Sanskrit	SSIS
M.A.	DLSM(231)	Development and Labour Studies	SSS
M.Sc.	MATM (237)	Mathematics	SPS
B.A.(Hons.) 1st Yr. Cluster 3	ARBU(402), PERU(401), PUSU(410)	Arabic, Persian and Pashto	SL
PG Diploma	Track 1 – TROT (191)/ Track 2 – TRTT (192)/ Track 3 – TRDT (193)	Post-Graduate Diploma in Big Data Analytics	SCIS

Session-VIII: 30th May, 2019 (2.30 P.M. to 5.30 P.M.)

Programme	Field of Study Code	Field of Study	School
M.Phil.	GEOP(142)	Regional Development: Geography	SSS
M.Phil.	AFSP (118)	African Studies	SIS
M.Phil.	CMSP (173)	Media Studies	SSS
M.Phil.	CLGP (171)	Law & Governance	CLG
M.Phil.	SANP (170)	Sanskrit	SSIS
Ph.D.	SPHH (878)	Philosophy	SSS
Ph.D.	CNSH (902)	Cinema Studies	SAA
Ph.D.	WSPH (879)	Women Studies	SSS
Ph.D	ISLH (884)	Informal Sector & Labour Studies	SSS
Ph.D.	CSMH (873)	Social Sciences in Health	SSS
M.Tech	NNST(182), NNET(190)	Nano Science/Nano Electronics	CNS
M.Tech	MTST(183), MTDT (189)	Statistical Computing (Data Science), Statistical Computing (Data Communication)	SCS
M.Sc.	CHEM(227)	Chemistry	SPS
M.A.	PERM(203)	Persian	SL
M.A.	ARBM(204)	Arabic	SL
M.A.	JAPM(205)	Japanese	SL
M.A.	FRNM(208)	French and Francophone Studies	SL
M.A.	GRLM(209)/ GRTM(230)	German Literature/German Translation/ Translation & Interpretation	SL
M.A.	RSNM(212)	Russian	SL
M.A.	SPNM(213)	Spanish	SL
M.A.	CHNM(207)	Chinese	SL
M.A.	SOCM(222)	Sociology	SSS
M.A.	KORM(206)	Korean	SL
M.A.	PUSM (236)	Pushto	SL

XXXI. IMPORTANT POINTS TO REMEMBER WHILE APPLYING

Please Note:

a) The outstation candidates admitted to the programme of study of the University will be considered for hostel accommodation as per rules of the University subject to availability of hostel accommodation. Students may please note that grant of admission in the University would not ensure automatic allotment of hostel accommodation and that the same will be offered subject to its availability.

b) **The intake for M.Phil and Ph.D. indicated in the e-Prospectus is tentative and is subject to revision as per UGC Regulations issued from time to time.**

c) **Eligibility of Candidates who are due to appear in the qualifying examination**: The candidates who are due to appear in their respective qualifying examination may also apply. In the event of their selection they will be entitled to admission only if they have secured the minimum prescribed percentage of marks in their qualifying examination and they submit all documents including final year mark-sheets of qualifying examination before the deadline fixed for registration.

d) The permission to appear in the Entrance Examination is subject to fulfilling minimum eligibility requirements prescribed for admission to the concerned programmes of study. Candidate may therefore, appear in the Computer Based Test (CBT) only if he/she fulfils the eligibility requirements for the programmes for which he/she is seeking admission. Despite this caution, in case candidates does not meet the minimum eligibility criteria prescribed for the concerned programmes and appear in the Computer Based Test (CBT), he/she will do so at his/her own risk and cost, and if at any stage, it is found that he/she do not fulfil the minimum eligibility requirements, the admission, if granted to him/her, shall be cancelled ipso-facto.

e) Admission/Registration to the candidate, if granted by taking an **"Undertaking for Migration Certificate"**, the candidate is required to submit the same latest by the 30th October of the year of admission, failing which the admission granted shall stand cancelled. No further time would be allowed beyond 30th October for the purpose under any circumstances.

f) The Entrance Examination/processing fee will be charged (based on the number of choices candidate is applying for) as mentioned below:

No. of choices	Ph.D., M.Phil, M.Tech., MPH M.A., M.Sc., MCA, PGD			B.A. (Hons.) 1st Year and all part-time programmes			Foreign Nationals
	General Category/EWS	SC/ ST/ PWD & OBC	BPL	General Category/ EWS	SC/ST/ PWD & OBC	BPL	
For 1 Choice	Rs. 530/-*	Rs.310/-*	Rs. 110/-*	Rs.400/-*	Rs.265/-*	Rs. 65/-*	US$35* or Rs.2520.00*
For 2 Choice	Rs.800/-*	Rs.415/-*	Rs. 215/-*	Rs.575/-*	Rs.325/-*	Rs. 125/-*	US$75* or Rs.5400.00*
For 3 Choice	Rs.1000/-*	Rs.500/-*	Rs. 300/-*	Rs.750/-*	Rs.380/-*	Rs. 180/-*	US$100* or Rs.7200.00*

***Plus GST, as applicable**

Please note that, if application is rejected for any reason whatsoever or candidate is not able to take the Entrance Examination or appear in the Viva-Voce, the Entrance Examination fee/processing fee paid by the candidate shall not be refunded.

g) No request for change of category subsequent to submission of Application Form will be accepted.

h) Applicant can opt for maximum of three fileds of study of his choice for the **same level of programme** for appearing in the Entrance Examination. Single application form should indicate order of preference for admission.

i) Option(s) once exercised shall be final and no change of option(s) shall be allowed. The preference wise option given by the candidate at the time of online application will be considered as final e.g. a candidate who has been selected for a discipline falling under higher preference will have no claim for other preferences of the same level of programme. In other words, if the candidate gets selected in higher preference, he/she will be offered admission only in that.

j) If candidate submits more than one application form **for the same level of programme**, all his/her online application form shall summarily be rejected**.**

k) Please note that candidates name, parent's/guardian's name, and date of birth should exactly be the same as mentioned in 10th class or first Board/Pre-University examination certificate. Any deviation, whenever discovered, may lead to cancellation of his/her candidature.

l) Please select you have pursued **schooling in a Government School/Other**.

m) A candidate who successfully completes a programme in one particular language/subject may not be entitled for admission to same level of programme (language/subject) again. The candidate may be allowed one more chance to get admission in other langauge/subject. Further, the candidate who fails to complete the programme successfully in the first two chances will not be given admission third time in the same language/subject under any circumstances. This will be applicable to all programmes of study being offered by the University.

n) Candidates who have obtained their Bachelor's degree under the pattern of education other than 10+2+3 will be considered for admission to the Master's Programme if they have successfully completed the first year of Master's degree programme or a bridge course in lieu thereof, wherever prescribed, from a recognised University with prescribed percentage of marks.

o) No candidate admitted to a full-time programme of study in the University shall accept or hold any employment paid or otherwise or shall be full time student of any other Institution/University during the course of his/her study at the University.

p) If any information furnished by the candidate in the application form is found to be false, his/her admission, if granted on the basis of such information will be cancelled, ipso facto.

q) Selected candidates shall be required to block the seats, as per the instructions given in the offer letter within the scheduled time. While blocking the seats, candidates shall be required to upload the required documents (as per instructions) alongwith payment of prescribed fees in online payment mode.

Any dispute with regard to any matter relating to admission shall be subject to the jurisdiction of Delhi Courts only.

XXXII. SYLLABUS FOR JNU ENTRANCE EXAMINATION 2019-20

1. SCHOOL OF INTERNATIONAL STUDIES

The pattern of JNUEE 2019-20 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Master of Arts

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of International Studies	Politics (with specialization in International Studies) – PISM (201)	Five disciplines are covered in the test – Sociology, Political Science, International Relations, History. There is sufficient choice in questions for applicants from each discipline to be able to attempt the required number of questions. The BA syllabi of these disciplines generally found in most Indian universities are kept in mind while setting questions.
2		International Relations and Area Studies – IRAM (234)	Five disciplines are covered in the test – Sociology, Political Science, International Relations, History. There is sufficient choice in questions for applicants from each discipline to be able to attempt the required number of questions. The BA syllabi of these disciplines generally found in most Indian universities are kept in mind while setting questions. The emphasis will be on Area Studies in International Relations.
3		Economics (with specialization in World Economy) – EILM (202)	The entrance examination will contain multiple choice questions and the syllabus will include Microeconomics, Macroeconomics, Mathematics, Statistics, International Trade and Development Economics

M.Phil

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Centre for Canadian, US and Latin American Studies (CCUS&LAS)	Canadian Studies – CANP (101)	**Section I** **RESEARCH METHODOLOGY** 1. Social science research vs. natural science research 2. Inter-disciplinary research 3. Variables in research 4. Types of research: descriptive; empirical; analytical; historical and doctrinal 5. Questionnaires and interviews; participant and non-participant observation 6. Survey research 7. Content analysis 8. Case study research 9. Managing and reviewing literature for research 10. Research proposal, research questions and hypothesis formulation 11. Primary and secondary sources; use of libraries and archives Research ethics/ ethical practices in research **Section II** **US Studies** 1. Bill of Rights – American Constitution 2. Federalism 3. Media, political parties and elections 4. Congress, judiciary and judicial review
2		Latin American Studies – LAMP (103)	

3		United States Studies – USSP (102)	5. Power and role of the US President and domestic factors in Foreign Policy. 6. US Policy towards South Asian Countries 7. US Foreign policy during Cold War (Containment Policy, Marshall Plan, Alliance Politics, Truman Doctrine) 8. Foreign Policy trends and patterns in Post-Cold War America (UN, Middle East, Europe, Asia, international institutions). 9. American ideals: liberty, equality, republicanism, individualism, democracy, faith-neutrality 10. Waves of immigration to America: old, new and newest 11. Ethnicity, race, religion and gender in America 12. Social problems: Gun violence, racism, abortion, teenage pregnancy, homelessness, drugs and alcoholism, terrorism **Latin American Studies** Government and politics in Latin America: executive, legislature, judiciary Political parties and political movements Labour and peasantry; middle class Domestic and foreign capital Church Military Environmental issues Indigenous communities Independence movements and ideas Social movements Latin American in world affairs Relations with US; Latin America and Asia, Africa and Europe India and Latin America Latin American and Caribbean regionalism Contemporary political, social and economic issues in major Latin American and Caribbean countries ➢ **Canadian Studies** Multiculturalism and ethnicity in Canada Immigration policies and integration Environmental issues Canada and India relations Regional Economic Integration Inter-American relations Federalism and Provincial Government Quebec and issues of regionalism Political party system and electoral politics Foreign Policy approaches and trends Canada and United Nations; Peace-keeping, peace-building and peace-enforcement 1. Contemporary political, social and economic issues in Canada
4	Centre for European Studies (CES)	European Studies – EUPP (104)	The test is divided into two sections, research methodology and area studies. Section I - Meaning and importance of Research – Types of Research Concepts in Social Research: Data, Research Methods, Techniques, Concepts and Indicators, Variables, Sample, Research Designs, Selection and formulation of Research Problem, Hypothesis, Research Questions; Issues in social research: Subjectivity

			and Objectivity, Reliability and Validity, Section II - The syllabus will be **on contemporary issues, discourses, debates and developments in politics, society, foreign policy, security and economy of European states/ European Union.**
5	Centre for International Trade & Development (CITD)	Int. Trade & Development – ITDP (106)	The entrance examination will contain multiple choice questions covering research methodology and subject-specific knowledge. The syllabus will include Mathematical Economics, Statistics, Econometrics, Microeconomics, Macroeconomics, International Trade and Development Economics.
6	Centre for East Asian Studies (CEAS)	Chinese Studies – CHIP (107)	The syllabus for the examination include subjects related to broader East Asian/Global developments; China's Foreign, Economic, Political & Social Issues; Japan's Foreign, Economic, Political & Social Issues; Korea's Foreign, Economic, Political & Social Issues. Major developments in East Asia are highlighted to test the candidates capabilities in conducting research in these areas.
7		Japanese – JPIP (108)	
8		Korean – KOIP (109)	
9	Centre for International Politics, Organisation and Disarmament (CIPOD)	International Politics – INPP (110)	**(A) International Politics (INP)** 1. Classical Realism 2. Non-Western Realism: Thucydides, Sun Tzu, Kautilya 3. Neorealism and the difference between Classical Realism and Neorealism 4. Variants of Neorealism: Defensive, Offensive, Neoclassical Realisms 5. Liberal International Theory including Complex Interdependence, Neoliberal Institutionalism, Democratic Peace Theory, Trade and Commercial Liberalism 6. Constructivist International Theory 7. Marxist and Gramscian International Political Theory 8. Theories of International Society, Especially the British School 9. Feminist International Theory 10. Modern Non-Western International Theory 11. Great Debates in International Theory 12. Theories of Nonalignment **(B) Political Geography (POG)** 1. Nature and scope of political geography 2. Political Geography Approaches: Functional, Unified Field theory, Laws of Spatial Growth of States 3. Political Geography Concepts: Space, Place, Scale, Region, Core Areas and Capital Cities, State, Sovereignty, Nation 4. Environment, Development and Geography 5. Geographical and Geopolitical Imaginations 6. Theories of geopolitics: traditional, critical, postmodern, feminist 7. Geo-strategy 8. Geopolitics Concepts: Territory, Border, Frontier, Boundaries, Empire 9. Issues and Concerns: Geopolitics of Resources; Geopolitics of Wars; Laws of the Sea; Cold War Geopolitics and multi-polar Geopolitics; Geopolitical hotspots; 10. Contemporary issues and concerns in Political Geography and Geopolitics 11. Research Methodology: GIS and its Applications 12. Qualitative and Quantitative Methods in International Relations 13. Research Design **(C) International Organization (ORG)** 1. Concept, definition and classification of international organization(s) 2. Roles, functions and powers of international organizations 3. Theoretical approaches to international organization 4. International organizations in world politics 5. Historical development of international organization during 19th and early 20th centuries 6. League of Nations
10		International Organisation – ORGP (111)	
11		Diplomacy and Disarmament – DADP (112)	
12		Political Geography – POGP (113)	

			7. The second generation international organizations: The United Nations and its system - establishment, activities, problems 8. Global problems (like war and peace, development, human rights, environment) with reference to the role of the United Nations 9. Reform and restructuring of the United Nations including the Security Council 10. Economic and financial organizations - the IMF, the IBRD and the WTO 11. Regional organizations of Europe, Africa, Asia, Americas 12. India's role in various international organizations 13. Globalization, global governance and international organizations **(D) Diplomacy and Disarmament (DAD)** 1. Diplomacy: history, theory and practice 2. Diplomacy: bilateral, multilateral, regional and global 3. Economic and trade diplomacy 4. Negotiations: theory and practice 5. Climate change and environmental negotiations 6. Nuclear politics including arms control, non-proliferation and disarmament 7. Theories of deterrence 8. Chemical and biological weapons 9. War: concept, theory and evolution 10. Peace: concept and theory in mainstream and critical-theoretical perspectives 11. Revolution in military affairs 12. Conflict management and resolution 13. Security: concept, theory and evolution 14. National security 15. Terrorism including nuclear terrorism and counter-terrorism 16. Non-traditional security including human security 17. Environmental security 18. Technology and global politics 19. Critical theory and Critical Security Studies including the Copenhagen, Paris and aberystwyth schools of thought 20. Critical Terrorism Studies 21. Critical Military Studies **(E) Research Methodology (Common)** 1. Inductive and deductive reasoning 2. Preliminary ideas about philosophy of science including the contribution of Karl Popper 3. Positivism and post-positivism: basic ideas 4. Qualitative method: characteristics and application 5. Case study research: single case study and multiple case studies 6. Comparative study 7. Content analysis 8. Sources in research: primary and secondary 9. Archival research: major archives for international research in India 10. Quantitative method: characteristics and application 11. Statistics: descriptive and inferential statistics 12. Sampling: concept, logic and types 13. Correlation and causation 14. Measures of central tendency 15. Measures of variation or dispersion 16. Observation including participant and non-participant observation 17. Ethnography 18. Interview 19. Basic ideas about mixed methods 20. Research ethics including plagiarism
13	Centre for Russian and Central Asian Studies (CR&CAS)	Russian & Central Asian Studies – RCAP (114)	The syllabus will broadly cover an overview of the History, Politics, Economic and Sociology of the fifteen courtiers comprising the former Soviet Union, namely the. Russian Federation, Belarus, Ukraine, Moldova, Georgia, Kazakhstan, Kyrgyzstan, Uzbekistan, Turkmenistan, Tajikistan, Azerbaijan, Armenia, Lithuania, Latvia and Estonia. The following thematic areas comprise the central focus of the syllabus:

			1. Comparative Politics and Theories of International Relations 2. Research Methods in Social Sciences 3. Bolshevik Revolution, Soviet Politics, industrialization debates, collectivization, Five-year planning, Soviet Economy, Social System and Foreign Policy 4. Glasnost, Perestroika, Nationalist Movements in the late 1980s', disintegration of USSR, end of Cold War 5. The post-Soviet Transition: Socio-political, Economic Developments, Nation and State-building Processes in the former Soviet Space 6. Globalisation, liberalization and impact on former Soviet States 7. India's Relations with the post-Soviet States 8. Geopolitics, Energy Security, Foreign Policy, and Strategic Culture of the post-Soviet Space 9. Gender, Environment, Water, Migration, Human Security, Civil Society and Media in the post-Soviet Space/States 10. New Regionalism in the post-Soviet Space.
14	Centre for South Asian Studies (CSAS)	South Asian Studies – SASP (115)	Questions for the Entrance Examination will be drawn from the following areas: 1. Society and social issues in South Asia 2. Modern history of South Asia 3. Contemporary international politics 4. Politics and political system in South Asian countries. 5. Foreign, security and economic policies of the South Asian States. 6. Economic growth and development of South Asian countries. 7. Environmental issues in South Asia 8. Regional cooperation and economic integration issues in South Asia. 9. Research methods in Social Sciences.
15	Centre for Indo-Pacific Studies (CIPS)	Indo-Pacific Studies – IPSP (116)	The Centre for Indo-Pacific Studies broadly covers the areas of Southeast Asia and Southwest Pacific. The entrance will be based on a syllabus covering the following areas: 1) Regional History of Southeast Asia and Southwest Pacific. 2) Government and Politics in the region. 3) Economic issues in the region. 4) Security issues in the region. 5) India's relations with the region of Southeast Asia and Southwest Pacific. 6) Regionalism multilateralism and institutional mechanisms.
16	Centre for Inner Asian Studies (CIAS)	Inner Asian Studies – IASP (117)	**The test will comprise both research methodology and area studies. The following components include the syllabus:** **Research Methodology** 1. Types of Research: descriptive; empirical; analytical; historical and doctrinal 2. Survey research 3. Case study research 4. Comparative study research 5. Review of literature for research 6. Primary and secondary sources; use of libraries and archives 7. Inductive and deductive methods of reasoning 8. Qualitative and Quantitative methods: characteristics and application 9. Sampling: concept, logic and types 10. Observation including participant and non-participant 11. Research proposal and designing, research questions and hypothesis formulation 12. Research ethics **Area Studies** 1. Strategic Dimensions and Geopolitics of Central Asia, Mongolia and Afghanistan 2. International relations of Central Asia, Afghanistan and Mongolia, 3. Ethnicity and Religion in Central Asia, Afghanistan, Xinjiang, Inner Mongolia and Tibet. 4. Religious Extremism and Terrorism in Afghanistan, Central Asia and Xinjiang. 5. Society, Culture and Politics in Xinjiang, Inner Mongolia and Tibet. 6. Human Security and Gender Issues. 7. China's Nationalities Policy in Xinjiang, Tibet and Inner Mongolia.

			8. Nation-building process in Central Asia, Mongolia and Afghanistan. 9. Social, Political and Economic Issues in Central Asia, Mongolia and Afghanistan 10. Energy Resources in Central Asia and Mongolia 11. Transportation Networks and trade linkages
17	Centre for African Studies (CAS)	African Studies – AFSP (118)	Geo-cultural Aspects: Land, People, Ecology, Environment, Languages and Culture Historical Aspects: Ancient African Empires Indigenous political systems Atlantic slave trade-its impact and implications Industrial Revolution and the elimination of slave trade Colonialism in Africa: European partition of Africa Asian (Indian) migration into Africa Patterns of Colonial rule in Africa Legacy of Colonialism Growth of nationalism and Liberation Movements in Africa Political Aspects: Political independence and Constitutional changes in Africa Growth of political parties and party-systems The role of military Democratisation process in Africa Rise and fall of Apartheid in South Africa Concepts of Pan-Africanism and African socialism Economic Aspects: Nature of African Economy Underdevelopment and Dependency patterns in Africa Neo-colonial penetration and problems of economic independence Development strategies in post-independence period Structural adjustment programmes in Africa-an evaluation Problem of poverty in Africa Africa's debt crisis Globalisation and its impact of Africa Regional economic cooperation and development (ECOWAS, SADC, COMESA, EAC and AEC) Social Aspects: Problems of nation-building in Africa Role of education State of Human Rights in Africa Role of civil society and women Problem of AIDS in Africa Ethnic conflicts in Africa Social change and structural transformation Africa and the World: Africa and the emerging International System Africa and European dominance Africa and the Cold War Post-Cold War scenario in Africa Africa and the New World Order Africa and the United Nations Inter-regional Cooperation Role of the Organization of African Unity (OAU) Africa and the Non-aligned Movement (NAM) The Role and Relevance of the African Union (AU) 2001 India-Africa Relations

18	Centre for West Asian Studies (CWAS)	West Asian Studies – WASP (119)	Syllabus for Entrance Examination covers research methodology and domain knowledge of West Asia and North Africa (WANA) region including its geographical area ; Political and Social Systems; Military and Politics; Arab Nationalism, Turkish Nationalism; Zionism; Islamism & Islamist Movement; Political Economy of GCC States, Rentier Economy, Inter and Intra-State Conflicts; Regional Conflicts; Intellectual Traditions in Arab World and Iran; Foreign Policy analysis of major regional powers of the area, notably Egypt, Turkey, Syria, Israel, Saudi Arabia and Iran will be covered. In addition, the syllabus will also focus on the role of global powers in the region along with India's West Asia Policy, its interests and objectives.
19	Centre for Comparative Politics and Political Theory (CCPPT)	Comparative Politics and Political Theory – CPTP (120)	Questions are set keeping in mind the MA syllabi of disciplines in the Social Sciences and Humanities from which candidates may apply to the Centre. Questions are broad enough for candidates to apply their knowledge of the discipline in which they have their MA degree. It is expected that candidates are widely read in their respective disciplines.

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1		Energy Studies Programme – ESPH (847)	**1) Energy Security: A Conceptual Study** **2) Energy Security and International Relations** **3) Political Economy of Energy Security** **4) Energy and Geopolitics** **5) India's Energy Security: Policies and Politics** **6) Energy in Foreign policy** **7) Energy Security and Energy Governance** **8) Global energy trends and scenarios** **9) Debating Energy Security Transition: Role of Renewable Energy** **10) Energy Security and Global South** **11) Energy and Environment** **12) Energy Security and Cooperation: South Asia, Gulf, Central Asia and European Energy** **13) Methodology of Energy Security Studies: Comparative, Historical and Mixed Method Research, quantitative and qualitative variable analysis in Energy Security.**
2	Centre for Canadian, US and Latin American Studies (CCUS&LAS)	Canadian Studies – CANH (826)	**Section I** **RESEARCH METHODOLOGY** 1. Social science research vs. natural science research 2. Inter-disciplinary research 3. Variables in research 4. Types of research: descriptive; empirical; analytical; historical and doctrinal 5. Questionnaires and interviews; participant and non-participant observation 6. Survey research 7. Content analysis 8. Case study research 9. Managing and reviewing literature for research 10. Research proposal, research questions and hypothesis formulation 11. Primary and secondary sources; use of libraries and archives Research ethics/ ethical practices in research **Section II** **US Studies** 1. Bill of Rights – American Constitution 2. Federalism 3. Media, political parties and elections 4. Congress, judiciary and judicial review 5. Power and role of the US President and domestic factors in Foreign Policy. 6. US Policy towards South Asian Countries 7. US Foreign policy during Cold War (Containment Policy, Marshall Plan, Alliance Politics, Truman Doctrine) 8. Foreign Policy trends and patterns in Post-Cold War America (UN, Middle East, Europe, Asia, international institutions).
3		Latin American Studies – LAMH (828)	
4		United States Studies – USSH (827)	

			9. American ideals: liberty, equality, republicanism, individualism, democracy, faith-neutrality 10. Waves of immigration to America: old, new and newest 11. Ethnicity, race, religion and gender in America 12. Social problems: Gun violence, racism, abortion, teenage pregnancy, homelessness, drugs and alcoholism, terrorism **Latin American Studies** Government and politics in Latin America: executive, legislature, judiciary Political parties and political movements Labour and peasantry; middle class Domestic and foreign capital Church Military Environmental issues Indigenous communities Independence movements and ideas Social movements Latin American in world affairs Relations with US; Latin America and Asia, Africa and Europe India and Latin America Latin American and Caribbean regionalism Contemporary political, social and economic issues in major Latin American and Caribbean countries ➢ **Canadian Studies** Multiculturalism and ethnicity in Canada Immigration policies and integration Environmental issues Canada and India relations Regional Economic Integration Inter-American relations Federalism and Provincial Government Quebec and issues of regionalism Political party system and electoral politics Foreign Policy approaches and trends Canada and United Nations; Peace-keeping, peace-building and peace-enforcement 1. Contemporary political, social and economic issues in Canada
5	Centre for European Studies (CES)	European Studies – EUPH (829)	The paper is divided into two sections, research methodology and area studies. Section I - Meaning and importance of Research – Types of Research – Qualitative and Quantitative Research; Concepts in Social Research: Data, Research Methods, Techniques, Concepts and Indicators, Variables, Sample, Research Designs, Selection and formulation of Research Problem, Hypothesis, Research Questions; Issues in social research: Subjectivity and Objectivity, Reliability and Validity, Section II - The syllabus will be **on contemporary issues, discourses, debates and developments in politics, society, foreign policy, security and economy of European states/ European Union.**

<table>
<tr><td>6</td><td>Centre for International Trade & Development (CITD)</td><td>Int. Trade & Development – ITDH (831)</td><td>The entrance examination will contain multiple choice questions covering research methodology and subject-specific knowledge. The syllabus will include Mathematical Economics, Statistics, Econometrics, Microeconomics, Macroeconomics, International Trade, Development Economics, Public Economics and Environmental Economics.</td></tr>
<tr><td>7</td><td rowspan="3">Centre for East Asian Studies (CEAS)</td><td>Chinese Studies – CHIH (832)</td><td rowspan="3">The syllabus for setting up questions for admission to Ph.D. programme of the Centre include subjects related to broader East Asian/Global developments; China's Foreign, Economic, Political & Social Issues; Japan's Foreign, Economic, Political & Social Issues; Korea's Foreign, Economic, Political & Social Issues. Major developments in East Asia are highlighted to test the candidates capabilities in conducting research in these areas.</td></tr>
<tr><td>8</td><td>Japanese – JPIH (833)</td></tr>
<tr><td>9</td><td>Korean – KOIH (834)</td></tr>
<tr><td>10</td><td rowspan="4">Centre for International Politics, Organisation and Disarmament (CIPOD)</td><td>International Politics – INPH (835)</td><td rowspan="4"><u>(A) International Politics (INP)</u>
1. Classical Realism
2. Non-Western Realism: Thucydides, Sun Tzu, Kautilya
3. Neorealism and the difference between Classical Realism and Neorealism
4. Variants of Neorealism: Defensive, Offensive, Neoclassical Realisms
5. Liberal International Theory including Complex Interdependence, Neoliberal Institutionalism, Democratic Peace Theory, Trade and Commercial Liberalism
6. Constructivist International Theory
7. Marxist and Gramscian International Political Theory
8. Theories of International Society, Especially the British School
9. Feminist International Theory
10. Modern Non-Western International Theory
11. Great Debates in International Theory
12. Theories of Nonalignment
<u>(B) Political Geography (POG)</u>
1. Nature and scope of political geography
2. Political Geography Approaches: Functional, Unified Field theory, Laws of Spatial Growth of States
3. Political Geography Concepts: Space, Place, Scale, Region, Core Areas and Capital Cities, State, Sovereignty, Nation
4. Environment, Development and Geography
5. Geographical and Geopolitical Imaginations
6. Theories of geopolitics: traditional, critical, postmodern, feminist
7. Geo-strategy
8. Geopolitics Concepts: Territory, Border, Frontier, Boundaries, Empire
9. Issues and Concerns: Geopolitics of Resources; Geopolitics of Wars; Laws of the Sea;
Cold War Geopolitics and multi-polar Geopolitics; Geopolitical hotspots;
10. Contemporary issues and concerns in Political Geography and Geopolitics
11. Research Methodology: GIS and its Applications
12. Qualitative and Quantitative Methods in International Relations
13. Research Design

<u>(C) International Organization (ORG)</u>

1. Concept, definition and classification of international organization(s)
2. Roles, functions and powers of international organizations
3. Theoretical approaches to international organization
4. International organizations in world politics
5. Historical development of international organization during 19th and early 20th centuries
6. League of Nations
7. The second generation international organizations: The United Nations and its system - establishment, activities, problems
8. Global problems (like war and peace, development, human rights, environment) with reference to the role of the United Nations
9. Reform and restructuring of the United Nations including the Security Council
10. Economic and financial organizations - the IMF, the IBRD and the WTO</td></tr>
<tr><td>11</td><td>International Organisation – ORGH (837)</td></tr>
<tr><td>12</td><td>Diplomacy and Disarmament – DADH (838)</td></tr>
<tr><td>13</td><td>Political Geography – POGH (836)</td></tr>
</table>

			11. Regional organizations of Europe, Africa, Asia, Americas 12. India's role in various international organizations 13. Globalization, global governance and international organizations **(D) Diplomacy and Disarmament (DAD)** 1. Diplomacy: history, theory and practice 2. Diplomacy: bilateral, multilateral, regional and global 3. Economic and trade diplomacy 4. Negotiations: theory and practice 5. Climate change and environmental negotiations 6. Nuclear politics including arms control, non-proliferation and disarmament 7. Theories of deterrence 8. Chemical and biological weapons 9. War: concept, theory and evolution 10. Peace: concept and theory in mainstream and critical-theoretical perspectives 11. Revolution in military affairs 12. Conflict management and resolution 13. Security: concept, theory and evolution 14. National security 15. Terrorism including nuclear terrorism and counter-terrorism 16. Non-traditional security including human security 17. Environmental security 18. Technology and global politics 19. Critical theory and Critical Security Studies including the Copenhagen, Paris and aberystwyth schools of thought 20. Critical Terrorism Studies 21. Critical Military Studies **(E) Research Methodology (Common)** 1. Inductive and deductive reasoning 2. Preliminary ideas about philosophy of science including the contribution of Karl Popper 3. Positivism and post-positivism: basic ideas 4. Qualitative method: characteristics and application 5. Case study research: single case study and multiple case studies 6. Comparative study 7. Content analysis 8. Sources in research: primary and secondary 9. Archival research: major archives for international research in India 10. Quantitative method: characteristics and application 11. Statistics: descriptive and inferential statistics 12. Sampling: concept, logic and types 13. Correlation and causation 14. Measures of central tendency 15. Measures of variation or dispersion 16. Observation including participant and non-participant observation 17. Ethnography 18. Interview 19. Basic ideas about mixed methods 20. Research ethics including plagiarism
14	Centre for Russian and Central Asian Studies (CR&CAS)	Russian & Central Asian Studies – RCAH (839)	The syllabus will broadly cover an overview of the History, Politics, Economic and Sociology of the fifteen courtiers comprising the former Soviet Union, namely the. Russian Federation, Belarus, Ukraine, Moldova, Georgia, Kazakhstan, Kyrgyzstan, Uzbekistan, Turkmenistan, Tajikistan, Azerbaijan, Armenia, Lithuania, Latvia and Estonia. The following thematic areas comprise the central focus of the syllabus: 1. Comparative Politics and Theories of International Relations 2. Research Methods in Social Sciences 3. Bolshevik Revolution, Soviet Politics, industrialization debates, collectivization, Five-year planning, Soviet Economy, Social System and Foreign Policy 4. Glasnost, Perestroika, Nationalist Movements in the late 1980s', disintegration of USSR, end of Cold War

			5. The post-Soviet Transition: Socio-political, Economic Developments, Nation and State-building Processes in the former Soviet Space 6. Globalisation, liberalization and impact on former Soviet States 7. India's Relations with the post-Soviet States 8. Geopolitics, Energy Security, Foreign Policy, and Strategic Culture of the post-Soviet Space 9. Gender, Environment, Water, Migration, Human Security, Civil Society and Media in the post-Soviet Space/States 10. New Regionalism in the post-Soviet Space.
15	Centre for South Asian Studies (CSAS)	South Asian Studies – SASH (840)	Questions for the Entrance Examination will be drawn from the following areas: 1. Society and social issues in South Asia 2. Modern history of South Asia 3. Contemporary international politics 4. Politics and political system in South Asian countries. 5. Foreign, security and economic policies of the South Asian States. 6. Economic growth and development of South Asian countries. 7. Environmental issues in South Asia 8. Regional cooperation and economic integration issues in South Asia. 9. Research methods in Social Sciences.
16	Centre for Indo-Pacific Studies (CIPS)	Indo-Pacific Studies – IPSH (841)	The Centre for Indo-Pacific Studies broadly covers the areas of Southeast Asia and Southwest Pacific. The entrance will be based on a syllabus covering the following areas: 1) Regional History of Southeast Asia and Southwest Pacific. 2) Government and Politics in the region. 3) Economic issues in the region. 4) Security issues in the region. 5) India's relations with the region of Southeast Asia and Southwest Pacific. 6) Regionalism multilateralism and institutional mechanisms.
17	Centre for Inner Asian Studies (CIAS)	Inner Asian Studies – IASH (842)	1. Strategic Dimensions and Geopolitics of Central Asia, Mongolia and Afghanistan 2. International relations of Central Asia, Afghanistan and Mongolia, 3. Ethnicity and Religion in Central Asia, Afghanistan, Xinjiang and Tibet. 4. Religious Extremism and Terrorism in Afghanistan, Central Asia and Xinjiang. 5. Society, Culture and Politics in Xinjiang, Inner Mongolia and Tibet regions of China. 6. Human Security and Gender Issues. 7. China's Nationalities Policy in Xinjiang, Tibet and Inner Mongolia. 8. Nation-building process in Central Asia, Mongolia and Afghanistan. 9. Social, Political and Economic Issues in Central Asia, Mongolia and Afghanistan 10. Energy Resources in Central Asia and Mongolia 11. Transportation Networks and trade linkages between Central Asia and South Asia
18	Centre for African Studies (CAS)	African Studies – AFSH (843)	Geo-cultural Aspects: Land, People, Ecology, Environment, Languages and Culture Historical Aspects: Ancient African Empires Indigenous political systems Atlantic slave trade-its impact and implications Industrial Revolution and the elimination of slave trade Colonialism in Africa: European partition of Africa Asian (Indian) migration into Africa Patterns of Colonial rule in Africa Legacy of Colonialism Growth of nationalism and Liberation Movements in Africa Political Aspects: Political independence and Constitutional changes in Africa Growth of political parties and party-systems The role of military Democratisation process in Africa Rise and fall of Apartheid in South Africa

			Concepts of Pan-Africanism and African socialism Economic Aspects: Nature of African Economy Underdevelopment and Dependency patterns in Africa Neo-colonial penetration and problems of economic independence Development strategies in post-independence period Structural adjustment programmes in Africa-an evaluation Problem of poverty in Africa Africa's debt crisis Globalisation and its impact of Africa Regional economic cooperation and development (ECOWAS, SADC, COMESA, EAC and AEC) Social Aspects: Problems of nation-building in Africa Role of education State of Human Rights in Africa Role of civil society and women Problem of AIDS in Africa Ethnic conflicts in Africa Social change and structural transformation Africa and the World: Africa and the emerging International System Africa and European dominance Africa and the Cold War Post-Cold War scenario in Africa Africa and the New World Order Africa and the United Nations Inter-regional Cooperation Role of the Organization of African Unity (OAU) Africa and the Non-aligned Movement (NAM) The Role and Relevance of the African Union (AU) 2001 India-Africa Relations
19	Centre for West Asian Studies (CWAS)	West Asian Studies – WASH (844)	Syllabus for the Entrance Examination covers a brief background of the geographical area of WANA; Political and Social System; Military in Politics; Arab Nationalism, Turkish Nationalism; Zionism; Islamism & Islamist Movement; Political Economy of GCC States, Rentire Economy, Inter and Intra-State Conflicts; Regional Conflict Complex, namely Arab-Israel; Intellectual Traditions in Arab World and Iran; Foreign Policy analysis of major regional powers of the area, notably Egypt, Turkey, Syria, Israel, Saudi Arabia and Iran will be covered. In addition, the syllabus will also focus on the role of global powers in the region along with India's West Asia Policy, its interests and objectives.
20	Centre for Comparative Politics and Political Theory (CCPPT)	Comparative Politics and Political Theory – CPTH (845)	Questions are set keeping in mind the MA syllabi of disciplines in the Social Sciences and Humanities from which candidates may apply to the Centre. Questions are broad enough for candidates to apply their knowledge of the discipline in which they have their MA degree. It is expected that candidates are widely read in their respective disciplines.

2. SCHOOL OF LANGUAGE, LITERATURE AND CULTURE STUDIES

The pattern of JNUEE 2019-20 will be based on Multiple Choice Questions (MCQs) through

Computer Based Test (CBT)

Part-time courses

CERTIFICATE OF PROFICIENCY

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Centre for Korean Studies (CKS)	COP-Mongolian – MONC (702)	Entrance exam of COP in Bahasa Indonesia is conducted as a joint test with other part time programme; Urdu, Pashto, Mongolian and Hebrew. The eligibility is 10+2 or equivalent exam pass. The examination is conducted in English. The syllabus covers: 1. General Knowledge; 2. GK of the country of the languages; 3. Aptitude test and General English.
2	Centre for Chinese, South East Asian Studies (CCSEAS)	COP-Bhasha Indonesia – BHAC (703)	
3	Centre for Indian Languages (CIL)	Urdu – URDC (704)	
4	Centre for Persian and Central Asian Studies (CPCAS)	COP in Pashto – PUSC (701)	
5	Centre for Arabic and African Studies (CAAS)	COP in Hebrew – HEBC (710)	

ADVANCE DIPLOMA OF PROFICIENCY

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Centre for Indian Languages (CIL)	ADOP-Mass Media in Urdu – URDA (502)	By and large the syllabus will cover the topics related to the general awareness and basic knowledge of Mass Media which will be based on the following topics: a. Types of Mass Media b. Language of Mass Media c. Social relevance of Mass Media d. Journalism e. Origin and development of Print Media f. Origin and development of Electronic Media/Social Media g. Major Mass Media Genres

B.A. (Hons.) 1st year

The school has changed the pattern of the B.A. (Hons.) 1st year Entrance Examination w.e.f. Academic Session 2016-17 onward. The Etrance Examinations for B.A. (Hons. 1st year in Foreign Languages will be grouped according to the following clusters:

Cluster 1: French, German, Spanish, Russian; Cluster 2: Japanese, Korean, Chinese; & Cluster 3: Persian, Arabic, Pashto (Candidates may opt for three Languages from two clusters only. Sample papers are available on the JNU website.)

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Centre for Persian and Central Asian Studies (CPCAS)	Persian – PERU (401)	The entrance test for this programme is a common test for three languages: Persian, Arabic & Pushto. Questions pertaining to general knowledge, artificial language, on issues related to the subject etc. would be covered in the syllabus. The test will be conducted in the English language.
2		Pushto – PUSU (410)	
3	Centre for Arabic and African Studies (CA&AS)	Arabic – ARBU (402)	
4	Centre for Japanese Studies (CJS)	Japanese – JAPU (403)	The entrance test for this programme is a common test for three languages: Japanese, Chinese and Korean. Questions pertaining to general knowledge, artificial language, language aptitude and general English would be covered in the syllabus. The test will be conducted in the English language as a Computer Based Test (CBT).
5	Centre for Korean Studies (CKS)	Korean – KORU (404)	
6	Centre for Chinese, South East Asian Studies (CCSEAS)	Chinese – CHNU (405)	
7	Centre for French and Francophone Studies (CFFS)	French – FRNU (406)	There is a common entrance exam for the Cluster I that includes 4 languages: French, German, Russian and Spanish. The entrance test for this programme is a common test with questions encompassing general knowledge, artificial language, on issues related to the subject etc. would be covered in the syllabus. The test will be conducted in the English language.
8	Centre for German Studies (CGS)	German – GERU (407)	
9	Centre for Russian Studies (CRS)	Russian – RSNU (408)	
10	Centre for Spanish, Portuguese, Italian and Latin American Studies (CSPI&LAS)	Spanish – SPNU (409)	

Master of Arts

Candidates who have already pursued B.A. (Hons.)/M.A. Language programme in any two or more Centres of study of the School during their entire academic career are not eligible for admission to M.A. Language Programme.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Centre for Persian and Central Asian Studies (CPCAS)	Persian – PERM (203)	1. Translation based on the vocabulary of newspapers, journals and magazines. 2. Essays, short stories, novels from the different authors 3. (a) History of Persian Language with special reference to Avesta, Old Persian and Pahlavi scripts and Literature. (b) Literary History of Persian starting from Arab Invasions up to the end of - Pahlavi period with special reference to Samanid, Ghaznavid, Saljuk, Mongol, Safavid, Qajar and Pahlavi periods. (c) A special study of Persian Literature produced in India. 4. Geography and systems of Government in the Persian speaking world (i.e. Iran, Afghanistan, Tajikistan.) 5. (a) A detailed account of new trends in Modern/Contemporary Persian Prose and Poetry. (b) Comparison between classical and Modern Persian Poetry. (c) Selection of poems from Modern/Contemporary Persian Literature. 6. A Comparative study of the contemporary Persian dialects with a special reference to Modern Persian, Dari and Tajik. 7. Indo-Persian Relations from the pre-historic days up to the Modern times with special reference to the following: (a) Historical, (b) Cultural, (c) Linguistics, (d) Literary, (e) Trade, scientific & technological relations with special reference to Modern times.
2	Centre for Arabic and African Studies (CA&AS)	Arabic – ARBM (204)	1. History of Arabic literature – pres-Islamic, Islamic, Umayyid, Abbasid and modern periods 2. Modern prose and poetry 3. Arabic studies in India 4. Criticism 5. Major Arab and Indian writers 6. Advanced Arabic grammar 7. Translation (Arabic-English-Arabic)
3	Centre for Japanese Studies (CJS)	Japanese – JAPM (205)	**1. General Awareness on topics such as Japan's** • Geography • History • Society and Culture • Famous Works of Literature • Current affairs (Course list for B.A. programme given below for reference) http:/ www.jnu.ac.in/SLL/CJS/BACoursesJapanese.asp **2. Language ability in Japanese**
4	Centre for Korean Studies (CKS)	Korean – KORM (206)	The test is conducted in Korean and objective type questions pertaining to Korea, Korean language, basic Korean literature, Korean culture (both traditional and modern) are covered. Questions may also test their knowledge of basic Hanja (Chinese characters). The test is Computer Based in Korean.
5	Centre for Chinese, South East Asian	Chinese – CHNM (207)	The test will be conducted in Chinese. Questions on Chinese and Chinese literature, history, civilization and culture of China and Sinophone countries, linguistics and language, translation and didactics of teaching a foreign

	Studies (CCSEAS)		language are some of the areas covered in the syllabus.
6	Centre for French and Francophone Studies (CFFS)	French – FRNM (208)	The test will be conducted in French. Questions on French & Francophone literature, history, civilization and culture of France and Francophone countries, linguistics and language, translation and didactics of teaching a foreign language are some of the areas covered in the syllabus.
7	Centre for German Studies (CGS)	German Literature – GRLM (209)	**1. Common for both:** • German history from 1750 till 1914 • German history after 1945. (Two German states; Reunification) • Basic Linguistics (Word Formation in German; Dependenzgrammatik; IC-analysis; speech act theory etc.) **2. For candidates opting for German literature:** • Trends in German Literature post 1945 till 2000 • History of German Literature from 1750 till 1900. Representative authors and texts - an overview of the different periods from the Enlightenment to Realism • An overview of the main genres in German literature • The ability to interpret given texts from these periods. **3. For candidates opting for German translation:** • Good knowledge of German and English
8		German Translation – GRTM (230)	
9	Centre for Indian Languages (CIL)	Hindi – HNDM (210)	Syllabus covers the courses prescribed in B.A./B.A.(Hons.) in various colleges/ universities all over the country, comprising the following topics: History of Hindi Literature, Major Literary Genres, works, movements and trends, major writers and critics of Hindi Literature.
10		Urdu – URDM (211)	By and large syllabus will cover the curriculums/syllabuses of B.A./B.A. (Hons.) of Urdu as prescribed in various Universities/Colleges all over the country. Which will commonly be based on the following topics: a. History of Urdu Literature: (From beginning till 20th century) b. Classical Urdu Poetry: (Major classical Urdu poets and their selected works) c. Classical Urdu Prose (Major classical Urdu Prose writers and their selected works) d. Modern Urdu Poetry (Major Modern Urdu Poets and their selected works) e. Modern Urdu Prose (Major Modern Urdu Prose writers and their selected works) f. Major Genres of Urdu Poetry Prose g. Major literary movements and trends of Urdu Literature.
11	Centre for Russian Studies (CRS)	Russian – RSNM (212)	The Entrance Examination for this level is Computer Based Test (CBT) in Russian Language. The questions will be based on Advanced Russian Grammar, which may include cases, direct-indirect speech, aspects of verbs, use of verbs with and without prefixes, participles, gerund, active & passive voice etc. It also includes translation from Russian into English and English into Russian and works of prominent authors of 19th & 20th Century Russian Literature.
12	Centre for Spanish, Portuguese, Italian and Latin American Studies (CSPI&LAS)	Spanish – SPNM (213)	The test will be conducted in Spanish. Questions on Spanish and Latin American literature, history, civilization, culture, linguistics and language, translation are some of the areas covered in the syllabus.
13	Centre for Linguistics (CL)	Linguistics – LINM (214)	The M.A. programme in Linguistics provides students a basic grounding in descriptive, general and theoretical linguistics, and initiates them into specialized areas, Applied Linguistics, Language Typology, Generative Phonology, Generative Syntax, Semantics, and Morphology, Cognitive

			Linguistics, Construction Grammar, Language-Mind and Brain, Sociolinguistics, Indian Linguistic Theories, Semiotics and philosophy of Language and Culture, South Asia as a linguistic area, Historical and Comparative Linguistics, Tibeto-Burman Linguistics, Language Documentation, and Acoustic and experimental Phonetics. The Centre imparts training in the practical and research aspects of the discipline, enabling the students to explore and reflect upon various theories of language and their relevance in specific contexts. Among the facilities the Centre provides are: Computerized Speech Lab and Phonetics Lab. Field work on lesser known Indian Languages is also facilitated.
14	Centre for English Studies (CES)	English – ENGM (215)	Candidates will be examined in Literature in English, Literature in India and Other Parts of the World, English in India, Literary and Cultural Theories, Non-Literary Artistic Forms, the Relationship between Literature, Culture and Society, and Practical Criticism of given literary pieces. The objective of the test is to select those who demonstrate not just in -depth knowledge of literature and culture, but literary sensibility and a capacity for original thinking.

M.Phil

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Centre for Persian and Central Asian Studies (CPCAS)	Persian – PERP (121)	**1. Research Methodology** I) References ii) Applied Mechanisms of Research- iii) Research Writings iv) Use of Manuscripts, Archives and Texts in Research Works **2. Trends in Persian Literature: Prose and Poetry** This will cover major works of the contemporary authors/poets, their age and society in which they lived. The texts of literary works shall be studies from political, historical and sociological point of views to discern the currents and cross currents of society. The contributions of authors/poets to bring positive upheaval in society shall be the focal point of study. **3. History of Persian Literature** This will cover the history of Persian Literature in which the major works, their influences and movements caused by them in the Persian speaking world will be taken into account. The entire study shall be undertaken within the framework of socio-political history and the major events of the country having literary relevance will be properly emphasized. **4. Indo-Persian Cultural Interactions** This will briefly cover Indo-Persian Cultural interactions under the following broad topics: i) Contacts between Indian & Persian Courts and their impact on life and letters of the countries. ii) Translation of Indian texts and traditions in Persian and vice versa. iii) Literary interactions between India and the Persian World iv) Cultural events of literary significance, etc. v) Cultural Exchange Programme after 1947 and diplomatic contacts between India and the Persian world. **5. Literary Interactions** a) Persian literary translations in Indian languages and European language. b) European works of universal significance in Persian Language. c) Indian literature etc. in Persian language. d) Contemporary themes and subjects in Persian literature vis a vis world literature. **6. Indo-Persian Literature:** Historiography, Mysticism, Indian Style of writing (Prose & Poetry) etc.
2	Centre for Arabic and African Studies (CA&AS)	Arabic – ARBP (122)	1. History of Arabic literature - pre-Islamic, Islamic, Umayyid, Abbasid and modern periods, literature of Al Maghreb, emigrant literature. 2. Criticism – schools and trends 3. Major works of Indian writers in Arabic studies 4. Major centre of Arabic and Islamic learning in India 5. Classical and Modern Prose 6. Classical and modern poetry 7. Theory of translation

3	Centre for Japanese Studies (CJS)	Japanese – JAPP (123)	• Major literary works in Japanese literature • In depth Knowledge to discuss about some literary works and authors such as Kawabata Yasunari, Akutagawa Ryunosuke, etc in Japanese • Literary trends in Japan • Current affairs in Japan • Indo-Japanese relations in social, cultural, economic, political spheres • Cultural, and social history of Japan, contemporary society in Japan. • The research theme in which the candidate is interested, Details of the area in which the candidate would like to pursue research.
4	Centre for Korean Studies (CKS)	Korean – KORP (172)	The questions for the M.Phil exam will cover research methodology, Korean language, linguistics, literature, culture, history, current affairs of Korea and translation studies. The examination will be in Korean language. Those who qualify will also have to take the viva voce. The weightage for these will be as per JNU rules and regulations. The exam will be Computer Based Test (CBT) in Korean.
5	Centre for Chinese, South East Asian Studies (CCSEAS)	Chinese – CHNP (124)	The questions for the M.Phil. exam will cover research methodology, Chinese and Chinese literature, history, civilization and culture, linguistics & language, translation studies, didactics of teaching a foreign language, etc. the examination will be conducted in the Chinese language.
6	Centre for French and Francophone Studies (CFFS)	French – FRNP (125)	The questions for the M.Phil exams will cover research methodology, French & Francophone literature, history, civilization and culture, linguistics & language, translation studies, didactics of teaching a foreign language. The examination will be conducted in the French language.
7	Center for German Studies (CGS)	German Literature – GERP (126)	**1. Common for all streams** • Research methodology • Research Interest • Research proposal **2. Particular streams** • German Literature • German Linguistics • Translation • German History • Didactics / German as Foreign Language
8	Centre for Indian Languages (CIL)	Hindi – HNDP (127)	Syllabus covers the courses prescribed in M.A.(Hindi) in various colleges/ universities all over the country, in general comprising the following topics: Origin and development of Hindi Language & literature, Major literary works and authors, genres, movements ,trends, literary theories & Schools of Hindi literature, Research Methodology & Hindi Literary traditions & Criticism.
9		Urdu – URDP (128)	Syllabus will cover by and large the curriculums/Syllabus of M.A. (Urdu) M.A level as prescribed in various Universities all over the country, comprising following topics: a. Research Methodology b. Textual Criticism c. Origin and development of Urdu Language d. History of Urdu Literature e. Dakkani Urdu Literature f. Classical Urdu Poetry and Prose g. Major genres of Urdu Poetry and Prose h. Major Literary movements and trends i. Major Critical Theories, Ideas and Critics j. Major works of research in Urdu and Researchers k. Major literary schools (dabistan) of Urdu.
10		Tamil – TAMP (129)	Tolkaappiyam -- Irayanar Kalaviyal -- Purapporul Venpaa maalai -- YaapperunkalakKaarikai --Thandiyalankaaram Sangam Anthologies Thirukkural and other Ethic literature

			Cilappatikaram--M*animekalai* and other Epic literature Devotional (Bakti), Philosophic and Mystic literature Modern Tamil Literature Tamil Folklore Comparative Literature - Literary Theories - Translation Theories Tamil, Sanskrit -- Ancient Indian literary Historiography-Inter Indian literary relations Tamil Diaspora - Tamil Journalism - Tamil Films based on Novels Research Methodology
11		Hindi Translation – HTLP (130)	Candidates seeking admission in Hindi Translation expected to have (apart from Research Methodology) detailed knowledge of the tradition of translation in India. Specially the tradition of translation in Hindi and from Hindi is most important. Knowledge of the different forms of translation, introduction and critical views on translation theories, major translation thinkers and their contribution, cultural aspects of translation, process of translation, Translation and structure of language, various important translations, Indian Multilingualism and Translation, Role of Translation in Social Change through different Movements, Technology and Translation, Emerging issues in Translation, Translation of Technical Terminology, Computer Assisted Translation Tools, Idea of Indian Languages to Hindi, Idea of World Literature and Translation, Role of Translation in Comparative Literature, Translation as Processes of Appropriation etc. also be expected.
12		Kannada – KANP (131)	By and large, syllabus covers the curriculum/syllabus of MA (Kannada) as prescribed in various Universities of Karnataka, that will commonly based on the following topics- 1. **History of Kannada literary research :** Research during early modern period, Modern period, Academic period and Current trends 2. **History of folklore research in Karnataka :** Folklore Research during early modern period, Modern period, Academic period and Current trends. 3. **Comparative literature and translation studies** : Definition and History, Themes and rewritings, Genres and a cross-cultural study, Literary Historiography, Literature and Interdisciplinary approach, Periodization 4. **Classical Kannada Literature :** Vaddaradhane, Kavirajamaraga Vikramarjuna Vijaya and Ramachandra charita purana. 5. **Medieval Kannada Literature**: Regale, Vachana, Shatpadi, Kirtane, Sangatya, Tripadi, Tatva Pada and Yakshagana prasangas **Modern Kannada Literature**: Important writers: including Kuvempu, Bendre, Masti, Shivarama Karanth, and , Devanooru Mahadeva.
13	Centre for Russian Studies (CRS)	Russian – RSNP (181)	The Entrance Examination for this level is Computer Based Test (CBT) in Russian Language. The questions will be based on Research Methodology, Linguistics, Stylistics, Theory of Translation, Theory of Literature, 19th & 20th Century Russian Literature. Candidates who qualify the CBT will appear for a viva-voce, which will be conducted in Russian.
14	Centre for Spanish, Portuguese, Italian and Latin	Spanish – SPNP (132)	The questions for the M.Phil exams will cover research methodology, Spanish & Latin American literature, history, civilization and culture, linguistics & language, translation studies, didactics of teaching a foreign language. The examination will be conducted in Spanish language.

15	American Studies (CSPI&LAS)	Portuguese – PRTP (133)	The questions for the M.Phil exams will cover research methodology, Portuguese and Brazilian literature, Socio political literary movements, history and culture, Discovery of America, Brazilian history culture and civilization, language and translation studies. The examination will be conducted in Portuguese language.
16	Centre for Linguistics (CL)	Linguistics – LINP (134)	The M.Phil programme is a very rich and multimodal. It allows researchers to engage in almost all areas of language studies. The programme is thus open to postgraduates from multiple disciplinary fields, leading to considerable interdisciplinary interaction. Work in the following areas has resulted in significant and impressive research outputs: Descriptive Linguistics, Speech sciences including Language Pathology, Generative Syntax and Semantics, Neuro-cognitive Linguistics, Sign Linguistics, Phonological Theory, Indian Linguistic theory, mutilingualism, Sociolinguistics, Language documentation, Applied Linguistics including Language Teaching, Language technology, Semiotics and Philosophy of Language.
17	Centre for English Studies (CES)	English – ENGP (135)	Candidates will be examined in Literature in English, Literature in India and Other Parts of the World, English in India, Literary and Cultural Theories, Non-Literary Artistic Forms, and the Relationship between Literature, Culture and Society. The objective of the test would be to specifically assess the research aptitude of the candidates, and their suitability for a rigorous research programme.

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Centre for Persian and Central Asian Studies (CPCAS)	Persian – PERH (848)	**1. Research Methodology** I) References ii) Applied Mechanisms of Research- iii) Research Writings iv) Use of Manuscripts, Archives and Texts in Research Works **2. Trends in Persian Literature: Prose and Poetry** This will cover major works of the contemporary authors/poets, their age and society in which they lived. The texts of literary works shall be studies from political, historical and sociological point of views to discern the currents and cross currents of society. The contributions of authors/poets to bring positive upheaval in society shall be the focal point of study. **3. History of Persian Literature** This will cover the history of Persian Literature in which the major works, their influences and movements caused by them in the Persian speaking world will be taken into account. The entire study shall be undertaken within the framework of socio-political history and the major events of the country having literary relevance will be properly emphasized. **4. Indo-Persian Cultural Interactions** This will briefly cover Indo-Persian Cultural interactions under the following broad topics: i) Contacts between Indian & Persian Courts and their impact on life and letters of the countries. ii) Translation of Indian texts and traditions in Persian and vice versa. iii) Literary interactions between India and the Persian World iv) Cultural events of literary significance, etc. v) Cultural Exchange Programme after 1947 and diplomatic contacts between India and the Persian world. **5. Literary Interactions** a) Persian literary translations in Indian languages and European language. b) European works of universal significance in Persian Language. c) Indian literature etc. in Persian language. d) Contemporary themes and subjects in Persian literature vis a vis world literature. **6. Indo-Persian Literature:** Historiography, Mysticism, Indian Style of writing (Prose & Poetry) etc.

2	Centre for Arabic and African Studies (CA&AS)	Arabic – ARBH (849)	1. History of Arabic literature - pre-Islamic, Islamic, Umayyid, Abbasid and modern periods, literature of Al Maghreb, emigrant literature. 2. Criticism – schools and trends 3. Major works of Indian writers in Arabic studies 4. Major centre of Arabic and Islamic learning in India 5. Classical and Modern Prose 6. Classical and modern poetry 7. Theory of translation
3	Centre for Japanese Studies (CJS)	Japanese – JAPH (850)	• Major literary works in Japanese literature • In depth Knowledge to discuss about some literary works and authors such as Kawabata Yasunari, Akutagawa Ryunosuke, etc in Japanese • Literary trends in Japan • Current affairs in Japan • Indo-Japanese relations in social, cultural, economic, political spheres • Cultural, and social history of Japan, contemporary society in Japan. • The research theme in which the candidate is interested, Details of the area in which the candidate would like to pursue research.
4	Centre for Korean Studies (CKS)	Korean – KORH (851)	The questions for the Ph.D exam will cover research methodology, Korean language, linguistics, literature, culture, history, current affairs of Korea and translation studies. The examination will be in Korean language. Those who qualify will also have to take the viva voce. The weightage for these will be as per JNU rules and regulations. The exam will be Computer Based in Korean.
5	Centre for Chinese, South East Asian Studies (CCSEAS)	Chinese – CHNH (852)	The questions for the Ph.D exam will cover research methodology, Chinese and Chinese literature, history, civilization and culture, linguistics & language, translation studies, didactics of teaching a foreign language, etc. the examination will be conducted in the Chinese language.
6	Centre for French and Francophone Studies (CFFS)	French – FRNH (853)	The questions for the Ph.D. exams will cover research methodology, French & Francophone literature, history, civilization and culture, linguistics & language, translation studies, didactics of teaching a foreign language. The examination will be conducted in the French language.
7	Center for German Studies (CGS)	German Literature – GERH (854)	**1. Common for all streams** • Research methodology • Research Interest • Research proposal **2. Particular streams** • German Literature • German Linguistics • Translation • German History • Didactics / German as Foreign Language
8	Centre for Indian Languages (CIL)	Hindi – HNDH (855)	Syllabus covers the courses prescribed in (Hindi) in various colleges/ universities all over the country, in general comprising the following topics: Origin and development of Hindi Language & literature, Major literary works and authors, genres, movements ,trends, literary theories & Schools of Hindi literature, Research Methodology, Comparative literature, Hindi Literary traditions & Criticism, Indian & Western poetics and Contemporary literary discourse.
9		Urdu – URDH (856)	Syllabus will cover by and large the curriculums/Syllabus of M.A. (Urdu) at M.A & M.Phil level as prescribed in various Universities all over the country, comprising following topics: a. Research Methodology b. Textual Criticism c. Origin and development of Urdu Language d. History of Urdu Literature e. Dakkani Urdu Literature f. Classical Urdu Poetry and Prose g. Major genres of Urdu Poetry and Prose h. Major Literary movements and trends i. Major Critical Theories, Ideas and Critics j. Major works of research in Urdu and Researchers k. Major literary schools (dabistan) of Urdu.

10		Tamil – TAMH (857)	Tolkaappiyam -- Irayanar Kalaviyal -- Purapporul Venpaa maalai -- YaapperunkalakKaarikai --Thandiyalankaaram Sangam Anthologies Thirukkural and other Ethic literature *Cilappatikaram*--M*animekalai* and other Epic literature Devotional (Bakti), Philosophic and Mystic literature Modern Tamil Literature Tamil Folklore Comparative Literature - Literary Theories - Translation Theories Tamil, Sanskrit -- Ancient Indian literary Historiography-Inter Indian literary relations Tamil Diaspora - Tamil Journalism - Tamil Films based on Novels Research Methodology
11		Hindi Translation – HTLH (858)	Candidates seeking admission in Ph.D. Hindi Translation expected to have (apart from Research Methodology) detailed knowledge of the tradition of translation in India. Specially the tradition of translation in Hindi and from Hindi is most important. Knowledge of the different forms of translation, introduction and critical views on translation theories, major translation thinkers and their contribution, cultural aspects of translation, process of translation, Translation and structure of language, various important translations, Indian Multilingualism and Translation, Role of Translation in Social Change through different Movements, Technology and Translation, Emerging issues in Translation, Translation of Technical Terminology, Computer Assisted Translation Tools, Idea of Indian Languages to Hindi, Idea of World Literature and Translation, Role of Translation in Comparative Literature, Translation as Processes of Appropriation etc. also be expected.
12		Kannada – KANH (859)	By and large, syllabus covers the curriculum/syllabus of (Kannada) as prescribed in various Universities of Karnataka, that will commonly based on the following topics- 1. **History of Kannada literary research :** Research during early modern period, Modern period, Academic period and Current trends 2. **History of folklore research in Karnataka :** Folklore Research during early modern period, Modern period, Academic period and Current trends. 3. **Comparative literature and translation studies** : Definition and History, Themes and rewritings, Genres and a cross-cultural study, Literary Historiography, Literature and Interdisciplinary approach, Periodization 4. **Classical Kannada Literature :** Vaddaradhane, Kavirajamaraga Vikramarjuna Vijaya and Ramachandra charita purana. 5. **Medieval Kannada Literature**: Regale, Vachana, Shatpadi, Kirtane, Sangatya, Tripadi, Tatva Pada and Yakshagana prasangas **Modern Kannada Literature**: Important writers: including Kuvempu, Bendre, Masti, Shivarama Karanth, and , Devanooru Mahadeva.
13	Centre for Russian Studies (CRS)	Russian – RSNH (860)	The Entrance Examination for this level is Computer Based Test (CBT) in Russian Language. The questions will be based on Research Methodology, Linguistics, Stylistics, Theory of Translation, Theory of Literature, 19th & 20th Century Russian Literature. Candidates who qualify the CBT will appear for a viva-voce, which will be conducted in Russian.

14	Centre for Spanish, Portuguese, Italian and Latin American Studies (CSPI&LAS)	Spanish – SPNH (861)	The questions for the Ph.D. exams will cover research methodology, Spanish & Latin American literature, history, civilization and culture, linguistics & language, translation studies, didactics of teaching a foreign language. The examination will be conducted in Spanish language.
15	Centre for English Studies (CES)	English – ENGH (864)	Candidates will be examined in Literature in English, Literature in India and Other Parts of the World, English in India, Literary and Cultural Theories, Non-Literary Artistic Forms, and the Relationship between Literature, Culture and Society. The objective of the test would be to specifically assess the research aptitude of the candidates, and their suitability for a rigorous research programme.
16	Centre for Linguistics (CL)	Linguistics – LINH (863)	The Ph.D. programme in linguistics is given to those who has either done their M.Phil or those who come to do a direct Ph.D. through viva. It allows researchers to engage in almost all areas of language studies. The programme is thus open to postgraduates from multiple disciplinary fields, leading to considerable interdisciplinary interaction. Work in the following areas has resulted in significant and impressive research outputs: Descriptive Linguistics, Speech sciences including Language Pathology, Generative Syntax and Semantics, Neuro-cognitive Linguistics, Sign Linguistics, Phonological Theory, Indian linguistic theory, mutilingualism, Sociolinguistics, language documentation, Applied Linguistics including Language Teaching, Language technology, Semiotics and Philosophy of Language.

3. SCHOOL OF LIFE SCIENCES

The pattern of JNUEE 2019-20 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

M.Sc.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1.	School of Life Sciences (SLS)	Life Sciences – SLSM (225)	Basic Course Guidelines and Pattern of Questions for the admission to M Sc program in the School of Life Sciences 1. All questions are objective-type with multiple choice answers with a single correct option. 2. All questions of One mark each would be compulsory in Part A; any 60 questions to be answered from Part B, 1.5 marks for each correct answer. No mark will be deducted for wrong answer. 3. Candidates will be tested in their basic knowledge in the core subjects of Life/ Biological Sciences. 4. The test would contain subject-specific questions encompassing different branches of Life/Biological Sciences taught at the under graduate level in various UGC affiliated colleges /institutions in the country. 5. There is no specific syllabus designed for the test, but the candidates are advised to follow the UGC approved syllabus in their respective subjects for guidance.

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of Life Sciences (SLS)	Life Sciences – Group-I GON (892) Life Sciences Group-II – GTW (893) Life Sciences Group-III – GTR (894) Life Sciences Group-IV – GFO (895) Life Sciences Group-V – GFI (896)	Basic Course Guidelines and Pattern of Questions for the admission to the Ph.D program in the School of Life Sciences. 1. All questions are objective-type with multiple choice answers with a single correct option. 2. In Part A, all questions of One mark each would be compulsory. In Part B, any 60 questions to be answered and 1.5 marks for each correct answer, and for each wrong answer, 0.25 marks would be deducted. No marks would be deducted for not attempted questions. 3. Candidates will be tested in their basic knowledge on research methodology and core subjects of Life/Biological Sciences. 4. The test will contain questions based on research methodology/experimental techniques related to Life/Biological Sciences research. The test would also contain subject-specific questions encompassing different branches of Life/Biological Sciences taught at the postgraduate level in various UGC affiliated universities/ institutions in the country. 5. There is no specific syllabus designed for the test, but the candidates are advised to consult CSIR/UGC-NET JRF syllabus for guidance.

4. SCHOOL OF SOCIAL SCIENCES

The pattern of JNUEE 2019-20 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Master of Arts

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Centre for Economics studies and Planning (CESP)	Economics-ECOM (216)	Applicants will be tested for their analytical abilities and awareness of national and international economic issues of importance at present and in the recent past. Candidates are expected to be familiar with the content of a standard Economics course taught at the B.A. level. Especially for the benefit of applicants without an undergraduate degree in Economics, an enumeration of the areas to be covered is given below: (a) (i) Micro-economics (Demand Curves, Price and Income Elasticity of Demand, Cost Curves, Equilibrium of Firm under Perfect Competition and Monopoly) (ii) Macro-economics (National Income, Theories of Income Determination, Monetary Policy, Trade and Balance of Payments) (b) Descriptive Statistics (Mean, Median and Mode, Standard Deviation, Correlation Coefficient), Elementary Probability Theory, Mathematics for Economists (Elementary Algebra, Coordinate Geometry and Elementary Calculus) (c) Problems of Economic History, Underdevelopment and Growth: (I) India's Economic Development prior to Independence: India's Planning and Development experience since Independence; Basic indicators of Development. (ii) International Economics Issues of Contemporary Relevance.

2 3 4	Centre for Historical Studies (CHS)	Modern History- MODM (217) Medieval History – MEDM (218) Ancient History – ANCM (219)	The MA exam is structured to test the students on: A. General comprehension B. A broad understanding of the social sciences and C. Themes related to political, economic and social history and on aspects of religion and culture pertaining to Indian and World history for the ancient, medieval, modern and contemporary periods.
5	Centre for Political Studies (CPS)	Political Science – POLM (220)	The M.A. in Political Science continues to be distinctive in its commitment to teaching through lectures and tutorials in order to maintain high standards of excellence in the discipline. Candidates are expected to be familiar with the content of a standard B.A. course in Political Science. Applicants will be tested from areas given below: Unit I a) Social and Political Thought of Modern India b) Western Political Thought c) Concepts and Approaches in Political Theory Unit II d) Constitution and Political Institutions of India e) State and Politics in India f) Political Processes and Public Policies in India Unit III g) Comparative Government and Politics h) International Relations Applicants will be require to show familiarity with each Unit.
6	Centre for the Study of Regional Development (CSRD)	Geography- GEOM (221)	**The M.A. admission test will carry a total of 100 marks with the unit wise marks assigned and coverage of topics as indicated below.** **Unit I (60 marks)** 1. Geomorphology, climatology, oceanography and biogeography. 2. Human geography, economic geography, political geography, Population geography, human ecology and human settlements. 3. Regional geography of India- physiographic divisions, patterns and levels of development of agriculture and industries, growth of population, urbanization, and socio-culture diversity. 4. Geographical information System, Remote Sensing, Cartography, Quantitative Techniques/Statistics. **Unit II (20 marks) -** Questions on Physical, human regional geography and geography of India. **Unit III (10 marks) -** Question on Cartography, scale and map projections, topographical maps of India, Methods of data representation **Unit IV (10 marks) - Question on** Statistical Methods – frequency distribution, measures of central tendency and dispersion, Correlation.
7	Centre for the Study of Social Systems (CSSS)	Sociology- SOCM (222)	**Applicants are expected to have a fair understanding of Social Sciences and Indian Society and Culture** **Broad themes** 1. Thinkers o Karl Marx, Emile Durkheim, Max Weber, Georg Simmel, C. Wright Mills, George Herbert Mead, Claude Levi-Strauss o G.S. Ghurye, M. N. Srinivas, Iravati Karve, Yogendra Singh, Andre Beteille, T.K. Oommen 2. Basic Concepts and Social Institutions 3. Tools and Techniques of Research Methodology 4. Social Structure and Social Change 5. Social Stratification o Gender, Caste, Class, Tribe, Disability 6. Economy and Society

			7. State, Polity and Society 8. Family, Marriage and Kinship 9. Religion 10. Environment and Society 11. Social Movements 12. Social Issues 13. Understanding Indian society 14. Modernization, Globalization and Development
8	Centre for Philosophy (CP)	Philosophy-SPHM (229)	Candidates are expected to be familiar with the contents of a standard Philosophy course taught at the B.A. (Hons.) level. The candidates are expected to have good grasp of themes and issues listed below both from the Indian and Western philosophical perspectives. Metaphysics /Ontology: Being and Becoming; Appearance and Reality; *Abhāva*; Substance; Theories of Consciousness; Self, Non-Self, and Other; *Brahman, Ātman* and *Jagat*; Personal Identity; Freewill and Determinism; Causation; Potentiality and Actuality; Time and Space; Existence of God. Epistemology and Logic: Different Theories, of Knowledge; *Pramānas* and *Pramānyavāda*; Theories of Error; Truth and Meaning; JTB and Gettier's Problem; Certainty, Fallibility and Scepticism; Laws of Thought; Classification of Proposition; Categorical Syllogism; Truth Tables; Formal Proofs of Validity; Venn Diagram; Quantification. Ethics, Social and Political Philosophy: *Purushārthas; Rta*, Rna and *Yagya*; Goodness; Justice and Virtues; End and Means; Duty and Obligation; Ethical Theories (Normative and Metaethics); Themes of Applied Ethics; 'Non-violence; Marginalization and Discrimination; Secularism; Liberty, Equality and Rights; Nationalism; Globalization.
9	Centre for Informal Sector and Labour Studies (CIS&LS)	Development and Labour Studies-DLSM (231)	The applicants for the M.A. programme will be examined in the light of their knowledge on themes and issues studied in a standard social science bachelor programme. The purpose of entrance exam is to test the candidates' general awareness on issues related to development and labour studies, their capacity to comprehend and reflect on academic articles, and their ability in analytical reasoning on the contemporary issues of informal sector. Students will be tested in the broad thematic areas of major social science disciplines: Political Economy, Theories and Contemporary History of Development, Development Economics, Indian Economy, Society and Politics in India, Sociological and Political Theories. The purpose of the test is to select candidates who demonstrate aptitude for analytical skills and ability for original thinking.

M.Phil

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Centre for Economics studies and Planning (CESP)	Economics-ECOP (136)	In the examination, the applicants will be examined in the topics covered by a standard M A Economics programme These would broadly include Micro-economics, Macro-economics, Economic Development, Indian Economy and Statistical and: Mathematical Methods in Economics. The distribution of questions in the examination would be in conformity with UGC Regulations, 2016.
2	Centre for Historical Studies (CHS)	Modern History-MODP (137)	The M Phil exam is structured to test the students on: A. Historical methods B. Historiographical debates and discussions C. Themes related to political, economic and social history and on aspects of religion and culture pertaining to Indian history for the ancient, medieval, modern and contemporary periods (including World history).
3		Medieval History – MEDP (138)	
4		Ancient History – ANCP (139)	

5	Centre for Political Studies (CPS)	Political Science – POLP (140)	Applicants for the M.Phil programme will be examined for their analytical ability in topics covered by an M.A. programme in Political Science. These would broadly include Philosophy and Methods of the Social Sciences, Traditions of Political Inquiry, Key Concepts in Political Science, Contemporary Debates in Political Philosophy, Indian Politics (Institutions, Processes and Policies) Key Debates in Indian Politics, Issues in Comparative Politics, and International Relations.
6 7 8	Centre for the Study of Regional Development (CSRD)	Population Studies- POPP (141) Geography-GEOP (142) Economics-ECNP (143)	Students will be tested on research methodology and the relevant areas pertaining to the streams they apply for. The syllabus for the JNUEE has been framed keeping in mind the post graduate programs taught in most Indian universities. **(i) Regional Development: Geography (code: GEO)** Syllabus: (A) **Research Methodology**: Recent trends in geographical thought and research concerns in the field; Cartographic methods; descriptive statistics; sampling techniques; correlation and regression analysis, geographical information system, Remote sensing, and GPS; Morphometric techniques in areal and liner analysis, hydrograph and runoff estimation, evapotranspiration, methods of soil analysis, ground water mapping and estimation, RS in LU-LC and biodiversity mapping, magnitude-frequency classification of natural disasters, methods of graphical representation of economic loss of disasters, age estimation of landforms. Methods of landscape surveying and mapping; socio-economic field survey methods. (B) **i. Physical Geography :** Geomorphology, Oceanography, climatology, climate change, Hydrology, Biogeography, Ecosystems, Natural Resources and Natural Disasters (with special reference to India) **ii. Human Geography:** Population distributed and growth: human settlements, urbanization, migration rural and agricultural geography: Spatial structure and temporal trends of economic activity; Social groups and communities, tourism; (with special reference to India) iii. **Regional Development:** Concepts, strategies of regional development regional imbalances and levels of development in India; inclusive exclusions and exclusive inclusions, Globalization, natural resources and changing spatial division of labour. **(ii) Regional Development: Population Studies (Code: POP)** **(A) Research Methodology**: Basic and advanced statistics, Quantitative methods in population analysis, basic demographic data in India, methods of demographic data analysis, population survey (primary and secondary) methodologies and designs. **(B)** Nature and scope of population studies; sources of demographic data; Global and regional population trends, growth, distribution, and density; population composition; components of population dynamics namely fertility, mortality and migration; Population growth in relation to economic and social development. India's population policy and family planning programme, population theories, Demographic methods (may need the use of scientific calculator), Population, environment and development, urbanization, Human habitat, human ecology, Food security, Programs related to Population Health and Development, gender and population. (iii) **Regional Development: Economics (Code:ECN)** (A) Research Methodology: Basic Statistics, Quantitative methods in Economics, Sources of Data on the Indian Economy. (B) Economic theory and development theory (at the Master level); basic issues in Indian economy around themes like poverty, inequality, employment, banking, public finance, industry, agriculture, trade etc; India's development and policy choices; made over the years to address those challenges.
9	Centre of Social Medicine and Community Health (CSMCH)	Social Sciences in Health- CSMP (144)	**Basic concepts in Social Sciences and its relevance to public Health** 1. Social Stratification -Caste, Class, Gender, Religion, Ethnicity Exclusion, discrimination, marginalization, humiliation and stigma, Diversity, Social cohesion—comparison with other societies 2. Social Institutions and Groups: Family, Kinship and Household, Village, Urban Settlements. 3. Culture- Norms, values, role and status, culture shock, taboos, ethnocentrism, cultural relativism.

			4. Characteristics of Rural and Urban Society -rural society; agrarian class structure, urban, urbanism and urbanization 5. Sanskritisation 6. Social Capital and Cultural Capital 7. Poverty 8. Inequality 9. Globalization, liberalization, privatization 10. Motivation 11. Attitude, Perception and Behavior 12. Socialisation 13. Power 14. Conflict 15. Civil Rights, Democratic Rights and Human Rights 16. Social change 17. Social movements and civil society 18. Understanding Interconnections Between Economy, Polity And Society - Nature of State in India, Welfare state and public health, State and public policy 19. Current Debates in Health **2. Application of Social Sciences to Health** 1. Social Determinants of Health 2. Development and Health -Primary Health Care Approach &Selective Health Care Approach 3. Social inequalities and marginalisaltion in health 4. Climate change and its impact on health 5. Population and development 6. Social exclusion, discrimination and health 7. Importance of large data sets for public health 8. Health promotion and Illness prevention 9. Mental Health and Disability 10. Medical Pluralism 11. Accessibility, Availability and Affordability of Health Care 12. Universal Health Care 13. Recent social issues and their implications for health **3. Research Methodology** 1. Qualitative methods in Social Sciences- observation, life history, case study, narratives, ethnography 2. Quantitative methods in Social Sciences – survey methods, research instruments 3. Importance of Qualitative and quantitative research methods used in public health 4. Mixed methods 5. Ethics in Research 6. **Statistical Methods** • Mean, Median, Mode and standard deviation • Sampling methods • Measures of social disparities and spatial variation • Basic statistics for public health- birth rate; crude death rate; Infant mortality; child mortality; life expectancy at birth; sex ratio; dependency ratio; morbidity rate; population growth rate; standardisation
10	Centre for the Study of Social Systems (CSSS)	Sociology-SOCP (146)	**Candidates are expected to display a good research aptitude, analytical skills and usage of social science perspectives in answering questions from the following list of themes.** 1. Thinkers o Classical Thinkers: Karl Marx, Emile Durkheim, Max Weber o Advanced Social Theories : Postmdernism, Postcolonialism and Poststructuralism o Study of Monographs: Evans-Pritchard, Brownislaw Mallinowski, Edmund Leach, Margaret Mead, Clifford Geertz 2. Philosophical Foundation of Theories and Methodology 3. Social Research/Research Methodology: Quantitative and Qualitative,

			Positivism, Interpretivism 4. Social Structure, Continuity and Change 5. Theories of Culture 6. Social Stratification: Gender, Caste, Class, Tribe, Ethnicity, Disability 7. Kinship, Family and Marriage 8. Social Inequalities and Movements 9. Education and Society 10. Religion and Society 11. State, Polity and Society 12. Economy and Society 13. Social Issues 14. Agrarian and Urban Sociology 15. Indian Sociology 16. Industrial/Corporate Sociology 17. Modernization, Globalization and Development 18. Media Studies
11	Zakir Husain Centre for Educational Studies (ZHCES)	Educational Studies-EDUP (147)	**Zakir Husain Centre for Educational Studies** is a multi-disciplinary centre which approaches the field of education from four social science disciplines such as Economics, Sociology, History and Psychology. The students are expected to fit into any one of these disciplinary areas to carry out their research studies. The syllabus for the entrance examination under each of these areas of specialisation is as follows (the list is only indicative, not exhaustive): **A. History of Education** Historical method and historiography; Modern Indian history; The educational debates; Woods Despatch; The revolt of 1857; Establishment of modern universities; The Hunter Commission; India's freedom movement; Imperialism and nationalism. European History; Enlightenment; Reformation; Revolutions; Global History of modernisation; introduction of modern sciences and science education. Education and knowledge-systems in pre-colonial India. **B. Sociology of Education** Classical and contemporary sociological theory and thinkers; Themes and issues in the Indian society; Rural and urban Sociology; Sociology of backward classes and marginalised; Sociology of education; Sociology of development; Methodology and methods in Sociological research. **C. Psychology of Education** 1. Fundamental Psychological Processes: Attention, Perception, Learning, Perception, Memory, Thinking and Problem Solving, Emotion and motivation; Intelligence: Theories and Measurement; Personality Theories; Theories of Human Development: Cognition, Emotion, Moral, Social; 2. Social Psychology: Social Influence Process, Social Cognition, Group Processes, Intergroup Relations; Research Methods in Psychology: Survey, Experiment, Case Study, Qualitative Approach: Narrative, Discourse Analysis, Interview; Cross-cultural indigenous, and critical perspectives in Psychology. **D. Economics of Education** 1. Microeconomics: Theory of Consumer Behaviour- price effect and substitution effects; theory of revealed preference, elasticity of demand; Theory of Production-production function, short run and long run, isoquants, cost functions. Theory of the Market Structure: various forms of market and price-output decisions (perfect competition, monopoly, monopolistic competition, oligopoly); Neo-classical theory of distribution, Welfare Economics and General Equilibrium 2. Macroeconomics: National Income Accounting- national income as a measure of welfare and economic progress; Theories of consumption and investment- Models of income determination; Simple Keynesian model, IS-LM model; Theories of supply and demand for money; Phillips curve and theories inflation; Open economy macroeconomics and Balance of Payments; Theories of growth and international trade. 3. Theories of Development and the Indian Economy: Employment and labour; Income Inequality; Globalisation and Internationalisation; New Economic Policy and its impact on social sector and physical infrastructure in the context of India.

12	Centre for Studies in Science Policy (CSSP)	Studies in Science Policy-SSPP (148)	Question in the entrance test will be based on the current affairs on science, technology, innovations and related policy debates. To test the domain knowledge of students, questions based on the various Masters level courses will also be asked. Questions on the various quantitative and qualitative research methods commonly used in social science research will also feature in the entrance test. For more details about our programme and courses, please visit: http://www.jnu.ac.in/SSS/cssp/pos.htm
13	Centre for Philosophy (CP)	Philosophy-SPHP (149)	Questions for M.Phil. entrance test will be based on the MA syllabus taught at the Centre for Philosophy, please visit: http://www.jnu.ac.in/sss/cop-mphil
14	Centre for Women Studies (CWS)	Women Studies – WSPP (176)	**Syllabus for M.Phil entrance exam, (Centre for Women's Studies) CWS, SSS, JNU** Since Women's Studies is interdisciplinary in nature, the entrance exam will expect candidates to bring their disciplinary and interdisciplinary training in historical, political, economic, sociological, cultural, literary and representational perspectives in the way women, gender, and sexuality have been constituted as objects of study. Students are expected to have a thorough understanding of the relationship between gender and oter analytical categories like class, case, ethnicity, sexuality, community and nationality not only in a national, but also a cross cultural and transnational context. The candidates are expected to be broadly aware of different dimensions of women, gender and sexuality studies in Feminist Theory; Women's Movements; Gender, Labour and Political Economy; Sexuality Studies; Law; Politics; Development; Globalization and its implications; Religion and Faith Practices; Caste, Ethnicity and Race; Gender and Space; Culture and Modernity; Literature, Art and Performance, and Visuality Studies. Candidates are expected to have knowledge of feminist methodology, especially qualitative research methods such as ethnography, discourse analysis, oral history, archival research, and literary methods, but not just limited to these.
15	Centre for the Study of Social Exclusion and Inclusive Policy	Social Exclusion and Inclusive Policy - SEIP (152)	The examination will deal with topics which are covered in any standard Masters level course pertaining to History, Anthropology, Economics, Political Science and Sociology. In addition, the candidates are expected to have comprehensive understanding on the various dimensions of discrimination and exclusion faced by Scheduled Castes (SC), Scheduled Tribes (ST) and various Minority groups in India. The interpretation of these societal dimensions can only be understood through a proper knowledge of research methodology. The definition of research methodology in itself is a difficult task, divided in terms of approaches ranging from the qualitative to quantitative. In addition to research methods the candidate acquainted in their respective subject at the Master level, is also expected to be familiar with the methods and measurement of Discrimination and exclusion. The candidates are expected to be aware of analysis based on large datasets published periodically by the Government and non-governmental agencies. These would include, but not limited to, *Decennial* Census reports, National Sample Survey Organisation reports (NSSO), National Family and Health Surveys (NFHS), National Crime Records Bureau reports (NCRB) and other alternative reports covering issues of discrimination and exclusion like Sachar Committee Report, Indian Exclusion reports, International Organisational reports like UN, ILO etc. Further the candidates should be aware of reports published by National Commission for Scheduled Castes (NCSC), National Commission for Scheduled Tribes (NCST), National Commission for Backward Classes (NCBC), National Human Rights Commission (NHRC). The candidates should have an in depth understanding of various facets of the Indian Constitution, Governmental policies for inclusion and developmental schemes addressing the issues of inter-sectionalities of Gender, SCs, STs, disabled and Minority groups.
16	Centre for Media Studies (CMS)	Media Studies-CMSP (173)	Envisaged primarily as a centre for research and academic study, the syllabus for the Entrance Examination will cover broader fields of media studies, which include: Histories of media, Political economy of Media, Media and issues of language, Media, democracy, and dimensions of rights and justice, Violence and media, Media, technologies and cultural industries, Media and the nature of connectivities, Visual culture, Theories and methods in media studies.

MPH

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Centre of Social Medicine and Community Health (CSMCH)	Master of Public Health - MPHP (145)	**Master of Public Health [MPH] Entrance Examination Syllabus** **A. History of Public Health** 1. History of different systems of Medicine 2. Primary Health Care **B. Concepts in Public Health** 1. Definition of health; appreciation of health as a relative concept; determinants of health. 2. Characteristics of agent, host and environmental factors in health and disease and the multifactorial etiology of disease. 3. Understanding of various levels of prevention with appropriate examples. 4. Indices used in measurement of health. 5. Health situation in India: demography, mortality and morbidity profile and existing health facilities in health services. 6. Measurement of health events. **C. Epidemiology** 1. Use of epidemiological tools to make a community diagnosis of the health situation in order to formulate appropriate intervention measures. 2. Epidemiology - definition, concept and role in health and disease. 3. Definition of the terms used in describing disease transmission and control. 4. Natural history of a disease and its application in planning intervention. 5. Modes of transmission and measures for prevention and control of communicable and non-communicable disease. 6. Principal sources of epidemiological data. 7. Definition, calculation and interpretation of the measures of frequency of diseases and mortality. 8. Common sampling techniques, simple statistical methods for the analysis, interpretation and presentation of data frequency distribution, measures of central tendency, measures of variability, statistical tests of significance and their application. 9. Need and uses of screening tests. 10. Accuracy and clinical value of diagnostic and screening tests (sensitivity, specificity, & predictive values). 11. Epidemiology of communicable and non-communicable diseases of public health importance and their control. 12. Epidemiological basis of national health programmes. 13. Awareness of programmes for control of non-communicable diseases. (a) Planning and investigation of an epidemic of communicable diseases in a community setting. (b) Institution of control measures and evaluation of the effectiveness of these measures. 14. Various types of epidemiological study designs. 15. The derivation of normal values and the criteria for intervention in case of abnormal values. 16. Planning an intervention programme with community participation based on the community diagnosis. 17. Applications of computers in epidemiology. 18. Critical evaluation of published research. **D. Epidemiology of Specific Diseases** 1. Extent of the problem, epidemiology and natural history of the disease. 2. Relative public health importance of a particular disease in a given area. 3. Influence of social, cultural and ecological factors on the epidemiology of the disease. 4. Control of communicable and non-communicable disease by:

			a. Diagnosing and treating a case and in doing so demonstrate skills in: (i) Clinical methods (ii) Use of essential laboratory techniques (iii) Selection of appropriate treatment regimes. (iv) Follow-up of cases. b. Principles of planning, implementing and evaluating control measures for the diseases at the community level bearing in mind the relative importance of the disease. 5. Institution of programmes for the education of individuals and communities. 6. Investigating a outbreak/epidemic. 7. National Health Programmes. **E. Biostatistics** a. Collection, classification and presentation of statistical data. b. Analysis and interpretation of data. c. Obtaining information, computing indices (rates and ratio) and making comparisons. d. Apply statistical methods in designing of studies. e. Choosing of appropriate sampling methods and sample size. f. Applying suitable test of significance g. Use of statistical tables. **F. Entomology** 1. Role of vectors in the causation of diseases. 2. Mode of transmission of vector borne diseases. 3. Methods of vector control with advantages and limitations of each. **G. Health planning and Public Health Administration** **H. Health Management** **I. Health economics** **J. Nutrition** 1. Role of nutrition in Health and Disease. 2. Nutritional problems of the country 3. Common sources of various nutrients and special nutritional requirement according to age, sex, activity, physiological conditions. 4. Nutritional assessment of individual, families and the community by selecting and using appropriate methods such as : anthropometry, clinical, dietary, laboratory techniques. 5. Compare recommended allowances of individual and families with actual intake. 6. Common nutritional disorders: protein energy malnutrition, Vitamin A deficiency, anemia, iodine deficiency disorders, fluorosis, food toxin diseases and their control and management. 7. National Nutritional Policy. 8. National programmes in nutrition and their evaluation. 9. Food adulteration: prevention and control. **K. Environmental Sanitation** 1. Awareness of relation of Environment to Health. 2. Awareness of the concept of safe and wholesome water. 3. Awareness of the requirements of sanitary sources of water. 4. Understanding the methods of purification of 5. Various biological standards. 6. Concepts of safe disposal of human excreta. 7. Physical, chemical standards; tests for assessing quality of water. 8. Disposal of solid waste, liquid wastes both in the context of urban and rural conditions in the community. 9. Problems in the disposal of refuse, sullage and sewage. 10. Sources, health hazards and control of environmental pollution. 11. Influence of physical factors – like heat, humidity, cold, radiation and noise

			– on the health of the individual and community. 12. Standards of housing and the effect of poor housing on health. **L. Demography and Family Planning** 1. Definition of demography and its relation to Community Health. 2. Stages of the demographic cycle and their impact on population. 3. Definition, calculation and interpretation of demographic indices like birth rate, death rate, growth rate, fertility rates. 4. Reasons for rapid population growth in the world, especially in India. 5. Need for population control measures and the National Population Policy. 6. Identify and describe the different family planning methods and their advantages and shortcomings. 7. Principles of Counselling; Client satisfaction. 8. Medical Termination of Pregnancy Act. 9. Organisational, technical and operational aspects of the National Family Welfare Programme and participation in the implementation of the Programme. Target Free Approach. 10. MTP and infertility services. 11. National Population Policies. **M. Mental Health** 1. Public health importance of mental health 2. Public health approach to mental health problems: types, diagnosis and management of mental health problems in the community. **N. Application of Social Sciences in Health** **O. Impact of urbanisation on health and disease.** **P. School Health** **Q. Urban health**

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Group of Adult Education (GAE)	Adult Education- GAEH (883)	We insist that the student/candidates should have exposure, understanding and knowledge in wide ranging issues related to adult, continuing education and extension. The main thrust areas include 'Literacy studies' (e.g., basic literacy, adult literacy, digital literacy, financial literacy, consumer literacy, legal literacy, health family, media, citizenship literacy etc.), adult, lifelong education, vocational/skill education, sustainable livelihood education, entrepreneurship education and other related continuing education in India and abroad. Moreover, GAE focuses on problems of contemporary youth & their lifestyles; the impact of globalization and market practices on the local communities and society with special emphasis on consumer rights, movements and awareness. We try to enrole students who have interest do research in areas of formal/non-formal education, policy studies and practice in all these areas. GAE makes special efforts in enhancing learning, and improving professionalism among the students in social and education sectors to play constructive roles in nation-building.
2	Centre for Informal Sector & Labour Studies (CISL)	Informal Sector & Labour Studies- ISLH (884)	The test is intended to evaluate the candidate's general awareness in the following areas. The Ph.D programme focuses on interdisciplinary research on Indian informal sector and labour scenario. The programme encourages to work on themes such as–Political Economy of State, Development and Underdevelopment in the contemporary world, Labour History, Globalization and the changing forms of Labour, Global Production Systems, Informalisation in various sectors, Labour Market, Forms of Employment, Poverty, Migration, Urbanisation, Labour Rights and Regulation, Workers' Organizations and Politics, Trade Unions, Resistance, Peasant Production, Non-farm Economy, Agrarian Change and Rural Development,

			Political Economy of Care, Discrimination on the basis of Caste, Gender and Community, Common Property Resources, Public Policies in the Unorganised Sector, and Sustainable Development. The objective of the programme is to enable students to understand the linkages between the formal and the informal sectors and between theory and empirical investigations in research work.
3	Centre for Economics studies and Planning (CESP)	Economics - ECOH (865)	In the examination, the applicants will be examined on their knowledge and understanding of general economic theory (especially, core macroeconomics and microeconomics) and research/analytical methods (especially, statistics, econometrics and mathematics) as taught up to the Masters level in Economics, their general abilities for logical reasoning and their awareness and understanding of contemporary national and international economic issues of importance. The distribution of questions in the examination would be in conformity with UGC Regulations, 2016. Applicants selected on the basis of the examination will be called for the viva voce examination. The Centre expects applicants to the Ph.D. programme to have a clear and well developed research proposal at the time of application and have a thorough knowledge and understanding of relevant economic theory, analytical methods, economic history and existing economic literature related to their research area. The Centre will, therefore, examine applicants in the viva voce examination to see whether they fulfil these requirements.
4	Centre for Historical Studies (CHS)	Modern History- MODH (866)	The PhD exam is structured to test the students on: A. Historical methods B. Historiographical debates and discussions C. Themes related to political, economic and social history and on aspects of religion and culture pertaining to Indian history for the ancient, medieval, modern and contemporary periods (including World history).
5		Medieval History – MEDH (867)	
6		Ancient History – ANCH (868)	
7	Centre for Political Studies (CPS)	Political Science – POLH (869)	Applicants for Ph.D. programme will be examined for their analytical ability in the following subjects: Philosophy and Methods of the Social Sciences, Traditions of Political Inquiry, Key Concepts in Political Science, Contemporary Debates in Political Philosophy, Indian Politics (Institutions, Processes and Policies) Key Debates in Indian Politics, Issues in Comparative Politics, and International Relations.
8	Centre for the Study of Regional Development (CSRD)	Population Studies- POPH (870)	Students will be tested on research methodology and the relevant areas pertaining to the streams they apply for. The syllabus for the JNUEE has been framed keeping in mind the post graduate programs taught in most Indian universities. **(i) Regional Development: Geography (code: GEO)** Syllabus: (A) **Research Methodology**: Recent trends in geographical thought and research concerns in the field; Cartographic methods; descriptive statistics; sampling techniques; correlation and regression analysis, geographical information system, Remote sensing, and GPS; Morphometric techniques in areal and liner analysis, hydrograph and runoff estimation, evapotranspiration, methods of soil analysis, ground water mapping and estimation, RS in LU-LC and biodiversity mapping, magnitude-frequency classification of natural disasters, methods of graphical representation of economic loss of disasters, age estimation of landforms. Methods of landscape surveying and mapping; socio-economic field survey methods. (B) **i. Physical Geography :** Geomorphology, Oceanography, climatology, climate change, Hydrology, Biogeography, Ecosystems, Natural Resources and Natural Disasters (with special reference to India) ii. **Human Geography:** Population distributed and growth: human settlements, urbanization, migration rural and agricultural geography: Spatial structure and temporal trends of economic activity; Social groups and communities, tourism; (with special reference to India) iii. **Regional Development:** Concepts, strategies of regional development regional imbalances and levels of development in India; inclusive exclusions and exclusive inclusions, Globalization, natural resources and changing spatial division of labour.
9		Geography- GEOH (871)	
10		Economics- ECNH (872)	

			(ii) Regional Development: Population Studies (Code: POP) **(C) Research Methodology**: Basic and advanced statistics, Quantitative methods in population analysis, basic demographic data in India, methods of demographic data analysis, population survey (primary and secondary) methodologies and designs. **(D)** Nature and scope of population studies; sources of demographic data; Global and regional population trends, growth, distribution, and density; population composition; components of population dynamics namely fertility, mortality and migration; Population growth in relation to economic and social development. India's population policy and family planning programme, population theories, Demographic methods (may need the use of scientific calculator), Population, environment and development, urbanization, Human habitat, human ecology, Food security, Programs related to Population Health and Development, gender and population. (iii) **Regional Development: Economics (Code:ECN)** (C) Research Methodology: Basic Statistics, Quantitative methods in Economics, Sources of Data on the Indian Economy. Economic theory and development theory (at the Master level); basic issues in Indian economy around themes like poverty, inequality, employment, banking, public finance, industry, agriculture, trade etc; India's development and policy choices; made over the years to address those challenges.
11	Centre of Social Medicine and Community Health (CSMCH)	**For Social Scientists and Allied Disciplines** Social Sciences in Health- CSMH (873)	**For Social Scientists and Allied Disciplines** **1. Basic concepts in Social Sciences and its relevance to public Health** 1. Social Stratification -Caste, Class, Gender, Religion, Ethnicity Exclusion, discrimination, marginalization, humiliation and stigma, Diversity, Social cohesion—comparison with other societies 2. Social Institutions and Groups: Family, Kinship and Household, Village, Urban Settlements. 3. Culture- Norms, values, role and status, culture shock, taboos, ethnocentrism, cultural relativism. 4. Characteristics of Rural and Urban Society -rural society; agrarian class structure, urban, urbanism and urbanization 5. Sanskritisation 6. Social Capital and Cultural Capital 7. Poverty 8. Inequality 9. Globalization, liberalization, privatization 10. Motivation 11. Attitude, Perception and Behavior 12. Socialisation 13. Power 14. Conflict 15. Civil Rights, Democratic Rights and Human Rights 16. Social change 17. Social movements and civil society 18. Understanding Interconnections Between Economy, Polity And Society - Nature of State in India, Welfare state and public health, State and public policy 19. Current Debates in Health **2. Application of Social Sciences to Health** 1. Social Determinants of Health 2. Development and Health -Primary Health Care Approach &Selective Health Care Approach 3. Social inequalities and marginalisaltion in health 4. Climate change and its impact on health 5. Population and development 6. Social exclusion, discrimination and health 7. Importance of large data sets for public health 8. Health promotion and Illness prevention 9. Mental Health and Disability 10. Medical Pluralism

		For Doctors and Nurses Public Health (873)	11. Accessibility, Availability and Affordability of Health Care 12. Universal Health Care 13. Recent social issues and their implications for health **3. Research Methodology** 1. Qualitative methods in Social Sciences- observation, life history, case study, narratives, ethnography 2. Quantitative methods in Social Sciences – survey methods, research instruments 3. Importance of Qualitative and quantitative research methods used in public health 4. Mixed methods 5. Ethics in Research 6. **Statistical Methods** • Mean, Median, Mode and standard deviation • Sampling methods • Measures of social disparities and spatial variation Basic statistics for public health- birth rate; crude death rate; Infant mortality; child mortality; life expectancy at birth; sex ratio; dependency ratio; morbidity rate; population growth rate; stand **Syllabus for Doctors and Nurses** **A. History of Public Health** 1. History of different systems of Medicine 2. Primary Health Care **B. Concepts in Public Health** 1. Definition of health; appreciation of health as a relative concept; determinants of health. 2. Characteristics of agent, host and environmental factors in health and disease and the multifactorial etiology of disease. 3. Understanding of various levels of prevention with appropriate examples. 4. Indices used in measurement of health. 5. Health situation in India: demography, mortality and morbidity profile and existing health facilities in health services. 6. Measurement of health events. **C. Epidemiology** 1. Use of epidemiological tools to make a community diagnosis of the health situation in order to formulate appropriate intervention measures. 2. Epidemiology - definition, concept and role in health and disease. 3. Definition of the terms used in describing disease transmission and control. 4. Natural history of a disease and its application in planning intervention. 5. Modes of transmission and measures for prevention and control of communicable and non-communicable disease. 6. Principal sources of epidemiological data. 7. Definition, calculation and interpretation of the measures of frequency of diseases and mortality. 8. Common sampling techniques, simple statistical methods for the analysis, interpretation and presentation of data frequency distribution, measures of central tendency, measures of variability, statistical tests of significance and their application. 9. Need and uses of screening tests. 10. Accuracy and clinical value of diagnostic and screening tests (sensitivity, specificity, & predictive values). 11. Epidemiology of communicable and non-communicable diseases of public health importance and their control. 12. Epidemiological basis of national health programmes. 13. Awareness of programmes for control of non-communicable diseases. (a) Planning and investigation of an epidemic of communicable diseases in a community setting. (b) Institution of control measures and evaluation of the effectiveness of these

			measures. 14. Various types of epidemiological study designs. 15. The derivation of normal values and the criteria for intervention in case of abnormal values. 16. Planning an intervention programme with community participation based on the community diagnosis. 17. Applications of computers in epidemiology. 18. Critical evaluation of published research. **D. Epidemiology of Specific Diseases** 1. Extent of the problem, epidemiology and natural history of the disease. 2. Relative public health importance of a particular disease in a given area. 3. Influence of social, cultural and ecological factors on the epidemiology of the disease. 4. Control of communicable and non-communicable disease by: a. Diagnosing and treating a case and in doing so demonstrate skills in: (i) Clinical methods (ii) Use of essential laboratory techniques (iii) Selection of appropriate treatment regimes. (iv) Follow-up of cases. b. Principles of planning, implementing and evaluating control measures for the diseases at the community level bearing in mind the relative importance of the disease. 5. Institution of programmes for the education of individuals and communities. 6. Investigating a outbreak/epidemic. 7. National Health Programmes. **E. Biostatistics** a. Collection, classification and presentation of statistical data. b. Analysis and interpretation of data. c. Obtaining information, computing indices (rates and ratio) and making comparisons. d. Apply statistical methods in designing of studies. e. Choosing of appropriate sampling methods and sample size. f. Applying suitable test of significance g. Use of statistical tables. **F. Entomology** 1. Role of vectors in the causation of diseases. 2. Mode of transmission of vector borne diseases. 3. Methods of vector control with advantages and limitations of each. **G. Health planning and Public Health Administration** **H. Health Management and Health economics** **I. Nutrition** 1. Role of nutrition in Health and Disease. 2. Nutritional problems of the country 3. Common sources of various nutrients and special nutritional requirement according to age, sex, activity, physiological conditions. 4. Nutritional assessment of individual, families and the community by selecting and using appropriate methods such as : anthropometry, clinical, dietary, laboratory techniques. 5. Compare recommended allowances of individual and families with actual intake. 6. Common nutritional disorders: protein energy malnutrition, Vitamin A deficiency, anemia, iodine deficiency disorders, fluorosis, food toxin diseases and their control and management. 7. National Nutritional Policy. 8. National programmes in nutrition and their evaluation. 9. Food adulteration: prevention and control.

			J. Environmental Conditions and Health 1. Awareness of relation of Environment to Health. 2 Sources, health hazards and control of environmental pollution. **.K. Demography and Family Planning** 1. Definition of demography and its relation to Community Health. 2. Stages of the demographic cycle and their impact on population. 3. Definition, calculation and interpretation of demographic indices like birth rate, death rate, growth rate, fertility rates. 4. Reasons for rapid population growth in the world, especially in India. 5. Need for population control measures and the National Population Policy. 6. Identify and describe the different family planning methods and their advantages and shortcomings. 7. Principles of Counselling; Client satisfaction. 8. Medical Termination of Pregnancy Act. 9. Organisational, technical and operational aspects of the National Family Welfare Programme and participation in the implementation of the Programme. Target Free Approach. 10. MTP and infertility services. 11. National Population Policies. **L. Mental Health** 1. Public health importance of mental health 2. Public health approach to mental health problems: types, diagnosis and management of mental health problems in the community. **M. Application of Social Sciences in Health** **N. Impact of urbanisation on health and disease.** **O. School Health** **P. Urban health**
12	Centre for the Study of Social Systems (CSSS)	Sociology-SOCH (875)	**Candidates are expected to display a good research aptitude, analytical skills and usage of social science perspectives in answering questions from the following list of themes.** 1. Thinkers o Classical Thinkers: Karl Marx, Emile Durkheim, Max Weber o Advanced Social Theories : Postmdernism, Postcolonialism and Poststructuralism o Study of Monographs: Evans-Pritchard, Brownislaw Mallinowski, Edmund Leach, Margaret Mead, Clifford Geertz 2. Philosophical Foundation of Theories and Methodology 3. Social Research/Research Methodology: Quantitative and Qualitative, Positivism, Interpretivism 4. Social Structure, Continuity and Change 5. Theories of Culture 6. Social Stratification: Gender, Caste, Class, Tribe, Ethnicity, Disability 7. Kinship, Family and Marriage 8. Social Inequalities and Movements 9. Education and Society 10. Religion and Society 11. State, Polity and Society 12. Economy and Society 13. Social Issues 14. Agrarian and Urban Sociology 15. Indian Sociology 16. Industrial/Corporate Sociology 17. Modernization, Globalization and Development 18. Media Studies

13	Zakir Husain Centre for Education Studies (ZHCES)	Educational Studies-EDUH (876)	**Zakir Husain Centre for Educational Studies** is a multi-disciplinary centre which approaches the field of education from four social science disciplines such as Economics, Sociology, History and Psychology. The students are expected to fit into any one of these disciplinary areas to carry out their research studies. The syllabus for the entrance examination under each of these areas of specialisation is as follows (the list is only indicative, not exhaustive): **A. History of Education** Historical method and historiography; Modern Indian history; The educational debates; Woods Despatch; The revolt of 1857; Establishment of modern universities; The Hunter Commission; India's freedom movement; Imperialism and nationalism. European History; Enlightenment; Reformation; Revolutions; Global History of modernisation; introduction of modern sciences and science education. Education and knowledge-systems in pre-colonial India. **B. Sociology of Education** Classical and contemporary sociological theory and thinkers; Themes and issues in the Indian society; Rural and urban Sociology; Sociology of backward classes and marginalised; Sociology of education; Sociology of development; Methodology and methods in sociological research. **C. Psychology of Education** 1. Fundamental Psychological Processes: Attention, Perception, Learning, Perception, Memory, Thinking and Problem Solving, Emotion and motivation; Intelligence: Theories and Measurement; Personality Theories; Theories of Human Development: Cognition, Emotion, Moral, Social; 2. Social Psychology: Social Influence Process, Social Cognition, Group Processes, Intergroup Relations; Research Methods in Psychology: Survey, Experiment, Case Study, Qualitative Approach: Narrative, Discourse Analysis, Interview; Cross-cultural indigenous, and critical perspectives in Psychology. **D. Economics of Education** 1. Microeconomics: Theory of Consumer Behaviour- price effect and substitution effects; theory of revealed preference, elasticity of demand; Theory of Production-production function, short run and long run, isoquants, cost functions. Theory of the Market Structure: various forms of market and price-output decisions (perfect competition, monopoly, monopolistic competition, oligopoly); Neo-classical theory of distribution, Welfare Economics and General Equilibrium 2. Macroeconomics: National Income Accounting- national income as a measure of welfare and economic progress; Theories of consumption and investment- Models of income determination; Simple Keynesian model, IS-LM model; Theories of supply and demand for money; Phillips curve and theories inflation; Open economy macroeconomics and Balance of Payments; Theories of growth and international trade. 3. Theories of Development and the Indian Economy: Employment and labour; Income Inequality; Globalisation and Internationalisation; New Economic Policy and its impact on social sector and physical infrastructure in the context of India.
14	Centre for Studies in Science Policy (CSSP)	Studies in Science Policy-SSPH (877)	Question in the entrance test will be based on the current affairs on science, technology, innovations and related policy debates. To test the domain knowledge of students, questions based on the various Masters level courses will also be asked. Questions on the various quantitative and qualitative research methods commonly used in social science research will also feature in the entrance test. For more details about our programme and courses, please visit: http://www.jnu.ac.in/SSS/cssp/pos.htm
15	Centre for Philosophy (CP)	Philosophy-SPHH (878)	Questions for Ph.D. Entrance test will be based on the MA and M.Phil. syllabus taught at the Centre for Philosophy, please visit: http://www.jnu.ac.in/sss/cop-mphil
16	Centre for Women Studies (CWS)	Women Studies-WSPH (879)	**Syllabus for Ph.D. entrance exam, (Centre for Women's Studies) CWS, SSS, JNU** Since Women's Studies is interdisciplinary in nature, the entrance exam will expect candidates to bring their disciplinary and interdisciplinary training in historical, political, economic, sociological, cultural, literary and representational perspectives in the way women, gender, and sexuality have been constituted as objects of study. Students are expected to have a thorough understanding of the relationship between gender and oter analytical categories like class, case, ethnicity, sexuality, community and nationality not only in a national, but also a cross cultural and transnational context. The candidates are expected to be broadly aware of different

			dimensions of women, gender and sexuality studies in Feminist Theory; Women's Movements; Gender, Labour and Political Economy; Sexuality Studies; Law; Politics; Development; Globalization and its implications; Religion and Faith Practices; Caste, Ethnicity and Race; Gender and Space; Culture and Modernity; Literature, Art and Performance, and Visuality Studies. Candidates are expected to have knowledge of feminist methodology, especially qualitative research methods such as ethnography, discourse analysis, oral history, archival research, and literary methods, but not just limited to these.
17	Centre for the Study of Social Exclusion and Inclusive Policy	Social Exclusion and Inclusive Policy - SEIH (880)	The examination will deal with topics which are covered in any standard Masters level course pertaining to History, Anthropology, Economics, Political Science and Sociology. In addition, the candidates are expected to have comprehensive understanding on the various dimensions of discrimination and exclusion faced by Scheduled Castes (SC), Scheduled Tribes (ST) and various Minority groups in India. The interpretation of these societal dimensions can only be understood through a proper knowledge of research methodology. The definition of research methodology in itself is a difficult task, divided in terms of approaches ranging from the qualitative to quantitative. In addition to research methods the candidate acquainted in their respective subject at the Master level, is also expected to be familiar with the methods and measurement of Discrimination and exclusion. The candidates are expected to be aware of analysis based on large datasets published periodically by the Government and non-governmental agencies. These would include, but not limited to, *Decennial* Census reports, National Sample Survey Organisation reports (NSSO), National Family and Health Surveys (NFHS), National Crime Records Bureau reports (NCRB) and other alternative reports covering issues of discrimination and exclusion like Sachar Committee Report, Indian Exclusion reports, International Organisational reports like UN, ILO etc. Further the candidates should be aware of reports published by National Commission for Scheduled Castes (NCSC), National Commission for Scheduled Tribes (NCST), National Commission for Backward Classes (NCBC), National Human Rights Commission (NHRC). The candidates should have an in depth understanding of various facets of the Indian Constitution, Governmental policies for inclusion and developmental schemes addressing the issues of SCs, STs and Minority groups.
18	Centre for Media Studies (CMS)	Media Studies-CMSH (881)	Envisaged primarily as a centre for research and academic study, the syllabus for the Entrance Examination will cover broader fields of media studies, which include: Histories of media, Political economy of Media, Media and issues of language, Media, democracy, and dimensions of rights and justice, Violence and media, Media, technologies and cultural industries, Media and the nature of connectivities, Visual culture, Theories and methods in media studies.

5. SCHOOL OF ENVIRONMENTAL SCIENCES

The pattern of JNUEE 2019-20 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Master of Science

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of Environmental Sciences (SES)	Environmental Sciences – SESM (223)	**M.Sc. in Environmental Sciences** The questions will be of multiple choice type. The questions will be in two parts. **Part I:** This will have questions from the different areas of Science and Mathematics at the 10+2 level. **Part II:** This will have questions, in the areas of Physics, Chemistry, Mathematics, Geology, Botany and Zoology at the B.Sc. level.

M.Phil

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of Environmental Sciences (SES)	Research Area I-ONEP (153)	All questions would be of the multiple choice type. The questions will be divided into two parts: **Part-A** This part will have questions on Research Methodology broadly covering the topics such as Judging the ability of Searching libraries, web-based information etc., Structuring of articles, referencing etc., Describing visual, audio or written images, Writing review of book/Report etc., importance of seminar/workshop/conference, General idea of plagiarism, Concept of logbook, workbook, field book etc., Names of journals, Important publishers, Site selection criteria, sample number criteria, sample storage methods, sample extraction and digestion methods, Mean, median, mode, standard deviation, standard error, correlation, time series, scatter plots, bars, line diagram, error bars, area plots, contours etc., Accuracy, precision, null hypothesis, errors, uncertainty, Knowledge about software: statistical, GIS and RS etc. **Part-B** This part will have questions of M.Sc. level from Physics, Chemistry, Geology, Biology and Environmental Sciences.
2		Research Area II-TWOP (154)	
3		Research Area III-THRP (155)	
4		Research Area IV-FORP (156)	

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of Environmental Sciences (SES)	Research Area I-ONEH (885)	All questions would be of the multiple choice type. The questions will be divided into two parts: **Part-A** This part will have questions on Research Methodology broadly covering the topics such as Judging the ability of Searching libraries, web-based information etc., Structuring of articles, referencing etc., Describing visual, audio or written images, Writing review of book/Report etc., importance of seminar/workshop/conference, General idea of plagiarism, Concept of logbook,
2		Research Area II-TWOH (886)	

3		Research Area III-THRH (887)	workbook, field book etc., Names of journals, Important publishers, Site selection criteria, sample number criteria, sample storage methods, sample extraction and digestion methods, Mean, median, mode, standard deviation, standard error, correlation, time series, scatter plots, bars, line diagram, error bars, area plots, contours etc., Accuracy, precision, null hypothesis, errors, uncertainty, Knowledge about software: statistical, GIS and RS etc. **Part-B** This part will have questions of M.Sc. level from Physics, Chemistry, Geology, Biology and Environmental Sciences.
4		Research Area IV-FORH (888)	

6. SCHOOL OF COMPUTER & SYSTEMS SCIENCES

The pattern of JNUEE 2019-20 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

MCA

Sl. No.	Name of Centre	Sub. Code & Sub. Code (Number)	Syllabus for Entrance Examination
1	School of Computer & Systems Sciences (SC&SS)	Master of Computer Applications-MCAM (224)	**Syllabus:** General aptitude, reasoning and 10+2 and Bachelor's level mathematics and Computer Science as per the topics specified as under: **Maths**: Differential and Integral Calculus, Vector Algebra, Trigonometry, 2D-3-D Geometry, Modern Algebra, Numerical Analysis, Probability & Statistics, Real Analysis, Theory of Real Function **Computer Science:** Digital Systems Design & Architecture, Programming (C), Data Structures, Operating Systems, Discrete Mathematics. (The test will comprise 100 multiple choice questions. 1 mark will be awarded for each correct answer)

M.Phil.

Sl. No.	Name of Centre	Sub. Code & Sub. Code (Number)	Syllabus for Entrance Examination
1	School of Computer & Systems Sciences (SC&SS)	M.Phil - SCSP (158)	**Syllabus**: 50% of the questions will be from Research Methodology and remaining 50% from Bachelor's/Master's level mathematics and Computer Science. The topics for both are specified as under: **Research Methodology**: Experimental Design; Fundamentals of Sampling; Data: types, quality, measurement; Processing and Analysis of data; Hypothesis Testing (parametric, nonparametric). **Maths**: Integral and Differential Calculus, Linear Algebra, Numerical Analysis, Algebra (Group theory, etc.) **Computer Science**: Data Structures and Algorithms, C/C++, Operating Systems, Discrete Mathematics, Automata Theory, Computer Architecture, Computer Networks, Database Management System. (The test will comprise 75 multiple choice questions. Out of which 50 questions will be 1 Marks each and 25 questions will be 2 Marks each)

M.Tech. (Computer Science and Technology)

Sl. No.	Name of Centre	Sub. Code & Sub. Code (Number)	Syllabus for Entrance Examination
1	School of Computer & Systems Sciences (SC&SS)	M.Tech – MTCT (157)	**Syllabus**: General aptitude, reasoning and Bachelor's/Master's level Mathematics and Computer Science as per the topics specified as under: **Maths**: Differential and Integral Calculus, Vector Spaces (Linear Algebra), Numerical Analysis, Algebra (group theory, etc.). **Computer Science**: Data structures, Programming Languages (C, C++), Algorithms, Operating Systems, Database Management System, Computer Architecture, Computer Network, Discrete Mathematics, Automata Theory. (The test will comprise 75 multiple choice questions. Out of which 50 questions will be 1 Marks each and 25 questions will be 2 Marks each)

M.Tech. (Statistical Computing)

Sl. No.	Name of Centre	Sub. Code & Sub. Code (Number)	Syllabus for Entrance Examination
1	School of Computer & Systems Sciences (SC&SS)	Statistical Computing (Data Science) - MTST (183) Statistical Computing (Data Communicatio n) – MTDT (189)	**Part A –** **Syllabus**: General aptitude, reasoning, and Bachelor's/Master's level mathematics, Statistics and Computer Science as per the topics specified below: **Maths and Stats**: Probability, Statistics, Operations Research, Real Analysis, Linear Algebra. **Computer Science**: Data Structures, C, C++, Operating Systems, Automata Theory, Discrete Mathematics, Compute Architecture, Systems Programming, Digital Systems Design. **Part B –** **Syllabus for Data Science Stream** – Data Bases, Artificial Intelligence and Machine Learning, Data Warehousing, Data Mining. **Syllabus for Data communication stream**- Computer Networks, Network Security, Network Programming, Mobile Computing, Wireless Communication. (The test will comprise 80 multiple choice questions. The test will be divided in two parts (Part A and Part B)). Part A contains 60 questions of 1 Marks each. Part B contains 20 questions in each stream and each question carries 2 Marks.

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code (Number)	Syllabus for Entrance Examination
1	School of Computer & Systems Sciences (SC&SS)	SCSH (890)	**Syllabus**: 50% of the questions will be from Research Methodology and remaining 50% from Master's level Computer Science. The topics for both are specified as under: **Research Methodology**: Experimental Design; Fundamentals of Sampling; Data: types, quality, measurement; Processing and Analysis of data; Hypothesis Testing (parametric, nonparametric). **Computer Science**: Number System, Digital logic, mathematics and aptitude. (The test will comprise 50 multiple choice questions. 2 marks will be awarded for each correct answer)

7. SCHOOL OF PHYSICAL SCIENCE

The pattern of JNUEE 2019-20 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Syllabus for JNU M.Sc. Mathematics Entrance Examination

Set Theory and related topics: Elementary set theory, Finite, countable and uncountable sets, Equivalence relations and partitions

Real Numbers, Sequences and Series: Real number system as a complete ordered field, Archimedean property, supremum, infimum, Sequence of real numbers, convergence of sequences, bounded and monotone sequences, convergence criteria for sequences of real numbers, Cauchy sequences, subsequences, Bolzano-Weierstrass theorem. Series of real numbers, absolute convergence, tests of convergence for series of positive terms - comparison test, ratio test, root test, Leibniz test for convergence of alternating series

Real Analysis: Interior points, limit points, open sets, closed sets, bounded sets, connected sets, compact sets. Power series (of a real variable), Taylor's series, radius and interval of convergence, term-wise differentiation and integration of power series

Functions of One Real Variable: Limit, continuity, intermediate value property, differentiation, Rolle's Theorem, mean value theorem, L'Hospital rule, Taylor's theorem, maxima and minima

Functions of Two and Three Real Variables: Limit, continuity, partial derivatives, differentiability, maxima and minima

Integral Calculus: Integration as the inverse process of differentiation, definite integrals and their properties, fundamental theorem of calculus. Double and triple integrals, change of order of integration, calculating surface areas and volumes using double integrals, calculating volumes using triple integrals

Vector Calculus: Scalar and vector fields, gradient, divergence, curl, line integrals, surface integrals, Green, Stokes and Gauss theorems

Group Theory: Groups, subgroups, Abelian groups, non-Abelian groups, cyclic groups, permutation groups, normal subgroups, Lagrange's Theorem for finite groups, group homomorphism and basic concepts of quotient groups, Cayley's theorem, class equations

Linear Algebra: Finite dimensional vector spaces, linear independence of vectors, basis, dimension, linear transformations, matrix representation, range space, null space, rank-nullity theorem. rank and inverse of a matrix, determinant, solutions of systems of linear equations, consistency conditions, eigenvalues and eigenvectors for matrices, Cayley-Hamilton theorem, Inner product spaces, Orthonormal basis

Miscellaneous: Logical reasoning, elementary combinatorics, divisibility in Integers, Congruence, Chinese remainder theorem, Euler's φ-function

Syllabus for JNU Ph.D. (Mathematics) Entrance Examination

Analysis:

The structure of the real numbers as an ordered field with the least upper bound property, archimedean property, Bolzano-Weierstrass theorem, Heine-Borel theorem, extended real number system, complex field, Euclidean spaces.

Definition and examples of metric spaces, completeness, compactness, connectedness, continuous functions and related properties. Convergence of sequences in a metric space, subsequences, Cauchy sequences. Limits of functions, continuity of functions, uniform continuity, continuity and compactness, continuity and connectedness.

Pointwise and uniform convergence, uniform convergence and continuity, uniform convergence and integration, uniform convergence and differentiation, equicontinuity, Arzela-Ascoli theorem, Stone-Weierstrass theorem.

Differentiation of functions of several real variables (directional derivatives, partial derivatives, differentiability and the total derivative, chain rule, Jacobian, higher derivatives, interchange of the order of differentiation, Taylor's theorem), inverse function theorem, implicit function theorem, rank theorem, differentiation of integrals. Lebesgue meausre and Lebesgue integral, convergence Theorems.

Linear Algebra:

Vector Spaces, subspaces, linear independence, bases, dimension, algebra of linear transformations, rank-nullity theorem, dual spaces, double dual, eigenvalues and eigenvectors, characteristic polynomial and minimal polynomial, Cayley-Hamilton theorem. Diagonalizability and digonalization, primary decomposition theorem, generalized eigenvectors, Jordan canonical form, rational canonical form.

Bilinear forms, symmetric and skew-symmetric bilinear forms, groups preserving bilinear forms, reduction and classification of bilinear forms.

Algebra:

Definition and examples of groups - dihedral, symmetric and permutations groups, matrix groups such as GL(n) , SL(n) , abelian and cyclic groups, subgroups, normal subgroups, quotient groups, centralizer and normalizer of a group, Lagrange's theorem, isomorphism theorems, group actions, class equation, counting orbits, Cayley's theorem, Sylow's theorems, simplicity of alternating groups. Rings and subrings, isomorphisms, ideals, prime and maximal ideals, quotient rings, polynomial rings, unique factorization domain, principal ideal domain, Euclidean domain, Gauss's lemma, irreducibility criteria.

Definition and examples of fields, extension of fields, finite and infinite extensions, algebraic and transcendental extensions, homomorpshims, isomorphisms and automorphisms, separable and normal extensions, splitting field of a polynomial, extending field morphisms, algebraic closure of a field, finite fields, cyclicity of the mulitplicative group of a finite field, Galois theory.

Complex Analysis:
Algebra of complex numbers, conjugates, modulus, argument, roots.

Continuity and derivative of a function of one complex variable, holomorphic functions, Cauchy-Riemann equations, harmonic functions.

Polynomial and rational functions, transcendental functions such as exponential, trigonometric and hyperbolic functions, logarithm.

Paths and contours, contour integral, Cauchy's theorem, Cauchy's integral formula, Liouville's theorem, fundamental theorem of algebra, maximum modulus principle, open mapping theorem, Schwarz's lemma, Taylor series and Laurent series.

Classification of singularities, orders or zeros and poles, winding number, meromorphic functions, Cauchy's residue theorem, computation of definite integrals using residue theorem, argument principle. Linear fractional transformations, conformal mappings.

Topology:

Definition and examples of topological spaces, basis and subbasis of a topological space, subspace topology, limit points, closure and interior, continuous functions, homeomorphisms, product topology, metric topology, quotient map and quotient topology. Connectedness, path-connectedness, compactness, local compactness and one point compactification.

First and second countable spaces, separable spaces, separation axioms, Urysohn lemma, Tietze extension theorem, Tychonoff theorem and Stone-Čech compactification.

Functional Analysis:

Examples of normed spaces (sequence spaces: c, c0, lp spaces; function spaces: C[0, 1], C(R), Lp ([0, 1]), Lp(R)), finite dimensional normed spaces, continuous linear maps, Hahn-Banach Theorem, Hilbert spaces, inner product, linear functionals, orthonormal sets.

Research Methodology:
Elementary set theory, finite, countable and uncountable sets, logic, relations and functions, axioms.
Elementary combinatorics, combinatorial probability, pigeon-hole principle, inclusion-exclusion principle.

Miscellaneous Topics:
Fundamental theorem of arithmetic, divisibility, congruences, Chinese remainder theorem, Euler's totient function, primitive roots.

8. SCHOOL OF COMPUTATIONAL AND INTERGRATIVE SCIENCES

The pattern of JNUEE 2019-20 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

M.Sc. Programme

Sl. No.	Name of Centre	Sub. Code & Sub. Code (Number)	Syllabus for Entrance Examination
1	School of Computational and Integrative Sciences (SC&IS)	Computational and Integrative Sciences - Track 1 – TROM (232) & Track 2 – TRTM (238)	**MSc (Computational and Integrative Sciences)** The Examination for admission will contain four subjects, specified in two tracks: **The use of the word "Track" in this document is solely for the purpose of grouping disciplines for the purpose of admission to various programs. All programs are interdisciplinary, and students after registration may choose to work in areas independent of their prior training based on their aptitude and interest.** [Track 1]: **Physical Sciences** having three subject specific sections: (I) Physics, (II) Chemistry and (III) Mathematics [Track 2]: **Biology** having only one section IV: Life Sciences and Bioinformatics Candidates are required to attempt any ONE of the two tracks. Candidates will be separately shortlisted in each track. Each Track will have two parts: Part A (common to all sections) and Part B (specific to the discipline consisting of section I, II, III and IV). For PART-A and PART-B, each correct answer will fetch 2 marks. There will be NO NEGATIVE MARKING. PART-A: will contain 15 basic questions to assess basic elementary knowledge and analytical skills set at the 10+2 level. PART-B: There will be 35 (thirty-five) subject-specific questions in each subject of the two tracks, i.e. [Track 1] with sections: I) Physics II) Chemistry III) Mathematics OR [Track 2] with one section (IV) Biology (Life Sciences and Bioinformatics). Candidates can choose to attempt any one subject specific section under Track 1. Questions will be of B.Sc/B.Tech level as per the syllabus specified below. **Syllabus for Disciplines** **[Track 1]** **Physics** **Mathematical Physics:** Linear vector space; matrices; vector calculus; linear differential equations; Fourier analysis. **Classical Mechanics:** Conservation laws; central forces, Kepler problem and planetary motion; mechanics of system of particles; rigid body dynamics; moment of inertia tensor; special theory of relativity – Lorentz transformations, mass-energy equivalence. **Electromagnetic Theory:** Solution of electrostatic and magnetostatic problems including boundary value problems; dielectrics and conductors; Biot-Savart's and Ampere's laws; Faraday's law; Maxwell's equations; scalar and vector potentials; Electromagnetic waves and their reflection, refraction, interference. Poynting vector, Poynting theorem. **Quantum Mechanics:** Physical basis of quantum mechanics; uncertainty principle; Schrodinger equation; one, two and three dimensional potential problems -- particle in a box, harmonic oscillator, hydrogen atom. **Thermodynamics and Statistical Physics:** Laws of thermodynamics; macrostates and microstates; phase space; free energy, calculation of thermodynamic quantities; black body radiation and Planck's distribution law; classical statistics. **Atomic and Molecular Physics:** Spectra of one- and many-electron atoms; LS and jj coupling;

			Zeeman and Stark effects; X-ray spectra; lasers. **Chemistry** General topics at the B.Sc. level. Specific focus will be on the following topics: Properties of gases, Thermodynamics (1st law, 2nd law, chemical equilibrium etc.), chemical bonding molecular structure. **Mathematics** General topics at the B.Sc. level. Specific focus will be on the following topics: **Linear Algebra:** Vector spaces, Sub spaces, linearly dependent & linearly independent vectors, Basis, Dimension, linear transformation, Matrix representation of a linear transformation, Rank & Nullity theorem. Finite dimensional vector spaces, Existence theorem for basis, Quotient space and its dimension. Rank of a matrix, Eigen values & Eigen vectors. **Abstract Algebra:** Divisibility in the set of integers, congruence's, Groups, Sub groups, Permutation groups, Cyclic groups, Lagrange's theorem and its consequences, Normal subgroups, Quotient groups, Group homomorphism, Kernel of a homomorphism, Fundamental theorem of homomorphism of groups, Group isomorphism, Cayley's theorem. **Optimization:** Introduction to Linear Programming. Problem formulations. Linear independence and dependence of vectors. Convex sets. Extreme points. Hyperplanes and Half spaces. Directions o f a convex set. Convex cones. **Polyhedral sets and cones.** Theory of Simplex Method. Simplex Algorithm. Assignment and Transportation. Calculus, Differential Calculus, Vector Calculus, Numerical Analysis, Mechanics, Mathematical Methods, Real Analysis **[Track 2]** **Biology (Life Sciences/Bioinformatics)** Part A will contain 15 questions related to basic elementary knowledge and analytical skills at 10+2 level. All questions of Part B will be set at the BSc level. Special focus will be on the following topics Cell Biology, Animal & Plant Biotechnology; Basic Molecular Biology and recombinant DNA technology; DNA replication, repair and recombination; Concept of the gene; transcription; translation; PCR; DNA sequencing; Gene regulation; Biomolecules; Principles of Genetics; Microbiology; Immunology; Metabolism and enzymes, Basic Biotechniques, Basics of Bioinformatics and sequence analysis; Sequence Alignment and Clustering Algorithms; Phylogenetics; Genome databases;

There will be common questions for both Post-Graduate Diploma in Big Data Analytics (PGDT) and PhD program

Post-Graduate Diploma in Big Data Analytics (PGDT)

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of Computational and Integrative Sciences (SC&IS)	Post-Graduate Diploma in Big Data Analytics – Track 1 – TROT (191); Track 2 – TRTT (192) & Track 3 – TRDT (193)	The Examination for admission will contain seven subjects, specified in three tracks: **The use of the word "Track" in this document is solely for the purpose of grouping disciplines for the purpose of admission to various programs. All programs are interdisciplinary, and students after registration may choose to work in areas independent of their prior training based on their aptitude and interest.** [Track One: **Physical Sciences**] consisting of three subject specific sections: (I) Physics, (II) Chemistry and (III) Mathematics [Track Two: **Life sciences**] consisting of two subject specific sections: (IV) Life Sciences and (V) Bioinformatics [Track Three: **Engineering sciences**] consisting of two subject specific sections: (VI) Engineering Sciences and (VII) Information Technology and Computer Science Candidates are required to attempt any ONE of the three tracks. Candidates will be separately shortlisted in each track. Exam will be of three hours duration consisting of 100 marks. Questions will be of M. Sc. level as per the syllabus specified below. All questions would be of the multiple-choice type.

			The test will contain seven separate sections corresponding to different disciplines, grouped into three tracks as mentioned above. Each Track has a separate **Part A (common to the each track)** and **Part B (specific to the discipline)**. The examination will contain at least 50% marks allotted to "Research Methodology" and 50% marks allotted to "Subject Domain". There will be NO NEGATIVE MARKING for wrong answers. **PART A:** This will have 15 questions each of two marks to test the candidate's elementary knowledge of basic concepts in the discipline. All questions are to be answered. **PART B:** There will be 35 subject specific questions in each of the sections and candidates are expected to answer all. Each correct answer will be awarded two marks. **Research Methodology** Introduction to Research: Importance, study of literature, defining research problem, hypothesis formulation, experimental design; Data Collection and Measurement: Methods and techniques, probability and probability distributions, sampling and sampling designs; Data Analysis: Testing of hypothesis, statistical tests and analysis, data interpretation, multivariate analysis, model building, forecasting methods; Report writing and Presentation: Ethics in research, Plagiarism, substance of reports, formats, referencing, oral presentation skills; General practices followed in Research – literature and data management, Safety practices in the laboratory, Intellectual property rights (IPR) The above topics are common to all the disciplines listed below. Please note that in addition to the above topics, each discipline will have subject specific questions related to research methodology **Physics** Mathematical Physics: Linear vector space; matrices; vector calculus; linear differential equations; elements of complex analysis; Laplace transforms, Fourier analysis, elementary ideas about tensors. Classical Mechanics: Conservation laws; central forces, Kepler problem and planetary motion; collisions and scattering in laboratory and centre of mass frames; mechanics of system of particles; rigid body dynamics; moment of inertia tensor; noninertial frames and pseudo forces; variational principle; Lagrange's and Hamilton's formalisms; equation of motion, cyclic coordinates, Poisson bracket; periodic motion, small oscillations, normal modes; special theory of relativity – Lorentz transformations, relativistic kinematics, mass- energy equivalence. Electromagnetic Theory: Solution of electrostatic and magnetostatic problems including boundary value problems; dielectrics and conductors; Biot-Savart's and Ampere's laws; Faraday's law; Maxwell's equations; scalar and vector potentials; Coulomb and Lorentz gauges; Electromagnetic waves and their reflection, refraction, interference, diffraction and polarization. Poynting vector, Poynting theorem, energy and momentum of electromagnetic waves; radiation from a moving charge. Quantum Mechanics: Physical basis of quantum mechanics; uncertainty principle; Schrodinger equation; one, two and three dimensional potential problems; particle in a box, harmonic oscillator, hydrogen atom; linear vectors and operators in Hilbert space; angular momentum and spin; addition of angular momenta; time independent perturbation theory; elementary scattering theory. Thermodynamics and Statistical Physics: Laws of thermodynamics; macrostates and microstates; phase space; probability ensembles; partition function, free energy, calculation of thermodynamic quantities; classical and quantum statistics; degenerate Fermi gas; black body radiation and Planck's distribution law; Bose-Einstein condensation; first and second order phase transitions, critical point. Atomic and Molecular Physics: Spectra of one- and many-electron atoms; LS and jj coupling; hyperfine structure; Zeeman and Stark effects; electric dipole transitions and selection rules; X-ray spectra; rotational and vibrational spectra of diatomic molecules; electronic transition in diatomic molecules, Franck- Condon principle; Raman effect; NMR and ESR; lasers. **Chemistry** Properties of gases, Thermodynamics (1st law, 2nd law, chemical equilibrium etc.), chemical bonding , Atomic and molecular structure, kinetic theory, basic quantum mechanics, basic statistical mechanics, spectroscopy Oxidation states and oxidation number Acids and bases Stereochemistry Chemical kinetics Electrochemistry, General organic chemistry **Mathematics** **Hydrodynamics:** Classification of fluids, the continuum model, Lagrangian and Eulerian approach of description. Lagrangian and Eulerian methods. Equation of continuity. Boundary surface. Stream lines. Path lines and streak lines. Velocity potential. Irrotational and rotational motions. Vortex lines, vorticity vector, equi-potential surface streamlines, pathlines, Mass flux density, conservation of mass leading to equation of continuity, conservation of momentum and

			its mathematical formulation, Lagrange's and Euler's equations of motion, Bernoulli's theorem, Equation of motion by flux method. Equations referred to moving axes Impulsive actions, Stream function. Viscous flow, stress and strain analysis, stokes hypothesis, The Navier-stokes equation of motion, Poiseuille flow. **Advanced Differential Equations:** Existence and uniqueness theorem, Sturm comparision and separation theorem, homogeneous linear system, Nonhomogeneous linear system, linear system with constant coefficient. Two point boundary value problems, Green function, Construction of green fuvction, Sturm-Lioville system, Non-linear Differential Equation, Solution of PDE's by method of integral transform (Laplace and Fourier), Boundary value problem, Maxima and minimum principles, Uniqueness and continuity Theorem. **Special Function:** Calculus of Variation-Functional and its properties, Variational problems with fixed boundaries, Legendre polynomial and functions, Christoffel's summation formula, Bessels Function, Modified Bessel's function, Bessel's equations. Hermite polynomials, Laguerre polynomials. **Linear Algebra:** Vector spaces, Sub spaces, linearly dependent & linearly independent vectors, Basis, Dimension, linear transformation, Matrix representation of a linear transformation, Rank & Nullity theorem. Finite dimensional vector spaces, Existence theorem for basis, Quotient space and its dimension. Rank of a matrix, Eigen values & Eigen vectors. Change of basis, Canonical forms, Diagonal forms, Triangular forms, Jordan forms, Quadratic forms, reduction and classification of quadratic forms, Orthogonal transformations, Unitary transformations, Positive semi definite matrices, Semi definite matrices. **Operational Research and Networking:** Introduction to Linear Programming. Problem formulations. Linear independence and dependence of vectors. Convex sets. Extreme points. Hyperplanes and Half spaces. Directions of a convex set. Convex cones. Polyhedral sets and cones. Theory of Simplex Method. Simplex Algorithm. Transportation problem. Assignment problem. **Graph Theory and Petri nets:** Selected topics in a graph theory: basic definitions and notions, characterization of trees, vector vacuum of a graph, planarity of graphs, Hamiltonian and Eulerian cycles. Edge – and vertex colourings of graphs: chromatic number, chromatic index, map colour theorem, four – colour problem. Independence theory in combinatory. Directed digraphs. Flow networks. Applications. Petri nets and their types. **Probability and Statistics:** Measures of central tendency and dispersion, Skewness and kurtosis, Probability, Conditional probability, Theorem of total probabilities, Bayes theorem, Random variables, Probability mass and density functions, Mathematical expectation and its properties, Moment generating functions, Binomial, Poisson, Geometric, Exponential and Normal distributions and their properties, Method of least squares, Correlation and regression. **Life Sciences** DNA replication, repair and recombination; Chromatin Structure; Concept of gene; polyploidy; RNA synthesis and processing; Alternative Splicing; Protein synthesis and processing; gene expression; prokaryotic and eukaryotic gene regulation Recombinant DNA technology; Gene Cloning, Vectors and Restriction enzymes; Polymerase Chain Reaction; Quantitative and semi-quantitative Reverse transcriptase PCR; DNA sequencing technologies; Next generation sequencing; genome sequencing and annotation methods; gene ontology. Genome Structure and Organization; repetitive content; Sequence similarity/Alignment and Clustering methods/Algorithms; phylogenetics; research methodology; Basic Programming skills/Bioinformatics; Methods and Algorithms for biological data analysis; Database resources and tools/methods for functional and comparative genomic studies. Basic concepts of Immunology, immunity, immunoglobuline, B cell, Tcell functions etc. Basic concepts of development; plant growth and development; plant reproduction; plant hormones; stress physiology and response; Metabolism and pathways Microbial, animal and plant genetics; Molecular markers; DNA polymorphisms and their applications; transgenic animals and plants; plant tissue culture and biotechnology; epigenetics-DNA methylation and histone modifications Basic Biotechniques; Gel electrophoresis, Blotting, Hybridization, Gene cloning, PCR, Restriction digestion, Immunoprecipitation, chromatography, microarray, ELISA, PCR etc. **Bioinformatics** **Sequence alignments algorithms**: Scoring matrices and scoring functions – pairwise alignment local and Global **Multiple sequence alignment**: Algorithms and Application Database search using BLAST. The BLAST algorithm. BLAST scoring and statistics. Application and parsing BLAST reports. **Statistics and search methods** for Sequence patterns, profiles, motifs etc – MEME, Weight matrix, Profile, sequence Logo. **Gene Identification problem** : Codon usage, fourier and markov models

			Overview of **advanced concepts in sequence analysis**: Information theory, machine learning and probabilistic modeling **Phylogenetic analysis**: Concept of distance – Distance, parsimony and likelihood methods **Computational Genomics**: Next Generation Sequencing- concept and methods; Genome sequencing and assembly; Read Alignment algorithms; Genome Annotation (structural and functional); protein and pathway mapping. Comparative Genomics. RNA sequencing; Methods for Abundance Estimation and Differential Expression Analysis. **Structural Bioinformatics and Cheminformatics**: Resources for protein and chemical structures. Common tools for visualising protein structure. Methods for simulation of biomolecules. Docking and Virtual Screening. QSAR. **Engineering Sciences** Questions will be set at the B.Tech and M.Tech. level. Special focus will be on the following topics: **Electronics and Communication Engineering** **Networks, Signals and Systems:** Network solution methods: nodal and mesh analysis; Network theorems: superposition, Thevenin and Norton's, maximum power transfer; Steady state sinusoidal analysis using phasors; Time domain analysis of simple linear circuits, Laplace transform, Linear 2-port network parameters: driving point and transfer functions. Continuous-time signals: Fourier series and Fourier transform representations, sampling theorem and applications; Discrete-time signals, Z-transform, LTI systems: definition and properties, causality, stability, impulse response, convolution, poles and zeros, parallel and cascade structure. **Electronic Devices :** Energy bands in intrinsic and extrinsic silicon; Carrier transport: diffusion current, drift current, mobility and resistivity; Generation and recombination of carriers; Poisson and continuity equations; P-N junction, Zener diode, BJT, MOS capacitor, MOSFET, LED, photo diode, Integrated circuit fabrication process: oxidation, diffusion, ion implantation, photolithography. **Analog Circuits**: BJTs and MOSFETs; Simple diode circuits: clipping, clamping and rectifiers; Single-stage BJT and MOSFET amplifiers: biasing, bias stability, BJT and MOSFET amplifiers: multi-stage, differential, feedback, power and operational; Simple op-amp circuits; Active filters; Sinusoidal oscillators: criterion for oscillation, single-transistor and opamp configurations; Function generators, wave-shaping circuits and 555 timers. **Digital Circuits**: Number systems; Combinatorial circuits: Boolean algebra, minimization of functions using Boolean identities and Karnaugh map, logic gates, arithmetic circuits, code converters, multiplexers, decoders, Sequential circuits: latches and flip-flops, counters, shift-registers, Data converters: sample and hold circuits, ADCs and DACs; Semiconductor memories: ROM, SRAM, DRAM; 8-bit microprocessor (8085): architecture, programming, memory and I/O interfacing. **Communications** Analog communications: amplitude modulation and demodulation, angle modulation and demodulation, spectra of AM and FM, superheterodyne receivers, Information theory: entropy, mutual information and channel capacity theorem ; Digital communications: PCM, DPCM, digital modulation schemes, amplitude, phase and frequency shift keying (ASK, PSK, FSK), QAM, calculation of bandwidth, SNR and BER for digital modulation; Fundamentals of error correction, Hamming codes; Timing and frequency synchronization, inter- symbol interference and its mitigation; Basics of TDMA, FDMA and CDMA. **Satellite communication:** Introduction, need, satellite orbits, advantages and disadvantages of geostationary satellites. Satellite visibility, satellite system – space segment, block diagrams of satellite sub systems, up link, down link, cross link, transponders (C- Band) **Local area networks (LAN):** Primary characteristics of Ethernet-mobile IP, OSI model, wireless LAN requirements-concept of Bluetooth, Wi-Fi and WiMAX. **Electromagnetics** Electrostatics; Maxwell's equations: differential and integral forms and their interpretation, boundary conditions, wave equation, Poynting vector; Plane waves and properties: reflection and refraction, polarization, phase and group velocity, propagation through various media, skin depth; Transmission lines: equations, characteristic impedance, impedance matching, impedance transformation, S-parameters, Smith chart; Waveguides: modes, boundary conditions, cut-off frequencies, dispersion relations; Antennas: antenna types, radiation pattern, gain and directivity, return loss, antenna arrays; Basics of radar; Light propagation in optical fibers. **Microwave and Antennas** Introduction & Wave Propagation Review of Maxwell's equations, Integral and Point forms; Boundary conditions; Power flow and Poynting vector; Propagation of uniform plane waves, Wave equation; Polarization. Scalar and Vector Potential functions, Retarded Potentials;

			Radiation phenomenon and equation, Basic antenna parameters: radiation resistance, Gain, directivity, Effective length, Radiation pattern; Radiation from short current element, Radiation from small current loop, radiation from arbitrary current distribution, half wave dipole antenna; Antenna impedance, Monopole antenna, Baluns, Antenna array: Broadside array and end-fire arrays, long wire antenna;Few antenna types: Folded dipole, Loop antenna, Yagi-Uda Antenna; Wave propagation, Travelling waves, Lossless and Lossy transmission lines, pulse propagation;Principle, construction and working of Microwave solid state devices: Transferred Electron devices: Gunn Diode (Gunn Effect), IMPATT diode, PIN diode Attenuators, Terminators, Directional couplers; Hybrid Circuits Attenuators, Terminators, Directional couplers; Hybrid Circuits **Computer Sciences** Questions will be set at the B.Tech/M.Tech Level. Special Focus will be on the following topics **Computer Organization and Architecture** Machine instructions and addressing modes. ALU, data-path and control unit. Instruction pipelining. Memory hierarchy: cache, main memory and secondary storage; I/O interface (interrupt and DMA mode). **Programming and Data Structures** Programming in C. Recursion. Arrays, stacks, queues, linked lists, trees, binary search trees, binary heaps, graphs. **Algorithms** Searching, sorting, hashing. Asymptotic worst case time and space complexity. Algorithm design techniques: greedy, dynamic programming and divide-and-conquer. Graph search, minimum spanning trees, shortest paths. **Theory of Computation** Regular expressions and finite automata. Context-free grammars and push- down automata. Regular and contex-free languages, pumping lemma. Turing machines and undecidability. **Compiler Design** Lexical analysis, parsing, syntax-directed translation. Runtime environments. Intermediate code generation. **Operating System** Processes, threads, inter-process communication, concurrency and synchronization. Deadlock. CPU scheduling. Memory management and virtual memory. File systems. **Databases** ER model. Relational model: relational algebra, tuple calculus, SQL. Integrity constraints, normal forms. File organization, indexing (e.g., B and B+ trees). Transactions and concurrency control. **Computer Networks** Concept of layering. LAN technologies (Ethernet). Flow and error control techniques, switching. IPv4/IPv6, routers and routing algorithms (distance vector, link state). TCP/UDP and sockets, congestion control. Application layer protocols (DNS, SMTP, POP, FTP, HTTP). Basics of Wi-Fi. Network security: authentication, basics of public key and private key cryptography, digital signatures and certificates, firewalls.

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of Computational and Integrative Sciences (SC&IS)	Computational Biology and Bioinformatics – Track 1 – TROH (903); Track 2 – TRTH (909) & Track 3 – TRDH (910)	The Examination for admission will contain seven subjects, specified in three tracks: **The use of the word "Track" in this document is solely for the purpose of grouping disciplines for the purpose of admission to various programs. All programs are interdisciplinary, and students after registration may choose to work in areas independent of their prior training based on their aptitude and interest.** [Track One: **Physical Sciences**] consisting of three subject specific sections: (I) Physics, (II) Chemistry and (III) Mathematics [Track Two: **Life sciences**] consisting of two subject specific sections: (IV) Life Sciences and (V) Bioinformatics [Track Three: **Engineering sciences**] consisting of two subject specific sections: (VI) Engineering Sciences and (VII) Information Technology and Computer Science Candidates are required to attempt any ONE of the three tracks. Candidates will be separately shortlisted in each track. Exam will be of three hours duration consisting of 100 marks. Questions will be of M. Sc. level as per the syllabus specified below. All questions would be of the multiple-choice type. The test will contain seven separate sections corresponding to different disciplines, grouped into three tracks as mentioned above. Each Track has a separate **Part A (common to the each track)** and **Part B (specific to the discipline)**. The examination will contain at least 50% marks allotted to "Research Methodology" and 50% marks allotted to "Subject Domain". There will be NO NEGATIVE MARKING for wrong answers. **PART A:** This will have 15 questions each of two marks to test the candidate's elementary knowledge of basic concepts in the discipline. All questions are to be answered. **PART B:** There will be 35 subject specific questions in each of the sections and candidates are expected to answer all. Each correct answer will be awarded two marks. **Research Methodology** Introduction to Research: Importance, study of literature, defining research problem, hypothesis formulation, experimental design; Data Collection and Measurement: Methods and techniques, probability and probability distributions, sampling and sampling designs; Data Analysis: Testing of hypothesis, statistical tests and analysis, data interpretation, multivariate analysis, model building, forecasting methods; Report writing and Presentation: Ethics in research, Plagiarism, substance of reports, formats, referencing, oral presentation skills; General practices followed in Research – literature and data management, Safety practices in the laboratory, Intellectual property rights (IPR) The above topics are common to all the disciplines listed below. Please note that in addition to the above topics, each discipline will have subject specific questions related to research methodology **Physics** Mathematical Physics: Linear vector space; matrices; vector calculus; linear differential equations; elements of complex analysis; Laplace transforms, Fourier analysis, elementary ideas about tensors. Classical Mechanics: Conservation laws; central forces, Kepler problem and planetary motion; collisions and scattering in laboratory and centre of mass frames; mechanics of system of particles; rigid body dynamics; moment of inertia tensor; noninertial frames and pseudo forces; variational principle; Lagrange's and Hamilton's formalisms; equation of motion, cyclic coordinates, Poisson bracket; periodic motion, small oscillations, normal modes; special theory of relativity – Lorentz transformations, relativistic kinematics, mass- energy equivalence. Electromagnetic Theory: Solution of electrostatic and magnetostatic problems including boundary value problems; dielectrics and conductors; Biot-Savart's and Ampere's laws; Faraday's law; Maxwell's equations; scalar and vector potentials; Coulomb and Lorentz gauges; Electromagnetic waves and their reflection, refraction, interference, diffraction and polarization. Poynting vector, Poynting theorem, energy and momentum of electromagnetic waves; radiation from a moving charge.

			Quantum Mechanics: Physical basis of quantum mechanics; uncertainty principle; Schrodinger equation; one, two and three dimensional potential problems; particle in a box, harmonic oscillator, hydrogen atom; linear vectors and operators in Hilbert space; angular momentum and spin; addition of angular momenta; time independent perturbation theory; elementary scattering theory. Thermodynamics and Statistical Physics: Laws of thermodynamics; macrostates and microstates; phase space; probability ensembles; partition function, free energy, calculation of thermodynamic quantities; classical and quantum statistics; degenerate Fermi gas; black body radiation and Planck's distribution law; Bose-Einstein condensation; first and second order phase transitions, critical point. Atomic and Molecular Physics: Spectra of one- and many-electron atoms; LS and jj coupling; hyperfine structure; Zeeman and Stark effects; electric dipole transitions and selection rules; X-ray spectra; rotational and vibrational spectra of diatomic molecules; electronic transition in diatomic molecules, Franck- Condon principle; Raman effect; NMR and ESR; lasers. **Chemistry** Properties of gases, Thermodynamics (1st law, 2nd law, chemical equilibrium etc.), chemical bonding , Atomic and molecular structure, kinetic theory, basic quantum mechanics, basic statistical mechanics, spectroscopy Oxidation states and oxidation number Acids and bases Stereo-chemistry Chemical, kinetics Electrochemistry, General organic chemistry **Mathematics** **Hydrodynamics:** Classification of fluids, the continuum model, Lagrangian and Eulerian approach of description. Lagrangian and Eulerian methods. Equation of continuity. Boundary surface. Stream lines. Path lines and streak lines. Velocity potential. Irrotational and rotational motions. Vortex lines, vorticity vector, equi-potential surface streamlines, pathlines, Mass flux density, conservation of mass leading to equation of continuity, conservation of momentum and its mathematical formulation, Lagrange's and Euler's equations of motion, Bernoulli's theorem, Equation of motion by flux method. Equations referred to moving axes Impulsive actions, Stream function. Viscous flow, stress and strain analysis, stokes hypothesis, The Navier-stokes equation of motion, Poiseuille flow. **Advanced Differential Equations:** Existence and uniqueness theorem, Sturm comparision and separation theorem, homogeneous linear system, Nonhomogeneous linear system, linear system with constant coefficient. Two point boundary value problems, Green function, Construction of green fuvction, Sturm-Lioville system, Non-linear Differential Equation, Solution of PDE's by method of integral transform (Laplace and Fourier), Boundary value problem, Maxima and minimum principles, Uniqueness and continuity Theorem. **Special Function:** Calculus of Variation-Functional and its properties, Variational problems with fixed boundaries, Legendre polynomial and functions, Christoffel's summation formula, Bessels Function, Modified Bessel's function, Bessel's equations. Hermite polynomials, Laguerre polynomials. **Linear Algebra:** Vector spaces, Sub spaces, linearly dependent & linearly independent vectors, Basis, Dimension, linear transformation, Matrix representation of a linear transformation, Rank & Nullity theorem. Finite dimensional vector spaces, Existence theorem for basis, Quotient space and its dimension. Rank of a matrix, Eigen values & Eigen vectors. Change of basis, Canonical forms, Diagonal forms, Triangular forms, Jordan forms, Quadratic forms, reduction and classification of quadratic forms, Orthogonal transformations, Unitary transformations, Positive semi definite matrices, Semi definite matrices. **Operational Research and Networking:** Introduction to Linear Programming. Problem formulations. Linear independence and dependence of vectors. Convex sets. Extreme points. Hyperplanes and Half spaces. Directions of a convex set. Convex cones. Polyhedral sets and cones. Theory of Simplex Method. Simplex Algorithm. Transportation problem. Assignment problem. **Graph Theory and Petri nets:** Selected topics in a graph theory: basic definitions and notions, characterization of trees, vector vacuum of a graph, planarity of graphs, Hamiltonian and Eulerian cycles. Edge – and vertex colourings of graphs: chromatic number, chromatic index, map colour theorem, four – colour problem. Independence theory in combinatory. Directed digraphs. Flow networks. Applications. Petri nets and their types. **Probability and Statistics:** Measures of central tendency and dispersion, Skewness and kurtosis, Probability, Conditional probability, Theorem of total probabilities, Bayes theorem, Random variables, Probability mass and density functions, Mathematical expectation and its properties, Moment generating functions, Binomial, Poisson, Geometric, Exponential and Normal distributions and their properties, Method of least squares, Correlation and regression. **Life Sciences** DNA replication, repair and recombination; Chromatin Structure; Concept of gene; polyploidy; RNA synthesis and processing; Alternative Splicing; Protein synthesis and processing; gene

			expression; prokaryotic and eukaryotic gene regulation Recombinant DNA technology; Gene Cloning, Vectors and Restriction enzymes; Polymerase Chain Reaction; Quantitative and semi-quantitative Reverse transcriptase PCR; DNA sequencing technologies; Next generation sequencing; genome sequencing and annotation methods; gene ontology. Genome Structure and Organization; repetitive content; Sequence similarity/Alignment and Clustering methods/Algorithms; phylogenetics; research methodology; Basic Programming skills/Bioinformatics; Methods and Algorithms for biological data analysis; Database resources and tools/methods for functional and comparative genomic studies. Basic concepts of Immunology, immunity, immunoglobuline, B cell, Tcell functions etc. Basic concepts of development; plant growth and development; plant reproduction; plant hormones; stress physiology and response; Metabolism and pathways Microbial, animal and plant genetics; Molecular markers; DNA polymorphisms and their applications; transgenic animals and plants; plant tissue culture and biotechnology; epigenetics-DNA methylation and histone modifications Basic Biotechniques; Gel electrophoresis, Blotting, Hybridization, Gene cloning, PCR, Restriction digestion, Immunoprecipitation, chromatography, microarray, ELISA, PCR etc. **Bioinformatics** **Sequence alignments algorithms**: Scoring matrices and scoring functions – pairwise alignment local and Global **Multiple sequence alignment**: Algorithms and Application Database search using BLAST. The BLAST algorithm. BLAST scoring and statistics. Application and parsing BLAST reports. **Statistics and search methods** for Sequence patterns, profiles, motifs etc – MEME, Weight matrix, Profile, sequence Logo. **Gene Identification problem** : Codon usage, fourier and markov models Overview of **advanced concepts in sequence analysis**: Information theory, machine learning and probabilistic modeling **Phylogenetic analysis**: Concept of distance – Distance, parsimony and likelihood methods **Computational Genomics**: Next Generation Sequencing- concept and methods; Genome sequencing and assembly; Read Alignment algorithms; Genome Annotation (structural and functional); protein and pathway mapping. Comparative Genomics. RNA sequencing; Methods for Abundance Estimation and Differential Expression Analysis. **Structural Bioinformatics and Cheminformatics**: Resources for protein and chemical structures. Common tools for visualising protein structure. Methods for simulation of biomolecules. Docking and Virtual Screening. QSAR. **Engineering Sciences** Questions will be set at the B.Tech and M.Tech. level. Special focus will be on the following topics: **Electronics and Communication Engineering** **Networks, Signals and Systems:** Network solution methods: nodal and mesh analysis; Network theorems: superposition, Thevenin and Norton's, maximum power transfer; Steady state sinusoidal analysis using phasors; Time domain analysis of simple linear circuits, Laplace transform, Linear 2-port network parameters: driving point and transfer functions. Continuous-time signals: Fourier series and Fourier transform representations, sampling theorem and applications; Discrete-time signals, Z-transform, LTI systems: definition and properties, causality, stability, impulse response, convolution, poles and zeros, parallel and cascade structure. **Electronic Devices :** Energy bands in intrinsic and extrinsic silicon; Carrier transport: diffusion current, drift current, mobility and resistivity; Generation and recombination of carriers; Poisson and continuity equations; P-N junction, Zener diode, BJT, MOS capacitor, MOSFET, LED, photo diode, Integrated circuit fabrication process: oxidation, diffusion, ion implantation, photolithography. **Analog Circuits**: BJTs and MOSFETs; Simple diode circuits: clipping, clamping and rectifiers; Single-stage BJT and MOSFET amplifiers: biasing, bias stability, BJT and MOSFET amplifiers: multi-stage, differential, feedback, power and operational; Simple op-amp circuits; Active filters; Sinusoidal oscillators: criterion for oscillation, single-transistor and opamp configurations; Function generators, wave-shaping circuits and 555 timers. **Digital Circuits**: Number systems; Combinatorial circuits: Boolean algebra, minimization of functions using Boolean identities and Karnaugh map, logic gates, arithmetic circuits, code converters, multiplexers, decoders, Sequential circuits: latches and flip-flops, counters, shift-registers, Data converters: sample and hold circuits, ADCs and DACs; Semiconductor memories: ROM, SRAM, DRAM; 8-bit microprocessor (8085): architecture, programming,

			memory and I/O interfacing. **Communications** Analog communications: amplitude modulation and demodulation, angle modulation and demodulation, spectra of AM and FM, superheterodyne receivers, Information theory: entropy, mutual information and channel capacity theorem ; Digital communications: PCM, DPCM, digital modulation schemes, amplitude, phase and frequency shift keying (ASK, PSK, FSK), QAM, calculation of bandwidth, SNR and BER for digital modulation; Fundamentals of error correction, Hamming codes; Timing and frequency synchronization, inter- symbol interference and its mitigation; Basics of TDMA, FDMA and CDMA. **Satellite communication:** Introduction, need, satellite orbits, advantages and disadvantages of geostationary satellites. Satellite visibility, satellite system – space segment, block diagrams of satellite sub systems, up link, down link, cross link, transponders (C- Band) **Local area networks (LAN):** Primary characteristics of Ethernet-mobile IP, OSI model, wireless LAN requirements-concept of Bluetooth, Wi-Fi and WiMAX. **Electromagnetics** Electrostatics; Maxwell's equations: differential and integral forms and their interpretation, boundary conditions, wave equation, Poynting vector; Plane waves and properties: reflection and refraction, polarization, phase and group velocity, propagation through various media, skin depth; Transmission lines: equations, characteristic impedance, impedance matching, impedance transformation, S-parameters, Smith chart; Waveguides: modes, boundary conditions, cut-off frequencies, dispersion relations; Antennas: antenna types, radiation pattern, gain and directivity, return loss, antenna arrays; Basics of radar; Light propagation in optical fibers. **Microwave and Antennas** Introduction & Wave Propagation Review of Maxwell's equations, Integral and Point forms; Boundary conditions; Power flow and Poynting vector; Propagation of uniform plane waves, Wave equation; Polarization. Scalar and Vector Potential functions, Retarded Potentials; Radiation phenomenon and equation, Basic antenna parameters: radiation resistance, Gain, directivity, Effective length, Radiation pattern;Radiation from short current element, Radiation from small current loop, radiation from arbitrary current distribution, half wave dipole antenna;Antenna impedance, Monopole antenna, Baluns, Antenna array: Broadside array and end-fire arrays, long wire antenna;Few antenna types: Folded dipole, Loop antenna, Yagi-Uda Antenna; Wave propagation, Travelling waves, Lossless and Lossy transmission lines, pulse propagation;Principle, construction and working of Microwave solid state devices: Transferred Electron devices: Gunn Diode (Gunn Effect), IMPATT diode, PIN diode Attenuators, Terminators, Directional couplers; Hybrid Circuits Attenuators, Terminators, Directional couplers; Hybrid Circuits **Computer Sciences** Questions will be set at the B.Tech/M.Tech Level. Special Focus will be on the following topics **Computer Organization and Architecture** Machine instructions and addressing modes. ALU, data-path and control unit. Instruction pipelining. Memory hierarchy: cache, main memory and secondary storage; I/O interface (interrupt and DMA mode). **Programming and Data Structures** Programming in C. Recursion. Arrays, stacks, queues, linked lists, trees, binary search trees, binary heaps, graphs. **Algorithms** Searching, sorting, hashing. Asymptotic worst case time and space complexity. Algorithm design techniques: greedy, dynamic programming and divide-and-conquer. Graph search, minimum spanning trees, shortest paths. **Theory of Computation** Regular expressions and finite automata. Context-free grammars and push- down automata. Regular and contex-free languages, pumping lemma. Turing machines and undecidability. **Compiler Design** Lexical analysis, parsing, syntax-directed translation. Runtime environments. Intermediate code generation. **Operating System** Processes, threads, inter-process communication, concurrency and synchronization. Deadlock. CPU scheduling. Memory management and virtual memory. File systems. **Databases** ER model. Relational model: relational algebra, tuple calculus, SQL. Integrity constraints, normal forms. File organization, indexing (e.g., B and B+ trees). Transactions and concurrency control. **Computer Networks** Concept of layering. LAN technologies (Ethernet). Flow and error control techniques, switching. IPv4/IPv6, routers and routing algorithms (distance vector, link state). TCP/UDP and sockets, congestion control. Application layer protocols (DNS, SMTP, POP, FTP, HTTP). Basics of Wi-Fi. Network security: authentication, basics of public key and private key cryptography, digital signatures and certificates, firewalls.

9. SCHOOL OF ARTS & AESTHETICS

The pattern of JNUEE 2019-20 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Master of Arts

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of Arts & Aesthetics (SA&A)	Arts & Aesthetics-SAAM (235)	Note: Candidates attempting the entrance exam of the integrated MA should have a broad sense of the areas listed under all the three streams of the School – Visual Studies, Cinema Studies and Theatre and Performance Studies. Questions set by the School typically ask questions that assess the candidate's ability to reflect upon and critically engage with themes and issues related to art. **Visual Studies** Broad knowledge of the history of world art in general, and of art in South Asia, from Indus Valley Civilization till the present, in particular. Candidates should have an understanding of formal, stylistic and iconographic aspects of South Asian art and be able to place them in their literary, cultural, historical, religious and liturgical context. In addition, a broad knowledge of the history of Western Art, from the Renaissance to the present day, and of the history of Asian art, including Far Eastern and Islamic art, are valuable. An awareness of current debates and new developments around art, heritage, museums and exhibitions is important, with an emphasis on the ability to critically engage with issues and themes related to art. **Cinema Studies** Broad knowledge of World Cinema, Film Movements, and Film/Media Practitioners. There should be awareness of cinema/ media's status as an aesthetic practice, a mass cultural form, and an instigator of public debates. Candidates should display their knowledge of the public presence of cinema/media and the way certain film practices get linked to political controversies, festival bans, censorship debates, and vandalism at exhibition venues. Some knowledge of the role of film criticism and writing about cinema in the popular press will be helpful. **Theatre and Performance Studies** Broad knowledge of the history of theatre and dance including classical Greek theatre, Elizabethan theatre, classical Indian theatre, music, dance and performance cultures, *bhakti* performance traditions in India, modern theatre and contemporary performance practices. Some familiarity with dance in the larger context of Indian dance history, relationship of dance and society. Likewise, an engagement with musical traditions, both classical and popular. Some awareness of basic concepts like *rasa* and catharsis, the dynamics of body, space and time in different theatrical and dance traditions, the role of the actor/performer and spectator. Basic knowledge of the theoretical writings of Bharata, Bhatkhande, Kapila Vatsyayan, Susan Foster, Stanislavski, Brecht, Augusto Boal, Badal Sircar. An ability to see performances critically with an awareness of their social and political contexts. Emphasis on the capacity to describe the performances of everyday life, including festivals, rituals and ceremonies experienced at a local level within specific regional contexts.

M.Phil & Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of Arts & Aesthetics (SA&A)	**M.Phil** : Visual Studies – VSAP (163) **Ph.D. :** Visual Studies – VSAH (900)	**Visual Studies M.phil Entrance Exam Guidelines** Note: The M.Phil programme is suited for students who come from a background in Visual Studies/ Art History and related disciplines. Candidates are expected to already be familiar with the discipline of art history and its theoretical concerns in general and with the development of Indian art and architecture in particular. To appear for the M.Phil entrance exam, prospective candidates should have a broad understanding of the intellectual history of the discipline and key philosophical concerns of image theories. They should be familiar with the topics listed below which are areas covered by Masters-level programmes. Questions set by the School are designed to assess the candidate's ability to reflect upon and critically engage with themes and issues related to art and visual culture. Candidates appearing for the entrance examination should be familiar with the following: Contribution of theorists whose work has shaped/ impacted art historical, critical and anthropological discourse on the visual arts and visual culture. Research Methodology and Historiography of the discipline: art criticism and art history writing and archival structures as subjects of inquiry and meta-critical practices. Artworks as modes of symbolic communication and methodologies of decipherment of visual codes and visual language systems. Methodological approaches to interpreting the visual: iconography, semiotics, formalism, cultural materialism, psychoanalysis, narratology, phenomenology, affect theory, theories of gender, feminist and post-colonial critiques. The entanglements of ethno-nationalism and art history The interrelationship of textual and visual traditions in Indian art. The social and political and conditions that govern the agency of art and artists and impact visual representations. The relationship between political, economic and liturgical institutions and monumental built forms. Current debates about the agency and representation of caste, class and gender in pre-modern arts. Capitalism, individualism and the relationship with artistic authorship. Debates around authorship in Indian art. Concepts of space and place in architecture and spatiotemporal understanding of built form including relationships between architecture and ritual performance. The network of institutional agencies in which art works are embedded. Institutional critique and its own institutionalization. Iconophilia, iconopraxis and iconoclasm. Sectarian competetiveness and the "clash of icons." Technologies of art-making, intentionalities of choice and theoretical understanding of creative labour. Interactivity, community art and relational aesthetics in contemporary visual culture. The construction of heritage vis a vis national and global frameworks. Photography theory, digital convergence and "remediation". **Visual Studies Ph.D. Entrance Exam Guidelines** Applicants to the PhD programme in Visual Studies are expected to have a background in Art History/Visual Studies or have a demonstrable research aptitude in the subject. Students appearing for the PhD entrance exam for the Visual Studies stream should have knowledge of the intellectual concerns and issues linked to the discipline as in the PhD syllabus listed above. In addition, Questions set by the School are designed to assess the candidate's ability research aptitude and knowledge of research methodologies to be applied in their chosen area of research.

2		**M.Phil :** Theatre & Performance Studies- TPSP (164) **Ph.D. :** Theatre & Performance Studies- TPSH (901)	**Theatre and Performance Studies MPhil Entrance Exam Guidelines** Note: Theatre and Performance Studies covers a wide range of subjects, including the history of theatre, dance and music with a particular focus on the study of embodied performance. Students appearing for the M.Phil entrance exam for the Theatre and Performance Studies stream should have some broad knowledge of the intellectual concerns and issues linked to the discipline. They should be familiar with the topics listed below which are areas covered by Masters level programmes. Questions set by the School are designed to assess the candidate's ability to reflect upon and critically engage with themes and issues related to theatre and performance. Candidates appearing for the entrance examination should be familiar with the following: Concepts related to performance and aesthetics, such as *rasa*, *dhvani,* catharsis, tragedy, alienation, corporeality, embodiment, liminality, efficacy; Basic knowledge and understanding of the discourse around primary texts such as *Natyasastra*, *Dhvanyaloka, Abhinaya Darpana* and *The Poetics*; Institutions of performance such as National School of Drama, Sangeet Natak Akademi, Ninasam, Kalakshetra, Kalamandalam; *Sufi* and *bhakti* performing arts traditions; Regional culture and performance practices (theatre, dance, music, puppetry and others) in India; Histories and theories of political theatre; Histories of Indian musical traditions; Histories of traditions and transitions in dance; Feminism, gender and performance; Comic traditions in performance; Nation, nationalism and performance; Post-colonial performances; Debates in modern Indian theatre, music and dance. Applied theatre and performance; Street theatre; Globalisation and performance; Performance art Discourses, theories and research methodologies around the emergence of disciplines of theatre and performance studies, dance studies, music studies; **Theatre and Performance Studies Ph.D. Entrance Exam Guidelines** Applicants to the PhD programme in Theatre and Performance Studies are expected to have a background in Theatre Studies, Performance Studies, Musicology or Dance Studies or have a demonstrable research aptitude in the subject. Students appearing for the PhD entrance exam for the Theatre and Performance Studies stream should have knowledge of the intellectual concerns and issues linked to the discipline as in the PhD syllabus listed above. In addition, Questions set by the School are designed to assess the candidate's ability research aptitude and knowledge of research methodologies to be applied in their chosen area of research.
3		**M.Phil :** Cinema Studies- CNSP (165) **Ph.D. :** Cinema Studies - CNSH (902)	**Cinema Studies M.Phil Entrance Exam** Note: This M.Phil programme draws students either from a background in Cinema/Film Studies or from other disciplines with an interest in the subject. Students appearing for the M.Phil entrance exam for the Cinema Studies stream should have some broad knowledge of the intellectual concerns and issues linked to the discipline. They should be familiar with the topics listed below which are areas covered by Masters level programmes. Questions set by the School are designed to assess the candidate's ability to reflect upon and critically engage with themes and issues related to cinema including: Indian Cinema History Globalization and Indian Cinema National Cinema Debates Issues and Debates in Research Methodology Media and Cultural Studies

			Sound and Colour in the History of Cinema Authorship Debates Theories of Genre Film Stardom and Celebrity Culture Early Debates and Discourses on Film Modernism, Mass Culture and Cinema Theories of the Cinematic Avant Garde The Cinematic Apparatus Cinema and the Postmodern Television and Video Theory The Post Cinematic and Post Celluloid Debates Media Sensorium and Media Archaeology Debates Embodiment and Affect in Film/Media The Cultural Politics of Speed, Surveillance and Forensics in Cinema/Media The Archive Effect and Memory Digital Culture and the Internet **Cinema Studies Ph.D. Entrance Exam Guidelines** Applicants to the PhD programme in Cinema Studies are expected to have a background in Cinema/Film Studies or have a demonstrable research aptitude in the subject. Students appearing for the PhD entrance exam for the Cinema Studies stream should have knowledge of the intellectual concerns and issues linked to the discipline as in the M.Phil syllabus listed above. In addition, Questions set by the School are designed to assess the candidate's ability research aptitude and knowledge of research methodologies to be applied in their chosen area of research.

10. SCHOOL OF BIOTECHNOLOGY

The pattern of JNUEE 2019-20 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

Ph.D.

The entrance exam test would be prepared as per UGC Regulations 2016

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of Biotechnology	Biotechnology – SBTH (904)	***Syllabus for Ph.D. Entrance Examination (Biotechnology)*** ***Chemistry*** ***Chemical periodicity, Structure and bonding, Concepts of acids and bases, Properties and functions of metals and non-metals, Transition elements and coordination compounds, Characterisation of inorganic compounds, Analytical chemistry, Nuclear chemistry, Polymer chemistry,Molecular spectroscopy, Chemical thermodynamics, Electrochemistry, Chemical kinetics, Colloids and surfaces, numerical problems related to mole concept, pH, dissociation constants, emf, rate constant etc.*** ***IUPAC nomenclature of organic molecules, isomerism, Principles of stereochemistry, Aromaticity, Organic reactive intermediates, Organic reaction mechanism, Common named reactions and rearrangements, Organic transformations and reagents: Functional group interconversion, Asymmetric synthesis, common heterocyclic compounds containing one ortwo heteroatoms (O, N, S),Chemistry of natural products: (Carbohydrates, proteins and peptides, fatty acids, nucleic acids etc.),Structure determination of organic compounds.*** ***Physics and Mathematics*** ***Class XIIth Syllabus (As per CBSE)*** ***Biochemistry*** ***Biomolecules*** ***Amino Acids, Peptides and Proteins*** ***Nucleic Acids , Carbohydrates and Lipids*** ***Enzyme Kinetics and Inhibition*** ***Introduction about enzymes, classification, activity, cofactors*** ***Chemical Kinetics*** ***Regulation of enzyme activity by various factors such as pH, temperature etc.*** ***Enzyme Inhibition-various types with examples*** ***Kinetics of enzyme inhibition*** ***Enzyme activity and purification-sub cellular fractionation and specific activity*** ***Enzymes: Mechanism, Structure and Regulation*** ***Substrate specificity of enzymes*** ***Functional Groups Essential for Catalysis*** ***Reaction Mechanism of Enzyme Active sites*** ***Regulatory Enzymes*** ***Allosteric Enzymes*** ***Covalently modulated regulatory enzymes*** ***Covalent Activation of Zymogens*** ***Isozymes*** ***Introduction to Metabolism*** ***Metabolic Pathways***

			Organic Reaction Mechanisms *Experimental Approaches to the study of Metabolism* *Thermodynamics of Phosphate compounds* *Oxidation-Reduction Reactions* *Carbohydrate Metabolism* *Glycolysis* *Fermentation: The Anaerobic Fate of Pyruvate* *Metabolism of Hexoses Other than Glucose* *Glycogen Breakdown& Synthesis* *Gluconeogenesis* *Pentose Phosphate pathway* *Metabolic Regulation and Control* *Citric Acid Cycle* *Cyclic Overview* *Metabolic Sources of Acetyl Coenzyme A* *Enzymes of the Citric Acid Cycle* *Regulation of the Citric Acid Cycle* *Electron Transport and Oxidative Phosphorylation* *The Mitochondrion* *Electron Transport* *Oxidative Phosphorylation* *Control of ATP Production* *Lipid metabolism* *Lipid Digestion, Absorption and Transport* *Fatty Acid Oxidation& Biosynthesis* *Ketone Bodies* *Regulation of Fatty Acid Metabolism* *Amino Acid Metabolism* *Role of essential amino acids* *Amino Acid Deamination* *The Urea Cycle* *Metabolic Breakdown of Individual Amino Acids* *Amino Acids as Biosynthetic Precursors* *Amino Acids Biosynthesis* *Nitrogen Fixation* *Nucleotide Metabolism* *Synthesis of Purine Ribonucleotides* *Synthesis of Pyrimidine Ribonucleotides* *Formation of Deoxyribonucleotides* *Nucleotide Degradation* *Biosynthesis of Nucleotide Coenzymes* *Glycoproteins & Glycolipids* *Hormones & Vitamins* *Metabolic disorders and diseases* *Integration of Metabolism & Organ Specialization* *Major Pathways and Strategies of Energy Metabolism: A Summary* *Organ Specialization & Metabolic Homeostasis* *Structural Biology and Biophysical Chemistry* *Interactions in Biological Systems* *Intra and inter molecular forces, electrostatic interactions* *and hydrogen bonding interactions* *van der Waals and hydrophobic interactions*

			Disulfide bridges ***Role of water and weak interactions*** ***Structure of Proteins*** ***Conformational properties of polypeptides*** ***Primary and secondary structure (α-helix and β-sheet structures etc.)*** ***Tertiary and quarternary structure*** ***Structural features of membrane proteins*** ***Secondary and tertiary structure prediction of protein conformation*** ***Multiple equilibrium*** ***Titrations of proteins to evaluate net and total charge*** ***Scatchard and Hill plots*** ***Folding-unfolding equilibrium and denaturation of proteins*** ***Effect of temperature and solvent conditions on the thermodynamics of protein folding-unfolding equilibrium*** ***Kinetics of protein folding*** ***Techniques for the study of Macromolecular structure*** ***Analytical Ultracentrifugation: Sedimentation velocity and equilibrium, determination of molecular weights*** ***Microcalorimetry (DSC and ITC) and its applications*** ***Circular Dichroism spectroscopy*** ***UV, Visible and Fluorescence spectroscopy*** ***X-ray diffraction*** ***Nuclear Magnetic Resonance (NMR)*** ***Mass Spectrometry*** ***Microbiology*** ***Bacterial diversity*** ***How to classify bacteria*** ***Chemical/Biochemical reactions*** ***Nutrient preference and other biochemical properties*** ***16S rRNA based classification*** ***Three domain classification of microorganisms*** ***Microbial ecology*** ***Carbon and Nitrogen cycles*** ***Phosphorus and Sulfur cycles*** ***Manganese and Mercury cycles*** ***Interaction between elemental cycles*** ***Biogeochemical cycles in relation to climate change*** ***Diversity of bacterial flora in humans*** ***Diversity of microorganisms associated with different anatomical aras in humans*** ***Alterations in microbiome diversity with disease*** ***Structure and Function of the Prokaryotic cell*** ***Peptidoglycan structure and biosynthesis*** ***Cell surface proteins and their role in bacterial pathogensis*** ***Structure and biosynthesis of cell surface organelles*** ***Chaperone – Usher pili in Gram negative bacteria*** ***Covalent anchorage of cell-surface proteins in gram positive bacteria*** ***Ultrastructure and assembly of motility structures: Type IV pili and bacterial flagellum*** ***Atomic structure of the bacterial ribosome*** ***Bacterial Host-Parasite relationships*** ***Mechanism of bacterial pathogenesis*** ***Bacterial structure in relation to pathogenicity*** ***Bacterial protein toxins/endotoxins*** ***Antimicrobial agents used in the treatment of infectious disease*** ***Mechanism of antibiotic action*** ***Antibiotic resistance*** ***Virology*** ***Basic concepts of virus structure*** ***Helical, Icosahedral and Complex structures*** ***Viral genome replication*** ***Viral entry to exit from the infected cells with reference to VSV, adenovirus and***

			retrovirus ***Cellular defences against virus infections*** ***Strategies devised by viruses to escape the innate and adaptive immune responses*** ***Antiviral chemotherapy*** ***Antiviral drugs targeting attachment to release of virus particles and their mechanism of action*** ***Modern approaches of virus control*** ***Antisense RNA,siRNA,ribozymes, miRNA*** ***Introduction to feukaryotic viral vectors*** ***Industrial Microbiology*** ***Isolation and Presentation of Microorganism*** ***Improvement of strains*** ***Primary metabolism*** ***Secondary Metabolism*** ***Recombinant proteins*** ***Sterilization*** ***Media Design*** ***Scale up principles*** ***Prokaryotic Molecular Biology*** ***Brief introduction to molecular biology & processes. Denaturation and renaturation of DNA. Tm. GC content from Tm. Renaturation kinetics of DNA and complexity of DNA. Cot curves. DNA-DNA hybridization-relatedness of difference genes and species.*** ***Bacterial Genome organization:*** ***Evolution of genome, Genome content, C-value paradox, Packing ratio, density of genome. Bacterial genome. Short and long range organization, Proteins associated with bacterial genome and their function.*** ***Bacteriophages: Genome and infection and Biology*** ***Bacteriophage T4: Unique properties of genome, Presence of modified bases. Terminal redundancy and Circular permutation. Genetic map of T4 is circular. T4 life Cycle. Transcription: Temporal expression of genes. Replication: Degradation of host genome and generation of modified cytosine for its own perpetuation in T even phages. Assembly of Phage particles. T4 DNA polymerase and regulation of transcription Bacteriophage T7: Gene organization and Infection Controlled Injection of DNA. Transcriptional regulation. Classes of genes. Taking over the cells and production of T7 Polymerase. Differential Affinity with Class II and III promoters. Bacteriophage ϕX174: Genome. Circularity of genome. Infection and Growth. Conversion of single stranded circular DNA viruses into double stranded RF form. Synthesis of viral plus strand from RF DNA. Packaging of genome in phage head. Transcriptional regulation, Overlapping genes.*** ***Plasmids:*** ***Microscopic and Genetic-F plasmid first plasmid to be detected. Counter - selection, Transfer accompanied by replication, Purification of plasmids. Mobilizable and non-mobilizable plasmids. Incompatibility- reasons of incompatibility. Copy number control. Replication of Plasmids: Use of host and plasmid encoded proteins. Uni- and Bi directional replication, Butterfly mode of replication. Replicon. Control of plasmid replication- Iteron regulated and RNA regulated replication. Antisense RNA for primer RNA and replicase protein. Role of replication on incombatibility in Iteron regulated. Drug-resistance plasmid: R- and RTF determinant. Colicin plasmid: Types of plasmids. Action of colicins. Colicin genes. Immunity and Lysis proteins. Export and Action*** ***Insertion sequences and Transposons*** ***Significance of moving elements of the genome. Bacterial transposable element: General organization of Simple insertion sequence and transposable elements Mechanisms of transposition: Non-Replicative and Replicative transposition, IS transposition a regulated event? Bacteriophage Mu: Replication by transposition.*** ***Replication.*** ***Elucidation of DNA structure and lead to copying mechanism. Models for DNA***

			replication, Meselson and Stahl experiment 1957. Replication of the E. coli genome: John Cairns experiments: Single origin of replication, and bidirectional replication, Ross Inman's experiment- denaturation mapping studies, Mechansims of replication : Theta, rolling circle (sigma), D-loop, Semi discontinuous replication: Pulse chase experiment, Okazaki's experiment on T4 bacteriophage DNA , Use of T4 ligase mutants. Origin of replication– Commonality among E. coli, yeast and SV40 origin of replication ***Enzymes of DNA replication: DNa polymerases: DNA polymerase I not the primary enzyme: Its other role in maintenance of DNA integrity. Processivity,direction of DNA polymerization, fidelity, E. coli DNA polymerase I and its components, Klenow fragment and other domains.*** ***DNA polymerase II and its function in DNA replication and repair DNA polymerase III: subunit structure and function: core and holoenzyme. DNA polymerase IV and V. Stages of DNA replication: Initiation- role of DNA methylases, types of E. coli methylases; elongation and proteins involved in elongation, termination. Priming: Mechanisms of priming. RNA primed DNA synthesis – experimental evidences, E. coli primase, Types of primosomes _ E. coli type and PhiX174 type, PAS sequences, Prepriming proteins Endonucleolytic priming: PhiX 174 gene A protein dual activity. Terminal protein priming. Other proteins of replication. DNA helicase, SSB protein and its effect on replication, DNA ligase, topoisomerases Types I & II, Nick translation.*** ***DNA recombination.*** ***Definition, applications of natural recombination, Classification of recombination, Various possibilities of recombination, Models of homologous recombination, Steps involved in homologous recombination, Recombination events during Single and double strand breaks,Holliday Junction and resolution, Protein machinery of recombination, branch migration and resolution*** ***Mutations and Repair.*** ***Mutants, Mutations and Mutagenesis: definition, reasons, measuring mutagenicity. Classifications of mutations: On the basis of location, structure, function and phenotype. Conditional, spontaneous and induced mutations, Missense, nonsense, frameshift mutations, Reversions. Mutagenic agents_ high energy, chemical and natural, Suppressor tRNA, missense repressors, frameshift suppressors*** ***Repair: DNA repair: Mismatch repair, Base excision repair, nucleotide excision repair, direct repair, enzyme of repair, Error prone repair, SOS response*** ***Transcription*** ***Flow of information from DNA to protein. Organization of genes in bacteria. Colinearity of genes and proteins. Operon concept. Process of transcription: RNA polymerase subunit structure and function role of sigma factor in differential expression of genes in bacteria. Transcription units and Cis elements. Promoter: Consensus sequences affecting the promoter function. Constitutive and inducible promoters. Operator sequences as regulatory cis sequences. Initiation : Interaction of polymerase with the promoter and control at initiation. Attenuation. Elongation. Termination : Rho dependent and Rho independent termination. Control at termination : Attenuation. Antitermination. Processing of primary transcripts in prokarytoes :*** ***Processing of tRNA and rRNA. Cleavage of T7 early mRNAs by RNase III. Control at the processing level. Regulation of transcription in bacteria : Introduction and repression. Represser as a regulatory molecule. Coordinated control of gene clusters. Positive and negative regulation : Regulation of transcription of lac, trp, ara, his, and gal operons. Regulation through catabolite repression. CAP protein as a positive control factor.*** ***Transcriptional regulation in bacteriopohage Lambda: Lytic and Lysogenic switch. role of various regulatory proteins.*** ***Translation*** ***Genetic code. Origin of genetic code. Essential components of translation. Ribosome***

			: the site for translation, subunit composition and assembly. Role of ribosomal RNA in translation. tRNA : Salient features of tRNA. Aminoacyl tRNA synthetases. Difference between initiator fmet-tRNA and met-tRNA, Suppressor tRNAs, frameshift suppression. Codon-Anticodon recognition : Wobble hypothesis.Process of translation: Activation, Initiation, elongation translocation and termination. Factors involved in various steps.Peptidyltransferases. Co-translational and Post - translational mechanisms. Control of gene expression at translational level. ***Eukoryotic Molecular biology & Molecular Genetics*** *Introduction to Eukoryotic Molecular Biology: How to read a paper. The evolution of a Cell with Nucleus,. Hypothesis vs speculation in science,, Rationalization of hypothesis, Experimental tools, Eukaryotic genome, gene expression and cell fate.* *Dynamic genome – 3 D cell, dynamic genome architecture in nuclear space, chromatin movement, microscopes , mictrorrays and chromosome capture assays chromatin mobility and principle of nuclear organization, Nuclear architecture and gene-gene interaction, gene kissing, transcription factories, structural constraints on chromatin mobility* *Nuclear Matrix and gene regulation: Nuclear matrix, nuclear matrix proteins, nuclear-matrims, structure and function, DNA Binding Properties of the Nuclear Matrix and Individual Matrix Prose.* *Ins, Association of chromosome territories with the nuclear matrix: Disruption of human chromosome territories correlates with the release of a subset of nuclear matrix proteins, nuclear matrix targeting, signal, higher order chromatin structure and unclear matrix, transcriptional repression and nuclear lamina nuclear matrix and expression of globin gene* *Principle of eukaryotic Gene regulation: gene regulating sequences, promoter, enhancers, regulatory elements, locus control region, gene activation and gene repression, transcription activators and repressors, TBP,GTFs, TBP associated factors (TAFs),RNA polymerases I,II,III, structure and function, mediators, general transcription factors, classes of transcription factors, structure and function, DNA-protein recognition in genome, Transcriptional regulatory networking, gene expression and Cancer progression* *Programmed cell death- Apoptotic and necrotic cell death, apoptotic and anti-apoptotic genes, tumore suppressor genes, cell fate through decision between cell cycle arrest and apoptosis* *Gene regulation and disease: order vs disorder in transcriptional regulation, network disfunction and disease, transcriptional therapeutics in diseases control.* ***Cell Biology*** *Composition and organization of biological membranes:* *Membrane lipids: Properties and how they affect the curvature and fluidity of the membrane lipid rafts: composition, a platform for organization of signaling complexes* *Membrane proteins: Properties and orientation in biological membranes* *Membrane asymmetry* *Practice questions and discussion* *Cellular transport mechanisms* *Principles of transport of small molecules across membrane: organization and functioning of carriers and channels, membrane excitability* *Practice questions and discussion* *Protein transport across membranes:* *Transport across nuclear pore* *Transport across ER and from ER to other organelles by vesicular transport* *Post-translational modifications of proteins and their role in protein transport* *Endocytosis, phagocytosis, exocytosis* *Practice questions and discussion*

			Cell cycle ***Components of cell cycle regulatory mechanisms: Cyclin-CDK complexes, CKIs and ubiquitin ligases in cell cycle regulation*** ***Cell Cycle control mechanisms: Checkpoints, Regulation and maintenance of G1, control of genome replication, DNA damage and cell cycle regulation*** ***Cell cycle defects and cancer*** ***Practice questions and discussion*** ***Cell Signalling*** ***Molecular Cell Biology of Cell Surface Receptors: molecular pharmacology, regulation and signaling of G-protein-coupled receptors and tyrosine kinase-linked receptors.*** ***Proteolysis based signaling (Wnt, Notch, Hedgehog): Structural and functional basis for normal and abnormal signaling*** ***Cross-Talk Between Different Intracellular Pathways: Interactions between GPCRs and tyrosine kinase receptors; cross-cascade signaling of proteins involved in gene transcription. (Example: Cross talk between pattern-recognition receptors and Toll-like receptors.*** ***Molecular biology of ionic signaling: Calcium signaling in excitation-contraction coupling in cardiomyocytes; Neutrophils and inflammation*** ***Cytoskeleton:*** ***Cytoskeleton networks: actin, Microtubules and intermediate filaments.*** ***Physical and biochemical properties of extracellular matrices: Collagen, Fibronectin (Tensional homeostasis and fibrosis)*** ***Role of cytoskeleton network and extracellular matrix in cell migration, cell polarity, and cancer*** ***Cell junctions:*** ***Type of junctions: tight junction, anchoring junction, and*** ***Communicating junction*** ***Composition and function of junctions*** ***Cell junctions: tissue development, and disease*** ***Analytical Techniques*** ***Concept of pH buffer and solutions*** ***Electrophoresis techniques*** ***Chromatography techniques*** ***Protein and DNA estimation*** ***Sequencing of proteins and DNA*** ***Spectroscopic techniques (UV – Visible, IR fluorescence, CD, NMR and Mass Spectrometry)*** ***GENETIC ENGINEERING AND ITS APPLICATIONS*** ***Introduction to genetic engineering, general work flow, potentials and its limitations.*** ***Host, vector and steps in cloning. Cloning of cDNA, and construction of cDNA library.*** ***Analysis of a cloned DNA fragment using restriction digestion and DNA sequencing.*** ***Concept, strategies, general workflow and variant of the PCR.*** ***The use of PCR in gene recombination, deletion, insertion and site directed mutagenesis.*** ***PCR in molecular diagnostics: Defection of the pathogens, and its potentials*** ***PCR based diagnostics of the minimum residual disease (MRD) with case study*** ***Application of real time (RT) PCR in the study of gene expression.*** ***Use of genetic engineering for recombinant protein technology*** ***Expression of foreign gene in E. coli, Baculovirus and Pichia expression systems.*** ***Inclusion bodies formation and strategies for the production of soluble proteins.*** ***Cell synchronization and its importance in the genetic engineering.*** ***Methods of introduction of DNA into mammalian cells.*** ***Transient and stable integration of foreign DNA into mammalian cells.*** ***The viral vectors and their use in gene delivery***

			The Adeno viral vector, unarmed Herpes and vaccinia viral vectors and their importance ***Principles and methods of the gene targeting for model organism.*** ***Strategies for Gene knockouts in animals.*** ***Gene disorder and Gene therapy*** ***The packaging of retroviral vectors and helper cells for gene therapy*** ***Development of animal models for gene therapy.*** ***Detection of mutations in neoplastic diseases*** ***Immuno – Suicide gene therapy in neoplastic diseases.*** ***Somatic and germ line gene therapy in vivo and ex-vivo experiments, Bioethics*** ***Role of integrated OMICS in the genetic engineering*** ***Importance of computational tools and system biology for genetic engineering*** ***Use of genome wide screening in the functional genomics*** ***Recent breakthrough and advances in the genome engineering.*** ***Recent trends and development in the gene therapy.*** ***Plant Genetic Engineering: Introduction to plant tissues culture; Agrobacterium infection biology; Explant selection and regeneration; Plant transformation (Agrobacterium-mediated, Microprojectile bombardment-mediated and Floral-dip method of plant transformation); Transgenic Selection and Regeneration; Discussion.*** ***Applications of plant genetic engineering: Understanding issues encountered in plant biotechnology Germplasm Improvement; Plant and human health; Plant Molecular farming (Bioreactors); Bio-fortification; Discussion. Precise genome engineering.*** ***Immunology*** ***Introduction to the Immune System*** ***Historical background, cellular and molecular components of immune system*** ***Innate Immunity*** ***Innate immune cells, Pathogen associated molecular pattern (PAMP), Pathogen recognition receptors (PRR), Type 1 IFN, Interferon Stimulated Genes (ISGs), Complement system.*** ***The Recognition of Antigen*** ***Structure of a typical antibody molecule, Antigen recognition by T cell and B cells, Generation of lymphocyte antigen receptors, TCR gene rearrangement, Antigen presentation to lymphocytes, MHC/HLA complex.*** ***The Development and Survival of Lymphocyte*** ***The development of T lymphocytes in the thymus, Development of B lymphocytes, Positive and negative selection of T cells, Maturation of lymphocytes in peripheral lymphoid tissue*** ***The Adaptive Immune Response*** ***T cell mediated immunity, Entry of naïve T cells and APCs into peripheral lymphoid organs, Naïve T cells priming by pathogen-activated dendritic cells,T cell-mediated toxicity, Macrophage activation by TH1 cells, humoral immune response, Immunological memory, Cytokines*** ***Immune system in Disease*** ***Self tolerance, autoimmune diseases, transplant rejection, allergy and anaphylactic shock, AIDS immunology*** ***Immune aging*** ***Immunosenescence, Immune-exhaustion during aging and chronic infection, Gut Immunology*** ***NK cells and Diseases*** ***Inhibitory receptors, KIR receptors, CTL responses in cancer, Immunotherapy*** ***Characterization of lymphocytes specificity, frequency and function*** ***Lymphocyte isolation, ELISPOT assay, Multicolor flow cytometry, HLA-tetramer assay***

			Plant Biotechnology ***Prologue to Plant's World*** ***Plant and human society; Growth and development; Plant hormones; Photosynthesis*** ***An Introduction to Plant Genetics*** ***Plant genome organisation; Polyploidy; Genetic diversity; Molecular markers and mapping; Phylogenetics and genomics; Breeding and methods; Discussion; Forward vs. reverse genetics;*** ***Basic Aspects/Techniques of Plant Tissue Culture*** ***Introduction; Totipotency and Regeneration; Nutritional media and growth regulators; Problems in plant tissue culture; Discussion.*** ***Transgenic Crops*** ***Global status of transgenic crops; Traits under development; Case Studies; Challenges; Discussion*** ***Applications*** ***Plant Molecular farming (Bioreactors);Renewable energy crops and biofuels; Bio-fortification for Human Health; Discussion*** ***Safety and Regulations*** ***Understanding issues encountered in plant biotechnology; Risk assessment; Environmental impact and gene flow; Regulation and labelling; Discussion.*** ***Bioinformatics*** ***Biological Databases*** ***Overview of biological databases, types, nucleic acid databases, NCBI: PubMed, Entrez, Blast, OMIM, Taxonomy, Structure, Locuslink. Protein databases - primary, functional, composite, secondary, structural classification database, Sequence formats & storage, Errors in databases, Submissions to databases.*** ***Pairwise and Multiple sequence alignments*** ***Local alignment, Global alignment, Scoring matrices - PAM, BLOSUM, Gaps and penalties, Dot plots. Dynamic programming approach: Needleman and Wunch Algorithm, Smith and waterman Algorithm, Hidden Markov Model: Viterbi Algorithm. Heuristic approach: BLAST, FASTA.*** ***Genome Analysis*** ***Polymorphisms in DNA sequence, Introduction to Next Generation Sequencing technologies, Whole Genome Assembly and challenges, Sequencing and analysis of large genomes, Gene prediction, Functional annotation, Comparative genomics, Human genome project*** ***Bioprocess Technology*** ***Introduction: A systems approach to Biology*** ***Introduction to material and energy balances*** ***Elemental balances in biological systems: Degrees of reductance*** ***Energy balance in biological systems: Enthalpy efficiencies*** ***Growth kinetics in batch systems*** ***Growth and substrate utilization in continuous systems*** ***Concept of maintenance*** ***Product formation in anaerobic systems*** ***Product formation kinetics*** ***Continuous reactor systems with recycle*** ***Fed batch reactors*** ***Feed design in fed batch reactors and its analysis*** ***Heat transfer in bioreactors*** ***Mass transfer in bioreactors: Concept K_La*** ***K_La estimation methods*** ***Scale up principles*** ***Downstream Processing***

			Thermodynamic requirements of separation . Classification of separation processes – equilibrium and non-equilibrium processes. Chief characteristics of bio-separation processes. RIPP – removal of in-solubles , isolation of products, purification and polishing. ***Cell harvesting – Cell disruption – ball mill, chemical lysis, homogenization, selection of unit operation for insoluble removal . Centrifugation – general theory of centrifugation – final settling velocity, critical particle diameter, sigma factor. Types of centrifuges: tubular bowl, disc stack, basket, Sharples super-centrifuge. Theory of disc-stack centrifuges. Filtration . Types of filtration –rotary vacuum drum, plate and frame , leaf filters. Compressible cakes and filter aids. Theory of filtration .*** ***Product isolation – extraction, principle of extraction, partition coefficient, extraction factor, batch extraction, cascades , idealized stage operation, differential extraction, height of a transfer unit ,number of transfer units ,adsorption, adsorption isotherms ,batch adsorption, adsorption in a CSTR.*** ***Product Purification – Chromatography, yield and purity and resolution*** ***Principles of elution chromatography, ion-exchange, hydrophobic interaction, reverse-phase chromatography, gel-filtration chromatography. The concept of resolution, plate height. Protein purification. Synthesis of chromatography trains.*** ***Membrane filtration: tangential flow filtration , micro-filtration , ultra-filtration , reverse osmosis. Transport equations, gel layer formation, osmotic pressure. Time required for filtration in T.F.F.*** ***Polishing - Crystallization – separation, purity, nucleation, crystal growth, characteristic length, crystal size distribution, dominant crystal length.*** ***Lyophilisation and drying.*** ***Scale –up: Basic ideas of scale –up , Geometric , Kinematic, Dynamic similarity. Why scale up of bioprocesses is difficult? Typical time constants for mixing, kinetic, heat transfer, mass transfer phenomena in bioreactor. Criteria for scale-up P/V, kla , N, rules of thumb .***

11. SCHOOL OF SANSKRIT AND INDIC STUDIES

The pattern of JNUEE 2019-20 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

SYLLABUS

I. REGULAR COURSES

M.A.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of Sanskrit and Indic Studies (SSIS)	Sanskrit – SANM (228)	**Syllabus:** Test may cover the following areas: Vedic & Agamic Studies, Sanskrit language and literature, Indian Philosophical Systems, Sanskrit Poetics and Aesthetics, Sanskrit and Modern Indian Languages, Sanskrit Linguistics including Computational Linguistics, Indian Intellectual and Cultural Traditions, Social thought, Polity, Economy, Architecture, Fine Arts, Environmental Awareness, Sanskrit Grammar, Indian Logic, Astronomy and Mathematics, Science and Technology, Argumentation and Interpretation, and Role and Place of Sanskrit in Indo European Studies.

M.Phil

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of Sanskrit and Indic Studies (SSIS)	Sanskrit – SANP (170)	**Syllabus:** The test will cover the following areas: Indian Philosophical Systems; Traditions of Yoga & Sādhanā, Sanskrit literature and Poetics; Sanskrit Grammar and Grammatical Theory; Modes of Disputation and Interpretation of Texts; Sanskrit Linguistics including Computational Linguistics; Vedic, Agamic and Purãnic Studies; Pali and Prakrit Studies; Indian Social Thought, Religious Studies; Sanskrit Manuscriptology; Issues in Sanskrit Studies and Researches; Research Methodology & Research Aptitude.

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of Sanskrit and Indic Studies (SSIS)	Sanskrit – SANH (906)	**Syllabus:** The test will cover the following areas: Indian Philosophical Systems; Traditions of Yoga & Sādhanā, Sanskrit literature and Poetics; Sanskrit Grammar and Grammatical Theory; Modes of Disputation and Interpretation of Texts; Sanskrit Linguistics including Computational Linguistics; Vedic, Agamic and Purnic Studies; Pali and Prakrit Studies; Indian Social Thought, Religious Studies; Sanskrit Manuscriptology; Issues in Sanskrit Studies and Researches; Research Methodology & Research Aptitude; Traditions of Sciences in India; Philosophy of Ayurveda.

II. Part-time Courses

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	School of Sanskrit and Indic Studies (SSIS)	Pali – PALC (705)	Candidates seeking admission shall be examined on the basis of the Computer Based Test (CBT). The questions shall be objective type and shall be within the broad spectrum of General Knowledge, general aptitude for the subject and English Language.
2		Sanskrit Computational Linguistics – SCLC (706)	
3		COP in Yoga Philosophy – YOPC (707)	
4		COP in Vedic Culture – VECC (708)	
5		COP in Sanskrit – SANC (709)	

12. SPECIAL CENTRE FOR STUDY OF NORTH EAST INDIA

The pattern of JNUEE 2019-20 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

M.Phil.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Special Centre for the Study of North East India (SCSNEI)	North East India Studies-NESP (175)	• Understanding North East India and its neighbouring areas: history, culture, society, politics, economic development, ecology and contemporary policies • Research Methodology: Various interdisciplinary methods such as approaches to social sciences, qualitative, quantitative, interpretative and historical methods • In addition to the above, the syllabus covers themes pertaining to North East India, such as religion and society, tribes and ethnicity, government and politics, economic development, frontiers and borderlands, and cultural histories.

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Special Centre for the Study of North East India (SCSNEI)	North East India Studies-NESH (882)	• Understanding North East India and its neighbouring areas: history, culture, society, politics, economic development, ecology and contemporary policies • Research Methodology: Various interdisciplinary methods such as approaches to social sciences, qualitative, quantitative, interpretative and historical methods • In addition to the above, the syllabus covers themes pertaining to North East India, such as religion and society, tribes and ethnicity, government and politics, economic development, frontiers and borderlands, and cultural histories.

13. SPECIAL CENTRE FOR MOLECULAR MEDICINE

The pattern of JNUEE 2019-20 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

M.Sc. Programme

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Centre for Molecular Medicine (SCMM)	Molecular Medicine-CMMM (233)	**Part A - Total 30 questions (All compulsory)** **Distribution of 30 Questions:** **1.** Basic Maths; 10th level geometry, PC, statistics, Arithmetic, Log, Basic knowledge of Computer science. 2. Chemistry: Concept of Molarity, Normality, Periodic Table, Organic Chemistry, Synthesis, Thermodynamics, Entropy, Enthalpy, Free energy, Law of Mass action, Reaction kinetics 3. Physics: Newton's law, radioactivity, Electricity, capacitance, optics, sound, gravity, spectroscopy. 4. Basic Biology: Zoology/Botany - classification/Evolution Biology/Population Biology. 5. General Aptitude and reasoning. 6. General awareness. **Part B- Total 60 questions (Any 40 are to be answered)** **Distributions of 60 questions:** **Section 1 ;** Biochemistry: Metabolism, Nutrition, Biomolecules, Hormones, Enzymes, Omics. **Section 2 ;** Microbiology: Bacterial genetics, Antibiotics mode of action, Infectious disease, Industrial Biotechnology . **Section 3**; Physiology, Diseases, Pharmacology, Genetics, Molecular Biology, Developmental biology, Zoology, Population genetics. **Section 4 ;** Botany: Molecular Biology. **Section 5** ; Advanced Chemistry, Spectroscopy, Molarity/Normality, Radioactivity, Atomic Structure, Acid base, pH. **Section 6** ; Medicinal Chemistry: Drug-receptor interaction, DNA, Protein, Hormones as receptor, Pharmacokinetics, G-protein coupled receptor, Pharmacodynamics. **Section 7** ; Cell biology: Organelles, Cell-Cell interaction, Cell signalling/ trafficking, Cell cycle. **Section 8;** Drug/ Drug resistance. **Section 9;**Immunology: Basic immunology . **Section 10**; Aptitude, Bioinformatics ,Others .

Ph.D. Programme

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	Centre for Molecular Medicine (SCMM)	Molecular Medicine-CMMH (905)	**All questions will be objective type. There will be no negative marking. Total 70 questions have to be attempted out of 80 questions.** **Section A; General Aptitude/Research Methodology** **Section B; Different Subject Areas of Molecular Medicine** **Section A- Total 35 questions** **Distribution of 35 Questions: Aptitude / Research Methodology** **Basic Maths** ; geometry, statistics, Arithmetics, Log, Basic knowledge of Computer science. **Chemistry:** Concept of Molarity, Normality, Related to Periodic Table, Organic Chemistry,

			Synthesis, Thermodynamics, Entropy, Enthalpy, Free energy, Law of Mass action, Reaction kinetics **Physics** ;Newton's law, radioactivity, Electricity, capacitance, optics, sound, gravity, spectroscopy. **Basic Biology**; Zoology/Botany - classification/Evolution Biology/Population Biology, General Aptitude and reasoning. **Section B - Total 35 Questions** **Distribution of 35 Questions :** **Biochemistry:** Metabolism, Nutrition, Biomolecules, Hormones, Enzymes, Omics. **Microbiology:** Bacterial genetics, Antibiotics mode of action, Infectious disease, **Industrial Biotechnology. Physiology, Diseases, Pharmacology, Genetics, Molecular Biology, Developmental Biology, Zoology, Population genetics. Botany**,**Molecular Biology**, **Advanced Chemistry;** Spectroscopy, Molarity/Normality, Radioactivity, Atomic Structure, Acid base, pH**. Medicinal Chemistry:** Drug-receptor interaction, DNA, Protein, Hormones as receptor, Pharmacokinetics, G-protein coupled receptor, Pharmacodynamics. **Cell biology: Organelles, Cell-Cell interaction, Cell signalling/ trafficking, Cell cycle. Drug resistance. Immunology**

14. CENTRE FOR THE LAW & GOVERNANCE

The pattern of JNUEE 2019-20 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

M.Phil

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	**Centre for the Law & Governance (CSL&G)**	**Law & Governance – CLGP (171)**	**Syllabus for the Entrance Examination** "The test will have a 50% weight for social science research methods and 50% weight for domain knowledge covering the disciplines of Economics, Political Science, Sociology, Public Administration, Anthropology, and Law. The questions will be at the level of an advanced Masters and all candidates will be required to attempt questions from all these disciplines. The broad coverage of the subject areas of these disciplines are as follows:" • **Political Science:** concept and theories of governance; theories of the State, democracy and development; decentralisation; global governance; politics of identity; multilevel governance; civil society and social capital; neoliberalism and globalisation; social justice; gender, development and governance; and, public administration. • **Law:** Constitution and administrative law, criminal law, law and technology, environmental law, corporate laws and labour laws. • **Economics:** Microeconomics, macroeconomics, development economics, political economy, basic of institutional economics and law and economics with particular focus on transactions costs and property rights, Economic Policy. • **Sociology:** Sociological Theory, Kinship, Sociological Perspectives on Caste, Gender and Race; Sociology of Law; Culture and Society, Visual Culture. New Social Movements, Urban studies.

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination
1	**Centre for the Law & Governance (CSL&G)**	**Law & Governance – CLGH (907)**	**Syllabus for the Entrance Examination** "The test will have a 50% weight for social science research methods and 50% weight for domain knowledge covering the disciplines of Economics, Political Science, Sociology, Public Administration, Anthropology, and Law. The questions will be at the level of an advanced Masters and all candidates will be required to attempt questions from all these disciplines. The broad coverage of the subject areas of these disciplines are as follows:" • **Political Science:** concept and theories of governance; theories of the State, democracy and development; decentralisation; global governance; politics of identity; multilevel governance; civil society and social capital; neoliberalism and globalisation; social justice; gender, development and governance; and, public administration. • **Law:** Constitution and administrative law, criminal law, law and technology, environmental law, corporate laws and labour laws. • **Economics:** Microeconomics, macroeconomics, development economics, political economy, basic of institutional economics and law and economics with particular focus on transactions costs and property rights, Economic Policy. • **Sociology:** Sociological Theory, Kinship, Sociological Perspectives on Caste, Gender and Race; Sociology of Law; Culture and Society, Visual Culture. New Social Movements, Urban studies.

15. SPECIAL CENTRE FOR NANO SCIENCES

The pattern of JNUEE 2019-20 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

M.Tech Programme in Nanoscience (NNST-182) & Nanoelectronics (NNET-190)

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination **[Type of Questions for Entrance Examination:** Multiple choice questions]
	Special Centre for Nano Sciences	Common Instructions for M.Tech Programme in Nanoscience (NNST-182) & Nanoelectronics (NNET-190)	The examination for admission will contain two Parts: **Part-A for *Nanoscience – NNST (182)* having 50 questions** and **Part-B for *Nanoelectronics – NNET (190)* having 50 questions.** **The exam will be consisting of 100 marks.** Candidates will be required to either answer all 50 questions from Part-A ***(Nanoscience)*** or all 50 questions from Part-B ***(Nanoelectronics)*** as per the program selected in the application form. **Candidates appearing for M.Tech in Nanoscience *NNST (182) will attempt only Part-A* and candidates appearing for M.Tech in *Nanoelectronics – NNET (190) will attempt only Part-B.*** Each correct answer for Part-A or Part-B will fetch 2 marks. **There will be NO negative marking.**

1	Special Centre for Nano Sciences	Nanoscience – NNST (182)	**NNST (182) Nanoscience** **Chemical Sciences:** Periodic Table and periodicity in properties. Chemical bonding and shapes of compounds, VSEPR theory, lattice energy. Main group elements (s and p blocks). Transition metals and inner transition metals (d and f block). Allotropes. Coordination compounds. Organometallic compounds. Stoichiometry. Acids and bases. Oxidation reduction and precipitation reactions. Radioactivity. Nuclear reactions: fission and fusion. Quantum mechanics. Chemical bonding. Chemical thermodynamics. Kinetic theory of gases. Electrochemistry & Chemical kinetics: Conductance, EMF, Free energy, Nernst equation, redox systems, electrochemical cells, Reactions of various order, Arrhenius equation, Enzyme kinetics, Catalysis. Solutions. Ionic equilibria in solutions, pH and buffer solutions, Hydrolysis, Solubility product, Phase equilibria–Phase rule. Vapour pressure and Osmotic pressure. Molecular weight determination. IUPAC nomenclature. Stereochemistry. Organic reactive intermediates: Generation, stability and reactivity of carbocations, carbanions, free radicals, carbenes, benzynes and nitrenes. Organic reaction mechanisms involving addition, elimination and substitution reactions with electrophilic, nucleophilic or radical species. Common named reactions and rearrangements – applications in organic synthesis. Polymers. **Physical Sciences:** Interference. Diffraction. Polarization. Quantum mechanics: Postulates; Wave-particle duality. Commutators and Heisenberg uncertainty principle. Schrödinger equation (time-dependent and time-independent). Exactly- solvable systems: particle-in-a-box, harmonic oscillator and the hydrogen atom. Tunneling through a barrier. Electrostatics: Gauss's law and its applications, Laplace and Poisson equations, boundary value problems. Magnetostatics: Biot-Savart law, Ampere's theorem. Electromagnetic induction. Scalar and Vector potentials, Maxwell equations. First and second laws of thermodynamics, Thermodynamic functions, Heat capacity, enthalpy, entropy. Bonding in solids, Crystal structures. Bravais lattices. Miller indices. Reciprocal lattice. Bragg's law and applications; Diffraction and the structure factor. Elastic properties, phonons, lattice specific heat. Free electron theory and electronic specific heat. Drude model of electrical and thermal conductivity. Hall Effect and thermoelectric power. Electron motion in a periodic potential, Band theory of solids: metals, insulators and semiconductors. Dielectrics. Ferroelectrics. Magnetic materials. Superconductivity: type-I and type-II superconductors. **Biological Sciences:** **Biomolecules:** Biomolecules (carbohydrates, lipids, proteins, nucleic acids and vitamins). Stabilizing interactions (Van der Waals, electrostatic, hydrogen bonding, hydrophobic interaction, etc.). Biophysical chemistry (pH, buffer, reaction kinetics, thermodynamics, colligative properties). Bioenergetics, glycolysis, oxidative phosphorylation. Catalysis, enzymes and enzyme kinetics. **Cell Biology:** Membrane structure and function; Cell organelles; Cell division and cell cycle. Microbes, infectious disease biology and microbial diseases. **Fundamental Processes:** DNA replication, repair and recombination, RNA synthesis and processing and Protein synthesis **Immunology:** Innate and adaptive immunity, antigens, antibody, antigen-antibody interactions, immune responses, congenital and acquired immune deficiencies, vaccines. **Genetics:** Mendelian principles, Gene: Allele, multiple alleles, mutation types and cause. **Human Physiology:** Blood, coagulation, blood groups, Heart, Endocrine glands, Hormones and diseases.
2		Nanoelectonics – NNET (190)	**NNET (190) Nanoelectronics** **Unit-I** Electronic Transport in semiconductor, PN Junction, Diode equation and diode equivalent circuit. Breakdown in diodes, Zener diodes, Tunnel diode, Semiconductor diodes, characteristics and equivalent circuits of BJT, JFET, MOSFET, IC fabrication-crystal growth, doping, bonding, Thin film active and passive devices. Rectifiers, Voltage regulated ICs and regulated power supply, Biasing of Bipolar junction transistors and JFET. Single stage amplifiers, Multistage amplifiers, Feedback in amplifiers, oscillators, function generators, multivibrators, Operational Amplifiers (OP AMP): Characteristics and Applications, Computational Applications, Integrator, Differentiator. **Unit-II** Network theorems, Network graphs, Nodal and Mesh analysis. Time and frequency domain responses. Image impedance and passive filters. Two-port Network Parameters. Transfer functions, Signal representation. State variable method of circuit analysis, AC circuit

			analysis, Transient analysis. Logic families, flip-flops, Gates, Boolean algebra and minimization techniques, Multivibrators and clock circuits, Counters-Ring, Ripple. Synchronous, Asynchronous, Up and down shift registers, multiplexers and demultiplexers, Arithmetic circuits, Memories, A/D and D/A converters. Modulation index, frequency spectrum, generation of AM (balanced modulator, collector modulator), Amplitude Demodulation (diode detector Other forms of AM: Double side band suppressed carrier, DSBSC generation (balanced modulator), Single side band suppressed carrier, SSBSC generation and Phase modulation, modulation index . **Unit-III** Electrostatics: Gauss's law and its applications, Laplace and Poisson equations, boundary value problems. Magnetostatics: Biot-Savart law, Ampere's theorem. Electromagnetic induction. Maxwell equations. Reflection and refraction, polarization. **Unit-IV** Microprocessor: INTRODUCTION TO 8085, Basic Concepts of Microprocessors, CENTRAL PROCESSING UNIT: CPU, I/O devices, clock, memory, bussed architecture, tristate logic, address bus, data bus and control bus. Development of semiconductor memory, internal structure and decoding, memory read and write timing diagrams, MROM, ROM, EPROM, EEPROM, DRAM: Intel 8085 microprocessor.

Ph.D.

Sl. No.	Name of Centre	Sub. Code & Sub. Code Number	Syllabus for Entrance Examination **[Type of Questions for Entrance Examination:** Multiple choice questions]
1	Special Centre for Nano Sciences	Nano Sciences – NNSH (908)	The written examination will contain at least 50 % marks allotted to Research Methodology and 50 % marks allotted to Subject Specific Domain. **The exam will be consisting of 100 marks.** The examination for admission will contain two Parts: **Part-A (Research Methodology) of 25 questions** and **Part-B (Subject Specific) of 25 questions** each from **B1 (Physical Sciences); B2 (Biological Sciences) and B3 (Chemical Sciences)**. **For Part-B, candidates will be required to attempt any one of the three Subject Streams: B1 (Physical Sciences) or B2 (Biological Sciences) or B3 (Chemical Sciences).** Both parts have multiple-choice questions. The candidates will be expected to answer all questions in Part-A and all questions from any one stream of Part-B. Each correct answer for Part-A or Part-B will fetch 2 marks. **There will be NO negative marking.**
			NNSH (908) Nanoscience **Part-A: Research Methodology (Common for all)** **1. General Science:** General appreciation and understanding of science including matters of everyday observation and experience. **2. Environmental awareness:** Pollution and its impacts, climate change, sustainable development. 3. Current events: Knowledge of significant national and international events. **4. General mental ability and reasoning:** Reasoning and analytical abilities.

			5. Elementary Computer Science: Basic computer awareness and its uses. **6. Interactive English:** Grammar, vocabulary, sentence completion, usage, synonyms, antonyms, one word substitute, idioms/phrases, error detection and comprehension. **7. Information and Communication Technology (ICT):** Terminology and abbreviations used in ICT, applications of ICT in academics and research. **8. Research aptitude:** Basic Concepts- 1. Meaning, nature, significance and types of research. 2. End to end process of research, Formulation of research problem, Design strategies in Research- Descriptive Studies, Analytic Studies, Experimental studies, Intervention trials etc., research proposal, Synopsis, Hypothesis, Data collection, Literature survey, Sampling, Interviewing, questionnaire, Data processing, Interpretation, Report writing, Bibliography, Data presentation and summarization, Graphical presentation of data, Research Ethics. 3. Thesis/ Dissertation writing. 4. Article, research paper, seminar, conference, symposium, workshop etc. 5. Role of governing bodies/research organizations like UGC, CSIR, ICAR, ICSSR, ICPR, ISRO, DRDO etc. in research and development. 6. Role and use of computers in research. **9. Basic concepts of Statistical methods for research** (Probability, Test of significance, Standard deviation, Measures of central tendency, Measures of variability, Measures of Relationship – Correlation, Hypothesis Testing – parametric and non-parametric tests;, Proportions, Relative risk, Odds ratio, Student t test, Anova, Error bars) **Part-B: Subject Specific** **In Part-B, candidate can choose any one of the Subject Streams: (Physical Sciences) or (Biological Sciences) or (Chemical Sciences) for appearing in the Entrance Exam** **Physical Sciences** Interference. Diffraction. Polarization. Basic principles of quantum mechanics: Postulates; Wave-particle duality. Commutators and Heisenberg uncertainty principle. Schrödinger equation (time-dependent and time-independent). Exactly- solvable systems: particle-in-a-box, harmonic oscillator and the hydrogen atom. Tunneling through a barrier. Electrostatics: Gauss's law and its applications, Laplace and Poisson equations, boundary value problems. Magnetostatics: Biot-Savart law, Ampere's theorem. Electromagnetic induction. Scalar and Vector potentials, Maxwell equations. The first and second laws of thermodynamics, Thermodynamic functions, Heat capacity, enthalpy, entropy. Bonding in solids, Crystal structures. Bravais lattices. Miller indices. Reciprocal lattice. Bragg's law and applications; Diffraction and the structure factor. Defects in Solids, Elastic properties, phonons, lattice specific heat. Free electron theory and electronic specific heat. Drude model of electrical and thermal conductivity. Hall effect and thermoelectric power. Electron motion in a periodic potential, band theory of solids: metals, insulators and semiconductors. Dielectrics. Ferroelectrics. Magnetic materials. Superconductivity: type-I and type-II superconductors. **Biological Sciences** **Biomolecules and their relevant interactions:** Biomolecules (carbohydrates, lipids, proteins, nucleic acids and vitamins). Stabilizing interactions (Van der Waals, electrostatic, hydrogen bonding, hydrophobic interaction, etc.). Biophysical chemistry (pH, buffer, reaction kinetics, thermodynamics, colligative properties). Bioenergetics, glycolysis, oxidative phosphorylation, coupled reaction, group transfer, biological energy transducers. Principles of catalysis, enzymes and enzyme kinetics, enzyme regulation and isozymes. **Cell Biology:** Membrane structure and function. Cellular organization and function of organelles. Cell division and cell cycle. Cell communication and cell signalling. Microbes and infectious disease biology. **Fundamental Processes:** DNA replication, repair and recombination. RNA synthesis and processing. Protein synthesis. **Immunology:** Innate and adaptive immunity, antigens, antibody, antigen-antibody interactions, immune responses, immune response during bacterial (tuberculosis), parasitic (malaria) and viral (HIV) infections, congenital and acquired immunodeficiencies, vaccines. **Genetics:** Gene, Allele, mutation types, cause and inheritance biology. **Human Physiology:** Blood, coagulation, blood groups, haemoglobin. Endocrine glands, hormones and diseases, neuroendocrine regulation. **Chemical Sciences** **Stereochemistry:** IUPAC nomenclature,Configuration, Chirality, Isomerism. Conformational analysis and its effect on reactivity. Organic Reaction mechanisms, Free radicals, mechanism of nucleophilic substitution (SN1 and SN2) and elimination (E1 and E2). Addition to carbon-carbon multiple bonds, addition to alkenes and alkynes, transition metal organometallics. Addition to carbon-hetero multiple bonds. Oxidation and Reduction. **Spectroscopy:** Structure elucidation using UV-Vis, IR, 1H and 13C NMR. **Photochemistry and pericyclic reactions:** Features, classification. **Natural Products** and **drugs of natural origin. Solutions:** Ideal and non-ideal, methods of expressing concentrations of solutions,

			activity and activity coefficient, Raoult's law, relative lowering of vapour pressure, molecular weight determination, Osmotic pressure, Elevation of boiling point and depression of freezing point. **Theory of Gases:** Kinetic theory of gases, Maxwell-Boltzmann distribution law. **Chemical Thermodynamics:** Reversible and irreversible processes, First, second and third laws of thermodynamics, Ideal and non-ideal gases, Gibbs and Helmholtz energy, Free energy change and spontaneity. **Chemical and Phase Equilibria:** Law of mass action, Effect of temperature on K, Ionic equilibria in solutions, pH and buffer solutions, Hydrolysis, Solubility product; Phase equilibria–Phase rule. **Electrochemistry:** Conductance, Transport number, Galvanic cells, EMF and Free energy. **Chemical Kinetics:** Reactions of various order, Arrhenius equation, Collision theory, Theory of absolute reaction rate, Chain reactions, Enzyme kinetics, Catalysis. **Periodic Table:** Periodic classification of elements and periodicity in properties. **Chemical bonding and shapes of compounds:** Types of bonding; VSEPR theory and shapes of molecules, hybridization, dipole moment, lattice energy. **Main group elements (s and p blocks):** Group relationship and gradation in properties. **Transition metals and inner transition metals (d and f block):** Characteristics of 3d elements, oxide, hydroxide and salts of first row metals, coordination complexes, metal complexes. **Analytical Chemistry:** Principles of qualitative and quantitative analysis, acid-base, oxidation reduction and precipitation reactions, use of indicators and organic reagents in inorganic analysis, radioactivity, nuclear reactions, applications of isotopes.

16. SPECIAL CENTRE FOR DISASTER RESEARCH

The pattern of JNUEE 2019-20 will be based on Multiple Choice Questions (MCQs) through Computer Based Test (CBT)

M.A. Programme

Sl. No.	Name of Centre	Sub. Code & Sub. Code (Number)	Syllabus for Entrance Examination
1	Special Centre For Disaster Research (SCDR)	Disaster Studies - DSSM (239)	• A Social Science Perspective of Disaster Studies Constitution, Law, Governance and Sustainable Development Goals- SDGs) • Definition, Concepts and Narratives around the key terms in disaster studies (Developing anthropological understanding of 'Disaster', 'Risk', 'Hazard', 'Vulnerability', 'Resilience') • Development and Disasters, Geography of Disasters and GIS applications (Regional imbalances, Fragile areas and Critically endangered zones in GIS Mapping) • Artificial Intelligence, Information and Communication Technologies, Data Base Systems.(Applications of modern scientific tools in early warning systems, relief, rehabilitation and appropriate measurement of damages and losses) • Ecology and Environment (dams, pollution, climate change, effluent discharge, human consumption as causes of environmental destruction and increased vulnerability of ecosystems)

Ph.D. Programme

Sl. No.	Name of Centre	Sub. Code & Sub. Code (Number)	Syllabus for Entrance Examination
1	Special Centre For Disaster Research (SCDR)	Disaster Studies - DSSH (911)	**PART A:** Research Methodology in Disaster Studies, Surveys, Statistical Tools & Analysis, Data Management, Techniques of pre and postdisaster needs assessment (PDNA), Comparative Case Study Methods for evaluating governance and community capacity for last mile service delivery. **PART B:** ConstitutionalLaw, Governance and Implementation of Disaster Risk Reduction Policies Anthropology of Disasters, Vulnerable communities in fragile ecological regions. Geography of Disasters, Geospatial Mapping and human security. Disaster Economics, Planning and Preparing against economic losses, Role of Macro and Micro level economic institutions. Data Bases, Artificial Intelligence and Early Warning Systems in the management of rescue and relief operations.

Combined Entrance Examination conducted by Jawaharlal Nehru University for admission to

M.Sc. Biotechnology Programme (General Biotechnology, Industrial, Environmental, Marine, Medical Biotechnology, Neuroscience, Molecular & Human Genetics and Bioresource's Biotechnology)

www.jnu.ac.in

PROSPECTUS

ACADEMIC SESSION

2019-20

CONTENTS

I. GENERAL

Biotechnology is a multidisciplinary area on the educational scene and programmes have been developed to meet the growing demand for trained manpower for any meaningful Biotechnology activity in the country. The programmes are designed to expose the students to recent exciting developments in the area of genetic engineering and biotechnology and their exploitation in industry, agriculture and medicine.

Jawaharlal Nehru University will hold a Combined Entrance Examination for admission to 2-Year M.Sc. Programme in Biotechnology on behalf of following participating Universities:

1. University of Allahabad, Allahabad, (M.Sc. Biotechnology)
2. Annamalai University, Tamil Nadu (M.Sc. in Marine Biotechnology)
3. Baba Ghulam Shah Badshah University, Rajouri (M.Sc. in Bioresource's Biotechnology)
4. Banaras Hindu University, Varanasi (M.Sc. Biotechnology)
5. Banaras Hindu University, Varanasi (M.Sc. in Molecular & Human Genetics)
6. University of Calicut, Kerala (M.Sc. Biotechnology)
7. Devi Ahilya Vishwavidyalaya, Indore (M.Sc. Biotechnology)
8. Goa University, Goa (M.Sc. in Marine Biotechnology)
9. Gulbarga University, Gulbarga (M.Sc. Biotechnology)
10. Guru Jambheshwar University of Science & Technology, Hisar (M.Sc. Biotechnology)
11. Guru Nanak Dev University, Amritsar (M.Sc. Biotechnology)
12. Himachal Pradesh University, Shimla (M.Sc. Biotechnology)
13. HNB Garhwal University, Garhwal (M.Sc. Biotechnology)
14. University of Hyderabad, Hyderabad (M.Sc. Biotechnology)
15. University of Jammu, Jammu (M.Sc. Biotechnology)
16. Jawaharlal Nehru University, New Delhi (M.Sc. Biotechnology)
17. Kumaun University, Nainital (M.Sc. Biotechnology)
18. University of Lucknow, Lucknow (M.Sc. Biotechnology)
19. Maharshi Dayanand University, Rohtak (M.Sc. in Medical Biotechnology)
20. M.S. University of Baroda, Vadodara (M.Sc. Biotechnology)
21. University of Mysore, Mysore (M.Sc. Biotechnology)
22. University of North Bengal, Siliguri (M.Sc. Biotechnology)
23. North Eastern Hill University, Shillong (M.Sc. Biotechnology)
24. Pondicherry University, Pondicherry (M.Sc. Biotechnology)
25. Savitribai Phule Pune University, Pune (M.Sc. Biotechnology)
26. Sardar Patel University, Anand (M.Sc. in Industrial Biotechnology)
27. Shivaji University, Kolhapur (M.Sc. in Environmental Biotechnology)
28. Tezpur University, Tezpur (M.Sc. in Molecular Biology & Biotechnology)
29. Utkal University, Bhubaneswar (M.Sc. Biotechnology)
30. Visva-Bharati University, Santiniketan (M.Sc. Biotechnology)
31. Jiwaji University, Gwalior (M.Sc. in Neuroscience)
32. Sri Padmavathi Mahila Vishvavidyalayam, Tirupati (M.Sc. Biotechnology)

The Entrance Examination will be held on May 30, 2019 at Centers all over the country
(detail of these examination centers is shown under Section XII of this Prospectus).
* Subject to revision of seats in programs

Major thrust areas in teaching and research of participating Universities are given below:

1. UNIVERSITY OF ALLAHABAD, ALLAHABAD (24 seats) *

M.Sc. course in Biotechnology at Allahabad University runs on a semester system comprising of four semesters. Students admitted to the course are eligible for the award of M.Sc. degree in Biotechnology on successful completion of the course. In addition to M.Sc. teaching programme, University also offers DPhil programme in various areas of Biotechnology. The core faculty members of Centre and from other departments share their expertise to teach the course. The Centre offers courses in Analytical Techniques, Biochemistry, Genetics and Microbiology, Biostatistics and Computer applications in Biotechnology, Biophysical Chemistry, Cell Biology, Molecular Biology, Fermentation Technology, Animal Biotechnology, Genetic Engineering, Immunology, Plant Biotechnology. The method of teaching includes multimedia presentation and combination of lectures/practicals by faculty and guest speaker, seminar and journal club presentation. Time to time Centre also organizes lecture by eminent academician/ scientist/industrialist. Students are required to undertake research project in IVth Semester in one of the research areas offered by faculties of the Centre.

The Centre is currently pursuing research programme in the following areas:

Plant Biotechnology - Molecular Biology - Biosensor development and bioenergy resources - Biofuel - Microbial and Mushroom Biotechnology - Nanobiotechnology and Gene delivery - Stem cell Biology - Molecular biology of Cynobacteria .

The students have the option to work for summer project of 6-8 weeks in National Laboratories and other premier institution at the end of first year. The curriculum is regularly modified and updated time to time. At present the course design is being pursued in light of proposed DBT curriculum and latest development made in the field.

Fees to be paid at the time of Admission: Rs.3810/- (including refundable caution fee Rs.2000/-) excluding Hostel expenses.

Contact Address:

Prof. M.P. Singh
Coordinator
Centre of Biotechnology
Nehru Science Centre,
University of Allahabad
Prayagraj – 211002 (UP)
Phone No. : 9415677998
E-mail : mpsingh.16@gmail.com

2. ANNAMALAI UNIVERSITY, TAMIL NADU (10 seats) *

Students admitted to the programme are eligible for the award of M.Sc. degree in Marine Biotechnology on successful completion of the course run by the Centre of Advanced Study (CAS) in Marine Biology of this University

The CAS in Marine Biology is a reputed marine research institute in India, actively engaged for the last 57 years in teaching, research and extension with an ideal location and easy access to different Coastal biotopes such as, estuary, mangroves, backwaters and nearshore waters. It has made rapid strides in various facets of marine Sciences. This Centre, the brain child of the Eminent Scientist (Late) Professor RV Seshaiya was started as a field laboratory for the Department of Zoology, Annamalai University in 1957, and was recognized for its outstanding research contribution by the University Grants Commission as the Center of Advanced Study in Marine Biology in 1963 and the UGC continued to extend its generous assistance till date through SAP and Potential of Excellence in Particular Area (CPEPA) in Marine Biology. Recently, Annamalai University has been awarded with "A" Grade by the National Assessment and Accreditation Council of UGC. The University has become State University under Annamalai University act 2013. Environmental Information System (ENVIS) and All India Co-ordinated project on "Coastal Biodiversity (East Coast of India)" are the important activities of our Centre supported by the Ministry of Environment, Forest and Climate Change (MoEFCC). This programme got Best ENVIS Centre award among all the Centres of India in 2006. Our Centre has been identified as Centre of Excellence in Marine Biology by Ministry of Earth Sciences (MoES), New Delhi and the Centre is involved as a participating institution in the national and network programme on Coastal Ocean Monitoring and Prediction System (COMAPS), Harmful Algal Bloom (HAB), Marine Living Resource Assessment for cephalopods and gelatinous zooplankton, Benthos, etc. The DST – FIST programme recognised the Centre during the period 2000 – 2007. Recently the DST has extended its support through PURSE Programme. In 2013, the Ministry of Human Resource Development (Govt. of India) has identified this Centre to set up a Centre of Excellence for training and research in frontier areas of science and technology. The Centre has become a separate Faculty as "Faculty of Marine Sciences" from the academic year 2010 – 2011. Recently, the Centre made a record of producing 700 + PhDs. This Centre has all the essential infrastructure facilities, such as, library, marine reference museum, marine aquarium, experimental aquaculture ponds, instrumentation centre, seawater circulation system and seaworthy Boats as well as sophisticated instruments such as MALDI – TOF – TOF, CHNS&O analyser, Microbial Identification System, GC-MS, ICP, FTIR etc. The Centre has also provided with high speed internet facility.

Academic programmes :

As drafted by Department of Biotechnology, Government of India, curriculum for M.Sc. Marine Biotechnology Programme is been implemented. The Syllabus includes Biochemistry, Molecular Biology, Fishery Resources, Conservation and Oceanography, Marine Microbiology, Biostatistics, Biophysical principles and Analytical techniques, Cell and Developmental Biology, Genetic Engineering, Aquaculture Bioprocessing and Pharmacology, Fish Immunology and Health Management, Aquatic Environmental Biotechnology, Marine Bioprocess Technology, Aquaculture Biotechnology, Bioinformatics, Intellectual Property Rights, Biosafety and Bioethics, Bioentrepreneurship. Independent research topics are undertaken by students as a part of their curriculum on the following thrust areas: Shrimp Immunology, Characterization of novel plasmid from marine microbes, marine pharmacology, regulatory mechanism of endocrine system, functional physiology of halophilic microbes and molecular taxonomy of marine organisms. Our Centre has 33 faculties specialized in Marine Biology & Oceanography, Biotechnology, Microbiology, Oceanography, Pollution Toxicology, Aquaculture, Chemistry, Physics, Mathematics, Engineering, Bioinformatics, & Computer Science. Besides, this course is supported by associated faculties from Faculty of Science- Dept. of Biochemistry, Earth Science, Statistics, Physics; Faculty of Engineering & Technology-Dept. of Pharmacy, Chemical Engineering and Faculty of Medicine- Dept. of Microbiology. Special lectures by eminent scientists.

In addition, our Centre is also offering six post graduate courses on Marine Biology and Oceanography, Coastal Aquaculture, Marine Microbiology, Marine Food Technology, Marine Pharmacology and five year integrated programme on Ocean Science and Technology as well as Bachelor of Fisheries Sciences (B.F.Sc.) and B.Voc. Aquaculture.

Fees to be paid at time of Admission: Rs.30,095/- per annum

Boarding & Lodging at Hostel Rs. 50,000/- per annum (approx.)

Contact Address: Prof. M. Srinivasan
Director & Dean
Centre of Advanced Study in Marine Biology,
Faculty of Marine Sciences
Annamalai University,
Parangipettai-608502
Tamil Nadu
Phone No. : 04144-243223
Mobile No. 09443435455
E-mail: casmboffice@gmail.com
Mahasrini1@gmail.com

3. BABA GHULAM SHAH BADSHAH UNIVERSITY, RAJOURI (J&K) (10 Seats)*

Baba Ghulam Shah Badshah University came into existence by the Baba Ghulam Shah University Act No. XVI of 2002 of the Jammu and Kashmir legislative Assembly and became functional in the year 2005.

In 2008, the School of Biosciences and Biotechnology started running a 4 semester, full time Master's Programme on Bioresources Biotechnology to generate manpower skilled in various aspects of Biotechnology and Bioresources. The wed-lock between Bioresources and Biotechnology is aimed at equipping students for raising value added products from the Bioresources. The syllabus, besides covering all important aspects of Biotechnology such as Cell and Molecular Biology, Biomolecules and Microbial Physiology and Genetics, Enzymology and Biochemical Techniques, Genetic Engineering, Genomics and Functional Genomics, Bioenergetics and Metabolism, Bioinformatics and Biostatistics, Biology of immune System, Bioprocess Engineering and Technology and Animal and Plant Biotechnology, also has papers on Plant and Animal Bioresources, Characterization, Evaluation and Exchange of Bioresources and Bioresouces; Assessment, Threats and Conservation. Faculty in the School is such that all these areas are competently taken care of. Besides the residential faculty, the students are able to interact with eminent workers in the field who visit BGSBU. The students also make trips to important Centers of learning. National Laboratories and Industry. The School has a number of research and extension projects sponsored by DBT, DST, MOEF, GBPIHED, Spice Board and NMPB.

The M.Sc. programme was started in BGSBU from the session 2011 with the Financial support of DBT, Government of India.

Fees to be paid at the time of Admission: Rs. 47,000/-

Contact Address: Prof. G .H. Dar
Director & Dean
Centre for Biodiversity Studies
School of Biosciences and Biotechnology
Baba Ghulam Shah Badshah University
Rajouri - 185131 (J & K)
Fax No. : 01962-241001
Mobile No. : 09419421096
E-mail : profdar99@gmail.com

4. BANARAS HINDU UNIVERSITY, VARANASI (21 seats) *

M.Sc. (Biotechnology) programme at Banaras Hindu University runs on a semester system consisting of four semesters (80 credits). Students admitted to the programme are eligible for the award of M.Sc. degree in Biotechnology on successful completion of the course.

Besides the core faculty members of the School the Faculty members from the Institute of Technology also share their expertise in teaching this multidisciplinary course. The School offers courses in Microbiology, Cell Biology, Biochemistry & Biophysics, Genetics and Molecular Biology, Biology of the Immune System, Enzymology and Enzyme Technology, Genetic Engineering, Plant Biotechnology, Animal Cell Culture, Environmental Biotechnology, Bioprocess Engineering and Technology, Bioinformatics & Biostatistics, and **one year dissertation project work in one of the research areas** of the School and present seminars related to their project topics in the third and fourth semesters. The evaluation of M. Sc. examination is based on credit system. In addition to the above M.Sc. Biotechnology students will be selecting Massive Open Online Course (MOOCs)-SWAYAM course in the II and III semester of 4 credits. A dissertation project forms an integral part of the M.Sc. curriculum. **In year 2018 School of Biotechnology, Institute of Science, BHU has received Shanghi Global ranking 385 which is a rare achievement at the University and National level.**

The School is currently pursuing research programmes in the following areas:

- Plant Tissue Culture and Plant Biotechnology
- Cellular and Molecular Immunology and Tumor Immunology
- Molecular Microbiology with emphasis on Plant growth promotion
- Functional genomics in bacteria
- Environmental Biotechnology
- Enzymology and Enzyme Technology

The School has received financial support under UGC-SAP (DRS-Phase-III), DST-PURSE and DST-FIST Programme and is part of the DBT supported interdisciplinary School of Life Sciences. The School also has a Sub-DIC Centre for Bioinformatics supported by the DBT, which has all the facilities related to teaching and research *in silico* for the M. Sc. and Ph. D. Biotechnology students.

Fees to be paid at the time of Admission: Rs. 7000/- (Approx.)

Contact Address: Prof. Arvind Kumar,
Coordinator
School of Biotechnology,
Institute of Science,
Banaras Hindu University,
Varanasi – 221005 U.P.
Mobile No. : 09473875706
Phone No. : 0542-2368364 (Office)
E-mail : arvindkumararvind8@gmail.com
biotechcoordinator@gmail.com

5. BANARAS HINDU UNIVERSITY, VARANASI (20 Seats) *

M.Sc. in Molecular and Human Genetics at Banaras Hindu University is a DBT-sponsored teaching programme (2 year) runs on a semester system (4 semester).Students admitted to the programme are eligible for the award of M.Sc. degree in Molecular and Human Genetics on successful completion of the course run by the Department of Molecular and Human Genetics, Institute of Science, Banaras Hindu University. This programme offers courses in Transmission Genetics, Basic Human Genetics, Molecular Genetics, Biochemistry, Cytogenetics, Cell Biology, DNA Technology and Genetic Engineering, Bioinformatics and Biotechniques, Model Genetic Systems, Genomic instability and Cancer, Human Genome, Reproductive Genetics, Human Molecular Genetics, Clinical Genetics, , Developmental Genetics, Immunogenetics, Population and Evolutionary Genetics, Neurogenetics, and Genetic Counseling and Intellectual Property Rights. In addition, students are allowed to choose any two of the SWAYAM courses of their interest offered by UGC. The core faculty members of the department and from other departments of Institute of Science and Institute of Medical Sciences share their expertise to teach the course. The teaching program includes 'Summer Training' in well-established molecular biology research laboratories in different parts of the country, a Dissertation Project, Formulation of Research Project as "Dream Project", and Seminar presentation by each student. This unique course curriculum also includes clinical assignments to each student and visits to the hospital at Institute of Medical Sciences (Banaras Hindu University), case-presentation, and hands-on training in molecular diagnosis and genetic counseling.

The Department of Molecular and Human Genetics is well recognized all over the country for its standard of teaching and research. The M.Sc. students of the department have high success rate in national level tests like NET-JRF (CSIR/UGC), BET-JRF (DBT), NET-JRF (ICMR), and GATE. The students have been placed in prestigious research institutes in India and across the globe for pursuing Ph. D. and Postdoctoral studies. The faculty members have attracted extramural research funding from different funding agencies such as DBT, DST, UGC, CSIR, DAEetc.The major research areas of the department include Signal transduction, Cancer Biology, Neurogenetics, Reproductive Genetics and Immunogenetics.

Fees to be paid at the time of Admission: Rs. 8000/- (Approx.)

Contact Address: Prof. Gopeshwar Narayan
Head & Coordinator
Department of Molecular and Human Genetics,
Institute of Science,
Banaras Hindu University,
Varanasi – 221005, U.P.
Mobile No. :09450013701; 9695296622
Phone No. :0542-6702497 (Office)
Fax No. :0542-6702499
E-mail :gnarayan@bhu.ac.in

6. UNIVERSITY OF CALICUT (12 seats) *

Students admitted to the programme are eligible for the award of M.Sc. degree in Biotechnology on successful completion of the course. The department is following the DBT model curriculum for the 2 year (4 semester) M.Sc. Biotechnology teaching programme. The first and second semester offer theoretical and practical training in Cell & Developmental biology, Biochemistry, Microbiology, Analytical techniques, Molecular biology, IPR & Biosafety, Biostatistics & Bioinformatics, Immunology and Genetics. In the third semester, advanced courses, namely, Bioprocess engineering, Genetic engineering, Genomics & Proteomics, Plant biotechnology and Immunotechnology are offered. The fourth semester includes a research project in addition to a course on Bioentreprenuership and Seminar presentations on recent advances in biotechnology. The department has a weekly journal club in which the students present research articles of topical interest from reputed journals.

In addition to the M.Sc. programme, the department also runs M.Phil. and Ph.D. programmes. The thrust areas of research include Cell & Molecular biology, Enzymology and Medical Bitechnology, Immunotechnology, Recombinant DNA technology, Bioprocess technology and Cancer biology. The students of this department have consistently given excellent performances in the competitive examinations held for the award of GATE, DBT, UGC / CSIR- NET/JRF and are placed in premium institutions of national and international repute.

Fees to be paid at the time of Admission: Rs.9215/- (1styear i.e. I Semester and II Semester) and Rs. 7560/- (2nd Year i.e. III and IV Semester) Initial deposit received from JNU will be adjusted as developmental fee. Change in fee structure subjected to general revision if any adapted by the University will be applicable.

Contact Address: Prof. K. K. Elyas
Head & Coordinator
Department of Biotechnology
University of Calicut,
Calicut University (PO) Malappuram (Dist.)
Kerala – 673635
Phone No. : 0494-2407404 (O)
Mobile : 09846156890
Fax No. : 0494-2400269
E-mail : biotechhod@uoc.ac.in, kkelyas@yahoo.com

7. DEVI AHILYA VISHWAVIDYALAYA, INDORE (16 seats) *

Devi AhilyaVishwavidyalaya (DAVV) is an ‘A” grade NAAC accredited University and offers highly conducive environment for higher education and Research. Students admitted to the programme are eligible for the award of M.Sc. degree in Biotechnology on successful completion of the course. DAVV has opted for Choice Based Credit System (CBCS) and follows semester system comprising of 04 Semesters. The School of Biotechnology offers teaching in Biochemistry, Cell and Developmental Biology, Molecular Biology, Analytical Techniques, Computer Applications, Bioinformatics and Biostatistics, Immunology, Genetic Engineering, Genetics, Enzyme & Enzyme Technology, Bioprocess Engineering and Technology, Microbiology and Industrail Applications, Metabolic Engineering, as the core subjects and 08 Elective subjects (Genomics and Proteomics, Environmental Biotechnology, Protein Engineering, Cancer Genetics, IPR & Biosafety, Animal Tissue Culture, Pharmacogenomics, and Stem Cell Biology) out of which students can select any 06 Elective subjects. There are also some soft skill based subjects (Seminar & Research Proposal Writing skills) which helps in overall student development. To hone the research skills of students, the fourth semester is completely dedicated to research dissertation work.

The project work is evaluated on the basis of power point presentation and dissertation report. The assessment of the dissertation report is done by one external and one internal examiner. To give technical exposure to the students, the School also encourages the students to undergo summer training in other institutes/industries for a period of six weeks after completion of second semester. The research areas of the school are crop improvement by early diagnosis of stress conditions, Biophysical and biochemical characterization of abiotic stress responses in plants, Bioremediation and degradation of environmental pollutants by microbes, role of inflammatory signaling in metabolic disorders, development of potential drug candidates and therapeutic targets with reference to metabolic disorders including diabetes mellitus, obesity, cardiovascular problems, metabolic syndrome and thyroid abnormalities etc.

Fees to be paid at the time of Admission: Approx Rs.13300/- (for one semester). Besides, Rs.4000/- caution money (refundable after completion of the course). Please note that this fee is for day scholars. If hostel required, please contact Chief Warden of the University for hostel charges etc.

Contact Address:

Prof. Anjana Jajoo
Head & Coordinator
School of Biotechnology
Khandwa Road Campus
Devi Ahilya University
Indore – 452001
Phone No. : 9893789779
E-mail : ajheadsbt@gmail.com , head.biotech@gmail.com
website : www.biotech.dauniv.ac.in

8. GOA UNIVERSITY, GOA (26 seats) *

Goa University is a NAAC "A" grade accredited institution. Students admitted to the programme are eligible for the award of M.Sc. degree in Marine Biotechnology upon successful completion of the course. The Department is being funded by the DBT from the time of its inception in 1988 and since 2008 has had the added distinction of being DST-FIST sponsored. The Courses offered for the M.Sc. programme are covered over four semesters and while ensuring that all key aspects of general Biotechnology are covered, the outgoing students are, in addition, fully equipped for a career in Marine Biotechnology. Goa University follows a Choice Based Credit System (CBCS). During the first year, emphasis is given on understanding physicochemical aspects of biology and the marine ecosystem and include Microbiology, Ecology, Biochemistry, Molecular Biology, Biophysical Principles & Analytical Techniques, Immunology, Oceanography & Marine Bioresources , Cell Biology, Biostatistics, Bioinformatics, Cell & Tissue Culture, Developmental Biology and Stem Cell Biology. More advanced and application-oriented courses such as Aquaculture Technology, Bioprocess Technology, Potential of Marine Biotechnology, IPR, Biosafety & Bioethics, Bioentrepreneurship, Cellular Biophysics, Genetic Engineering, Marine Food Technology, Enzyme chemistry & applications, Molecular Immunology, Nanobiotechnology, Genomics and Proteomics as well as Scuba Diving are offered during the second year .

Separate laboratory courses in each subject enable every student to gain hands-on experience with all the available instruments. The well-equipped laboratories enable the students to take up dissertation work within the Department itself during the third and fourth Semesters. The major Thrust Areas in the Department are: study of biotechnologically important proteases, lipases and polysaccharases from coastal / deep sea bacterial, fungal and thraustochytrid isolates. Biodiversity of actinomycetes and sulphate reducing bacteria from marine salterns of Goa. Potential anti-bacterial and anti-fungal compounds against clinical pathogens from hypersaline halotolerant bacteria and actinomycetes. Extraction of toxins from marine organisms. Study of marine algae as a source of biofuels, lectins and nutraceuticals. Alkaloids of medicinal value f rom plants. Assessment of bacterial pathogens from mangrove ecosystems. Identification of novel molecules from G. nervosa as starch blocker. Bioactive cationic peptides. Application of salt pan bacteria in aquaculture and as a biofertilizer in paddy fields. Evaluating the production of potential of tyrosinase inhibitors from hypersaline bacteria. Microbial bio -surfactants. Applications of nanoparticles from anaerobes. Novel viruses from coastal ecosystems and hot springs. Summer training (4-6 weeks) is mandatory at the end of the second semester for which the students are placed in R & D laboratories of nationally recognized Institutes and Industries. Most of our postgraduate students qualify for the CSIR/UGC fellowship and some of them also secure a very high ranking at the GATE examination. This is in addition to their achievement at the DBT and ICMR fellowship examinations. The placement profile of each outgoing batch has also been commendable, with the students successfully gaining positions in nationally as well as internationally renowned institutions. The University has close interaction with the National Institute of Oceanography, Goa for both teaching as well as research. Besides, the Department also has active research collaboration with the following National Institutes: ICAR Research Complex (Goa). National Centre for Antarctic and Ocean Research (Goa) and BITS Pilani (K.K. Birla Goa Campus) and Department of Fisheries Goa.

Fees to be paid at time of admission:

- Rs 19,800/- Annual tuition fees (inclusive of the refundable Rs.2,030/-).
- Hostel charges: accommodation fees of Rs.6000/- per year
- Annual Mess charges for Hostels: Rs. 36,825/-vegetarian); Rs.40,068/- (non-vegetarian)
- Hostel Caution Deposit (refundable) : Rs. 3,000/-

Contact Address: Prof. Savita Kerkar
Head & Coordinator
Department of Biotechnology
Goa University, Sub Post Office
Taleigao Plateau , Goa 403 206.
Phone No. 8605009243 , 8669609243
Fax.No : 0832-2451184, 2452889
E-mail : hodbiotech@unigoa.ac.in
Website: http:/www.unigoa.ac.in

9. GULBARGA UNIVERSITY, GULBARGA (10 seats) *

Students admitted to the Programme are eligible for the award of M.Sc. degree in Biotechnology on successful completion of the course. They can also avail facility of additional diploma in Nanoscience offered in the University, and course in professional computational excellence. The Department offers M.Sc. semester based CBCS courses in cell and developmental Biology. Biochemistry, Microbiology, Analytical Techniques, Immunology, Bioinformatics, Genomics and Proteomics Molecular Biology and Genetics, General Biotechnology, Animal Biotechnology, Genetic Engineering, Food Biotechnology and Bioprocess Engineering. Molecular Biology and Environmental Biotechnology, IPR and Biosafety, Plant Biotechnology, Proteomics, Genetics, Medical and Nano Biotechnology, Immune Technology, Microbial Technology,The new revised syllabus proposed by DBT is implemented from the year 2010 – 11 with updated inputs, and also choice from other science departments. Students are also assigned with the project work, review article preparation and seminars. A study tour to undertake hands on training in sophisticated industry/institute is encouraged. The project work on one of the advanced/emerging area is compulsory.

The department runs KBITS sponsored finishing school in Biotechnology with assistance from Govt of Karnataka and DBT.The students are selected through all India entrance test and are eligible to receive Rs 10000/- as stipend and industrial training for 6 months. The centre has all essential facilities, such as , Instrumentation laboratory, Cell and tissue culture laboratory , virtual learning resource center and digital library and video conferencing, and a pilot plant facility for Biodiesel products. The Department has received various research projects funded by CSIR, DBT, DST, AICTE. MOWR, UGC, KSBDB. The department is collaborated for research activities with national institute/Organization such as SBI, Coimbatore, VSI, Pune; NIMHANS, Bangalore; Biocon, Bangalore; Novozymes, Bangalore, the University is a partner in Erasmus Mundus action plan. – 2 under SVAGATHA and FUSION Project. Students have opportunity to study amongst 16 European Universities under this programme.

The M.Sc. students of the department have qualified national exams such as DBT,JRF, CSIR-JRF, NET, GATE, NII, SLET, etc.

The major research areas of the department are

Plant tissue culture, Plant molecular biology and biofuels A
biotic and biotic stress response in plants
Animal Biotechnology and pharmaceutical Biotechnology
Medical Biotechnology and Phage therapy
Industrial Biotechnology and Fermentation Technology Pharmacokinetic
studies of plant based bioactive molecules and Bioinformatics & protein –
interaction

Fees to be paid at the time of Admission: Rs. 20,000/- (Approx.)

Contact Address: Prof. Chandrakanth Kelmani Department of Biotechnology
Gulbarga University
KALABURAGI - 585106
Karnataka
Phone No. : 08472-263290
Cell No. : 9449439340
Fax No. : 08472-263206
E-mail : ckelmani@gmail.com
website : http://www.gulbargauniversity.kar.nic.in

10. GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR (14 seats) *

Guru Jambheshwar University of Science & Technology (GJUS&T) is three times NAAC 'A' grade accredited University. Students admitted to the programme in the Department of Bio & Nano Technology of GJUS&T, Hisar are eligible for the award of M.Sc. degree in Biotechnology on successful completion of the course. Department has state of art facilities and well-established modern laboratories equipped with latest sophisticated instruments. Besides the Major Research Projects from UGC, DBT, DST, DRDO, HSCST, MOEF, faculty of the department also has various international research projects in collaboration with Cairo University, Cairo, Egypt; Institute of Microbiology and Virology, Ukrainian National Academy of Science, Kyiv, Ukraine; Asian Institute of Technology, Bangkok, Thailand; Hanyang University, Seoul, Republic of Korea; University of Maryland, USA; Technical University of Cartagena, Cartagena, Spain. The Department is also supported by UGC-SAP-DRS-II program, World Bank TEQIP-III, RUSA, DST-PURSE and DST-FIST program.

This is DBT-sponsored programme offering courses in Introductory Biotechnology, Biomolecules and Metabolism, Cell Biology, General & Applied Microbiology, Theory & Applications of Biotechniques, Molecular Biology, Fundamentals of Immunology, Plant Cell, Tissue and Organ Culture, Fermentation Technology, Genetic Engineering, Enzymology & Enzyme Technology, Molecular Genetics, Principles of Nanobiotechnology, Introductory Bioinformatics, Agricultural Biotechnology & IPR, Environmental Biotechnology, Medical Biotechnology, Genomics and proteomics. Course content also have open elective courses along with MOOC through SWAYAM. The students have to undergo a three to four weeks of in plant/summer training in various institutes/industries during summer program. Fourteen to sixteen weeks of investigation problem during the 4th semester forms an internal part of the program. The courses offered are innovative in several respects with major thrust being different research areas pertinent to Plant Biotechnology & Food Biotechnology, Microbial Biotechnology, Environmental Microbiology and Nano Science & Technology. Credit based system of examination on international pattern basis has been introduced from the Academic Session 2006-07.

Fees to be paid at the time of Admission: Rs. 16328/-(Approx.)

Contact Address:

Prof. Vinod Chhokar,
Dept. of Bio & Nano Technology
Bio & Nano Technology Centre,
Guru Jambheshwar University of Science & Technology
Hisar – 125001 (Haryana)
Phone No. :01662-263165, 263355
Fax No. :01662-276240
E-mail :vinodchhokar@gmail.com
Website :www.gjust.ac.in

11. GURU NANAK DEV UNIVERSITY, AMRITSAR (10 seats) *

Students admitted to the programme are eligible for the award of M.Sc. degree in Biotechnology on successful completion of the course.

Students are imparted theoretical and practical training in Biochemistry, Microbiology, Genetics, Computer Applications and Biostatistics, Biochemical and Biophysical Techniques in the first semester. During the second, third & fourth semesters, students are trained in specialized areas of Genetic Engineering, Immuno Biotechnology, Plant and Animal Tissue Culture, Biochemical Engineering, Fermentation Technology, Microbial Biotechnology, Enzymology, Genomics and Functional Genomics and Bioinformatics. In the fourth semester, students are also required to work on a small independent research project to sharpen their scientific skills and knowledge under the guidance of a faculty member and also graded seminars are conducted. The project work is evaluated by an assessment committee constituted for this purpose. Following a satisfactory report, the student is recommended for the award of M.Sc. degree in Biotechnology.

The Department is well equipped with modern instrumentation and infrastructure to allow and encourage the students to explore the field/problem of their choice in disciplines of Biotechnology.

Fees to be paid at the time of Admission: Rs. 45490/- + 19550/- (Hostel Charges)(Approx.) (Subject to change as per University guidelines)

Contact Address:

Prof.. P.K. Pati,
Prof. & Head
Department of Biotechnology
Guru Nanak Dev University
Amritsar - 143005 (Punjab)
Mobile No. : +919915091910
Phone No. : 0183-2258431 (Direct)
Tel. 0183-2258802-09 Extn.3218
E-mail : biotechgndu@yahoo.com
pkpati@yahoo.com
Website : www.gndu.ac.in

12. HIMACHAL PRADESH UNIVERSITY, SHIMLA (15 Seats) *

Students admitted to the programme are eligible for the award of M.Sc. Degree in Biotechnology on successful completion of the course. The students shall be introduced to the theoretical and practical aspects of the major areas of Biotechnology. The courses offered in the first semester are: Remedial Course 1 Introductory Mathematics (for biology students) or 2 Introductory Biology (for Non-Biology students), Biochemistry, Microbiology, Molecular Biology and Instrumental Methods of Analysis. The students will study Recombinant DNA Technology, Immunology and Immuno Technology, Plant Biotechnology and Animal Technology and Biochemical Engineering in the second semester. They shall undertake Environmental Microbiology and Biotechnology, Fermentation Technology, Computer and Bioinformatics, Enzyme Technology and a special paper in third semester. For specialization the students will opt any one of the elective paper: Biocatalysts and Biotransformation, Food Technology, Metabolic Engineering and Nano Biotechnology. They are required to undertake a major research project in the area of biotechnology in fourth semester.

Fees to be paid at the time of Admission: Rs.11670/-(Approx.). Admission fee @Rs.1000/- Alumni fee

Contact Address:

Prof. Duni Chand
Chairman & Coordinator
Department of Biotechnology
Multifaculty Biolding Phase-I, Gyan Path
Himachal Pradesh University, Summer Hill, Shimla – 171005 (HP)
Phone No. : 0177-2831948 Fax No. : 0177-2832154 E-mail : dunichand_2000@yahoo.com

13. HNB GARHWAL UNIVERSITY, GARHWAL (13 seats)*

H.N.B. Garhwal University (A Central University) situated in the heart of Himalaya, offers highly conducive environment for higher education and research. It attracts students from 15 Universities of 10 States (average last 5 yr.). The students have been rated highly motivated, alert, articulate and aware (Resonance, July 2003, IISc Bangalore). The Department identified for excellence in research & teaching by UGC through SAP & COSIST, DST- FIST and DBT-HRD, has emerged as a hub of scientific activity and quality Human Resource Development in Biosciences. Most striking features are its warm ambience, strong student-teacher rapport, student participatory approach and inquiry based interactive learning system (aided with computers) conducive to critical thinking and personality building. The department has well equipped laboratories, Hi-Tech classrooms with modern teaching audiovisual aids Central Instrumentation Facility, Library (eight thousand books) and computer labs with broadband internet facility.

The Department offers two-year M.Sc. Biotechnology degree course. In the early semesters, fundamentals of Biochemistry, Molecular Biology, Genetics, Microbiology, Immunology, Genetic Engineering, Enzymology, Legal Biotechnology, Computer programming and Market Management are included in the syllabi. In the late semesters course includes Cell and Tissue Culture, Biochemical & Molecular Endocrinology, Bioinformatics, Environmental Biotechnology and Bioprocess Engineering, elective courses on advance area of biotechnology like Food and Beverage Technology, Pharmaceutical Biotechnology and Drug designing, Immunotechnology, Fermentation Technology, Fish Biotechnology and Biomedical Technology etc are taught. The students also required to undertake dissertation / thesis work.

H.N.B. Garhwal University, following several student interactive brainstorms with renowned Scientists of the country has provided a 3-tiered roadmap strengthening knowledge of basics, up-linking with the industry & rendering it society relevant-through integrative, flexible curricula. The high profile basic and vocational PG courses, adjudged of very high standard and utility' by UGC-NAC, 2003, groom students for academic excellence. The Department has an excellent track record of its students qualifying for national (NET-CSIR / UGC, GATE, ICMR, NII, CCMB, DRDO, IIT, JNCAR, BARC etc.) and international fellowships (USA, UK, Korea, Finland, Germany etc.). Students of this Department have been successful in securing placement in top biotechnology industries viz., Sanofu Aventis, Biocon, Panacea Biotech, Pfizer, Ranbaxy, Sun Pharma, Genetix etc. Major thrust area of research are Animal Behaviour, Endocrinology, Molecular Physiology, Immunodiagnostics, Genetic diversity, phylo-geography, Conservation Biology, Bioinformatics and Microbial biotechnology. Faculty serve on prestigious national & international bodies. Website: www,hnbgu.ac.in

Fees to be paid at the time of Admission: Rs.3800/ - (Tution, examination etc. excluding lodging, boarding which is available at nominal price)

Contact Address:
Prof. J. P. Bhatt P
Head & Coordinator
Department of Zoology & Biotechnology
HNB Garhwal University, Birla Campus
Srinagar, Pauri Garhwal-246174
Phone No. : 01370-267530
Fax No. : 01370-267530
E-mail : hodzoobiotech@gmail.com

14. UNIVERSITY OF HYDERABAD, HYDERABAD (20 seats) *

The University of Hyderabad is a premium institute of higher education and research in India which has been frequently ranked at top slots by different ranking services based on the research output and academic excellence. The University is recognized as 'University with Potential for Excellence' by the University Grants Commission (UGC). The University has also been rated by the NISSAT (National Information System for Science and Technology) of the Department of Scientific and Industrial Research (DSIR), Government of India, as the only University under the 'High Output-High Impact' category among the top 50 institutions in India with publications in citation-indexed journals. Rated always at top grade by the NAAC, the University has had a distinct and rare honor of being qualified for the very exclusive PURSE award given by the Prime Minister of India. Several of the schools, departments and centres in the University have been identified for Special Assistance Program (SAP) of the UGC and the FIST (Fund for Improvement of Science and Technology) program of the Department of Science and Technology (DST) of the Indian Government. In addition to this, the DST has established High Performance Computing facility, Centre for Nanotechnology, Centre for Modeling Simulation and Design at University of Hyderabad under the FIST Program. The University has several state of art core facilities such as confocal microscopy facility, scanning transmission electron microscopy facility, Biological Safety Level 3 facility, animal house and green houses to name a few.

The Department of Biotechnology and Bioinformatics at the University of Hyderabad offers application oriented and sought-after courses in the areas of Biotechnology and Bioinformatics. Innovation based training is imparted to the students with a special emphasis on basic concepts of biological processes in order to pursue research in frontier areas of modern biology. A total of 12 independent research groups are active at the department studying molecular and cellular processes involved in health and disease with an emphasis on discovery/invention of diagnostic and interventional approaches and molecules and identification of targets with respect to bacterial, parasitic and viral infections, cancer and neurodegenerative diseases. Bacterial genomics/functional genomics, cellular biology, microbial biology, protein biochemistry and structure function studies, bioinformatics and computational biology constitute major skill domains of our research groups. In addition, the Department has an exclusive expertise in generation and analysis of high throughput genome sequence data of bacterial species and harnessing them towards discovery of new gene functions and pathways.Currently about 80scholars are enrolled for PhD program in Biotechnology and about 12 post-doctoral scientists are working at the Department. Teaching and research programs of the department are supported by special grants from the Department of Biotechnology and the UGC towards MSc and M. Tech. The faculty members at the Department are supported with several extramural grants and recognized at various national and international sciences societies. The Department actively participates in several international research student exchange and training programs with international agencies such as German Research Foundation (IRTG1673), European Commission (FP7: Marie-Curie IRSES), DAAD and Academia Sinica etc. The Department has numerous facilities such as animal cell culture facility, bacterial culture andviral, HIV culture facility, neuronal and neuroglial culture facility and stem cell culture facility. Further, it has several essential instruments such as centrifuges, spectrophotometers, PCR machines, HPLC, shakers, incubators, real time PCR and flow cytometers, Fluorescence Microscope, Spectrofluorometer, Jasco Circular Dichroism Spectrometer, Molecular Imager Tharos FX plus System etc. The students can benefit from the state of art confocal microscopy facility genomics, proteomics and metabolomics facility available in the School of Life Sciences. The Bioinformatics infrastructure facility, funded by the Department of Biotechnology, Government of India is a well establishedfacility and produced excellent research publications during the past couple of years. The Department actively liaises with the industry in Biotechnology and IT sectors to find placement and internship/professional training opportunities for our students.

Fees to be paid at the time of Admission: Rs.10430/ - (including a refundable deposit of Rs.1755); hostel fee/messdeposit, as admissible, are to be paid separately at the time of admission.

Contact Address:

Prof. J S S Prakash
Head & Coordinator
Department of Biotechnology & Bioinformatics
School of Life Sciences
University of Hyderabad
Prof. C. R. Road, Gachibowli
Hyderabad – 500 046 (Telangana)
Phone No: 040- 23134730, 23134731
Mobile No : +91 8639667564
Fax No : 040-23010145, 23010120
E-mail : head.dobb.@uohyd.ac.in, syamsunderp@yahoo.com
office.dobb@uohyd.ac.in
Website : www.uohyd.ernet.in

15. UNIVERSITY OF JAMMU, JAMMU (10 seats) *

The Department of Biotechnology was established in the year 1999 and is funded by the Department of Biotechnology (DBT), Govt. of India, New Delhi. During 2008, the nomenclature of the department was changed to School of Biotechnology.

The School is DST-FIST and UGC- SAP supported. The faculty has attracted extramural funding from National and International funding agencies. About 380 students have graduated from the school and 80% have cleared National tests like NET-JRF (CSIR/UGC) BET-JRF (DBT) and NET -JRF (ICMR) and GATE. The students have been placed in prestigious research institutes in India and across the globe for pursuing Ph. D. and Post-doctoral studies. The school has established Memorandum of Understanding with prestigious institutes and universities from India and abroad for fostering collaborative research and exchange of students and scientists. The Bioinformatics centre supported by the DBT, Govt. of India is fully functional in the School. The School also conducts short term courses

workshops in Bioinformatics for University and college teachers and research scholars.

The School is housed in a state of art building. Four M. Sc. laboratories and the central facility laboratory of the School are fully equipped to conduct experiments prescribed in the syllabi. The School also houses six research laboratories wherein all the necessary facilities including sophisticated instruments have been placed. The School has added high throughput sequencers (NGS), to its impressive list of super specialized equipments. At the moment the progress is being made on establishment of Animal Cell Culture facility and Animal house. The School follows DBT and UGC National syllabi. During the 4th semester of M. Sc. Biotechnology programme the students have to conduct original Research work and submit a dissertation to the University which is evaluated by the Board of External and Internal Examiners.

The thrust areas of research in the School in which M. Sc. Students also conduct their research in 4th semester are:

- Plant Genomics
- Molecular Biology
- Metabolomics
- Bioprospecting
- Metagenomics
- Biomolecules from fungi and plants
- Fermentation and Industrial Biotechnology

Fees to be paid at the time of Admission: Rs.15950/- (approx.)

Contact Address: Prof. Jyoti Vakhlu
Head & Coordinator
Department of Biotechnology
University of Jammu
Jammu-180006
Phone No. : 0191-2456534
Fax No. : 0191-2456534
Mobile : 09419117624
E-mail : jyotivakhlu@gmail.com, jyotivakhlu@jammuuniversity.in
Website : www.jammuuniversity.in

16. JAWAHARLAL NEHRU UNIVERSITY, NEW DELHI. (39 seats) *

The School of Biotechnology was one of the first six centres established under the aegis of Department of Biotechnology (DBT), Govt. of India for carrying out Postgraduate teaching and research in areas related to Biotechnology. Initially established as a Special Centre for Biotechnology in 1985, it was upgraded to the level of a School in the year 2006.

Over the years the Biotechnology programme at JNU has established itself as a leading academic programme both from the teaching and research point of view. The faculty of the School is internationally recognized for basic and applied aspects of biotechnology research.

The School for Biotechnology emphasizes teaching of Physico-Chemical and quantitative aspects of Biology in the early semesters including Bio -organic Chemistry, Biochemistry, Microbiology, Biophysical Chemistry, Cell Biology, Biomolecules, Immunology, Molecular Biology & Molecular Genetics, Mathematics, Elementary Engineering and Bioprocess Technology. In the later semesters, specialized courses on Downstream processing, Virology, Computational Biology, Molecular Biology of Eukaryotic Systems, Genetic Engineering and its Applications, Animal Cell Technology and Bio-informatics are offered. Students also deliver seminars as part of the course curriculum.

M.Sc. students also participate in major research projects starting in the third semester in one of the following areas:

- Molecular Biology and Genetic Engineering
- Molecular Biology of infectious diseases
- Immunology and Chronic Viral Infections
- Protein Engineering, Protein Structure, stability and folding
- Biochemical Engineering, Metabolic Engineering and Bioprocess Technology
- Transcription and Human Biology
- Structural Biology and Bioinformatics
- Cell Signalling
- Cancer Biology
- Molecular basis of human viral diseases
- Metagenomics and Environmental Biotechnology
- Biotherapeutics Production
- Molecular Modeling and Cheminformatics
- Plant Molecular Biology and Biotechnology
- Nanobiotechnology, Biosensors
- Bio-conjugation Chemistry

For details about the various programmes, course outline, faculty profile and facilities visit our Website: http:/ www.jnu.ac.in/SBT

Fees to be paid at the time of Admission: Rs.5,000/- for General including OBC & Rs.2500/- for SC,ST,PH (Approx.)

Contact Address: **Prof.**. Pawan Dhar
Dean & Coordinator
Centre for Biotechnology
Jawaharlal Nehru University
New Mehrauli Road,
New Delhi-110067
Phone No. : 011-26704089, 26738753
Fax No. : 011-26741561
E-mail : dean_sbt@mail.jnu.ac.in

17. KUMAUN UNIVERSITY, NAINITAL (10 seats) *

The Department of Biotechnology in Kumaun University has been established with the objective to train students in various areas of Biotechnology. This department is funded by DST-FIST and M.Sc. programme is supported by the Department of Biotechnology, Govt. of India and all students admitted receive a stipend of Rs. 3000/- P.M. Students admitted in the 2-year (4 semester) programme are eligible for the award of M.Sc. degree in Biotechnology on successful completion of the course. Students of this University are offered conceptual courses like Biochemistry, Microbiology & Industrial applications, Cell & developmental Biology, Biostatistics & Computer science etc. to develop the basic understanding of the subject and core course like Molecular Biology, Genetics, Analytical Techniques, Immunology &. immunotechnology and Genomics & Functional Genomics. Besides that they are taught advanced courses like Genetics Engineering, Bioprocess Engineering, IPR& Biosafety and are offered elective courses like Plant Biotechnology, Environmental Biotechnology, Animal Biotechnology and Molecular Virology. The course work has been developed the expertise in the area of specialization and to give more practical and directional approach to the understanding of the subject. The students are required to undertake project/thesis work in their final. semester, which starts from IIIrd Semester. Students also deliver seminars as part of the course curriculum.

The M.Sc. students of the department have high success rate in the competitive examination held for the award of GATE/ DBT/ICMR/JNU/SPM/UGC/CSIR-NET/JRF and are placed at institution of National and International repute.

The department is running at the Bhimtal campus of the University,20 kilometers downhill of Nainital. The new infrastructure has specific Plant Biotechnology, Biochemistry, Molecular Biology, Algal Biotechnology, Microbiology and Bioinformatics Laboratories etc. other than teaching laboratories. The courses are taught by the faculty of the department as well as by the guest lectures of various experts of specialized areas. The faculty members are actively working of various Biotechnology related projects funded by DBT, CSIR, UCOST and UGC etc. The department has active interaction for both teaching and research with various institutes and universities of repute like CCMB Hyderabad, NIMHANS Banglore, NCCS Pune, NIMR New Delhi, DIBER Haidwani, DCFR Bhimtal, IVRI Mukteshwar, PDFMD Mukteshwar, G.B. Pant University, Pantnagar, NDRI Kama!, NBRI Lucknow, State council of science and technology, Gangtok, Sikkim. NRCPB Delhi, GBPIHED, Kosi- Katarrnal, Almora, VIPKAS Almora , Mody Institute of Technology and Science, Laxmangarh, SikarUttarakhand Council for Biotechnology, Haldi (U.S. Nagar) and Roswell Park Cancer Institute, Buffalo, USA (Under process)etc.

Fees to be paid at the time of Admission: I Semester Rs.16270/- (5000/- caution money), II Semester Rs.11050/-,III Semester Rs.11220/- & IV Semester Rs.11050/-, Govt. Hostels (Boys & Girls) are available at Rs. 16110/- per year excluding food.

Contact Address: Dr. Veena Pande,
Head& Coordinator
Department of Biotechnology, Bhimtal Campus
Kumaun University, Bhimtal,Nainital – 263136
Phone No.**:**05942-248185, 248042
Fax No.:05942-248042
E-mail : veena_kumaun@yahoo.co.in,
veena_biotech@rediffmail.com

18. UNIVERSITY OF LUCKNOW, LUCKNOW (10 seats)*

Students admitted to the programme are eligible for the award of M.Sc. degree in Biotechnology on successful completion of the course.M.Sc. Biotechnology program is supported by Department of Biotechnology (DBT), Govt. of India and is run in the Department of Biochemistry, Lucknow University. This is a 4- semester course with 8 weeks summer training. The course content, in brief, include: Biomolecules and Biopolymers; Biophysical Chemistry and Techniques; Biostatistics and Computer Applications; Enzymology; laboratory Course I; Molecular Cell Biology; Microbiology and Metabolic Processes; Molecular Biology I; Immunology I; Laboratory Course II; Molecular Biology II; Principles of Genetic Engineering; Microbial Technology and Bioprocess Engineering; Immunology II; Laboratory Course III; Plant Biotechnology and Tissue Culture; Animal Biotechnology and Cell Culture; Enzyme and Food Technology; Project work; Two months summer training (Entrepreneurship).. The method of teaching include the combination of lectures and practical/ demonstration by the faculty and guest speakers, seminars, audio-visual presentation, etc.

The Department of Biochemistry is well recognized all over the country for its standard of teaching and research. The department runs M.Sc., Ph.D. and D.Sc. degree programs. The M.Sc. Students of this department have always excelled in the competitive examinations held for the award of Research fellowships at national level-UGC-CSIR NET, GATE, etc.

The Department is collaborating in research activities with the other departments of the University as well as with national organizations, such as Central Drug Research Institute, Indian Institute of Toxicology Research, National Botanical Research Institute, Central Institute of Medicinal and Aromatic Plants, KG Medical University, Lucknow.

The Department has earned recognition in the form of financial support from Rockefeller Foundation, UNESCO, PL480, UGC under Special Assistance and COSIST, DST-FIST and DST PURSE programs. Department also has Bioinformatics Infrastructure Facility (BIF) of DBT and Centre of Excellence in Bioinformatics from U P Govt.

The major research areas of the department include: (1) Plant Biotechnology (2) Metabolic Pathway Engineering (3) Clinical Biochemistry (4) Bioinformatics.

Fees to be paid at the time of Admission: Rs.15000/ - per semester + Rs.1000/- Enrolment fee (One time)**.** Hostel charges are extra.

Contact Address:
Prof. U. N. Dwivedi
Coordinator
Department of Biochemistry
University of Lucknow
Lucknow - 226007
Mobile No. : 09415022445
E-mail : upendradwivedi@hotmail.com
Website : http://lkouniv.ac.in

19. MAHARSHI DAYANAND UNIVERSITY, ROHTAK (15 seats) *

Maharshi Dayanand University is named after the name of a great visionary and social reformer, Maharshi Dayanand. The University is located at Rohtak in the state of Haryana - about 75 kms from Delhi on Delhi-Hisar National Highway (NH- 10).

The University campus, spread over an area of over 665.44 acres, is well laid with state-of-the-art buildings and magnificent road network, and presents a spectacle of harmony in architecture and natural beauty. Educational and research programmes are offered through its 38 teaching departments. There are as many as 10 Teaching Blocks, 22 Hostels, an elegant Vivekananda Library with 6 off-shoots, the majestic Tagore Auditorium equipped with modern gadgetry and amenities, spectacular Students Activities Centre, Campus School, Health Centre, Faculty House, Sports Stadium, Swimming Pool, Multipurpose Gymnasium Hall, Community Centre, Printing Press, Canteens, Shopping Complex and an Administrative Block. There is a very robust Campus Wide Network – an amalgam of cable and Wi-Fi technologies, with 1 Gbps internet connectivity.

Centre for Medical Biotechnology is housed in a three storied building with working area of 9630 square meters on three floors. It has well organized laboratories, classrooms, seminar rooms and conference room. The centre has well established Animal Cell Culture Facility and Central Instrumentation Facility. The Centre is equipped with instruments necessary for advanced research in Biotechnology. Some facilities include: Equipments like – Fermentor, Blotting apparatus, Deep freezers, Potentiostat-Galvanostat, Ice-flaker, IEF Electrophoresis, Gel Documentation system, High-speed Centrifuges, Real -Time PCR, ELISA reader, Nano HPLC, UV-VIS spectrophotometer, Phase contrast Inverted microscope, Aktapurifier etc. This centre also houses a well established bioinformatics facility supported by DBT, Govt of India having its own high and low end servers to cater the need of Centre. The major area of research in the Centre is Insect Genetic Engineering, Virology, Genosensor development, Stem cell technology, Animal cell culture, molecular toxicology etc.

The M.Sc. teaching programme is a two-year (4 semesters) course and follows Choice Based Credit System (CBCS) of the University formulated by DBT expert committee. The CBCS offers hard core, soft core and open elective courses. Projects are the integral part of the CBCS and each student works on a research project for one full semester in one of the following areas. The students also have the option to work for summer training in Post Graduate Medical College, Rohtak or any other premier institute in India for 8 weeks at the end of first year. Major research programs are in the following areas:

- Stem Cell Culture
- Genosensor for infectious disease
- Genomics and Proteomics
- Population genomics
- Molecular virology
- Diagnostics

Fees to be paid at the time of Admission: Rs 10,845/- & Hostel Charges : Rs.10,000/- per annum

Contact Address:
Dr. Amita Suneja Dang
Coordinator
Centre for Medical Biotechnology
MaharshiDayanand University, Rohtak - 124001 (Haryana)

Phone No. : 01262-393101, 393104, 393116
E-mail: :dang.amita @gmail.com; coordinator.dbt@mdu.ac.in
Website: mdurohtak.ac.in

20. Maharaja Sayajirao University of Baroda (25 seats) *

The Maharaja Sayajirao University of Baroda is India's internationally renowned state residential university established in 1949. The university has 275 acres of campus comprising 14 Faculties (including Fine Arts, Performing Arts), 90 Departments, 3 constituent colleges and several specialized centres and institutes offering wide spectrum of courses from kindergarten to Ph.D.

The Department of Microbiology and Biotechnology Centre was one of the first six centres established for carrying out Postgraduate teaching and research in areas related to Biotechnology, under the support of Department of Biotechnology (DBT), Govt. of India. Students joining the Biotechnology Programme are eligible for the award of degree in M.Sc. Biotechnology on successful completion of the course.

The department has strong base in Microbial and Molecular Technology and is equipped with:

- Infrastructure for very good training in DNA Technology, Genetic Engineering, Molecular Biology, Animal cell culture, Industrial Microbiology, Immunology and Bioinformatics.
- A Bioinformatics Centre – DIC, supported by DBT
- Access to excellent internet facilities.
- An inter departmental central facility for Confocal microscopy, FACS and 2D-proteomics with LCMS
- A library with very good collection of textbooks easily accessible to the students.

The programme is spread over four semesters covering a total of 100 credits. The theoretical and practical training is given in Microbiology, Biochemistry, Genetic Engineering, Developmental Biology, Immunology and some aspects of Biochemical Engineering, Biophysics, Biostatistics, Bioinformatics and Environmental Biotechnology.

Students also work on a research project during the course as a part of the curriculum. The aim is to provide them sufficient experience and proficiency in the methodology of biological research to enable them to carry out independent research. Projects are assigned, as far as possible, according to the individual interests of students, and are carried out in our own laboratories. After submission of their dissertation, the students undergo a viva-voce, in which they have to defend their work.

Students are also required to give one Seminar during their course and submit Project Proposal.

The major research programs are in the following areas:

- Clinical Immunology
- Development of probiotics & Nutraceuticals
- Enzyme Technology
- Genome Analysis
- Host – Bacterial interactions in disease
- Macrophage - Bacterial interactions
- Molecular aspects of Bacterial Pathogenicity
- Molecular Microbiology
- Plant Microbe Interactions
- Antimicrobial Resistance

Fees to be paid at the time of Admission: Boys –Rs.10,000/-. Girls – 8500/-
Hostel accommodation: Additional Rs.7000/-. Hostel accommodation will be provided to boys and girls subject to availability.

Contact Address: Dr. Mrinalini Nair,
Head & Coordinator
Biotechnology Programme
Department of Microbiology and Biotechnology Centre,
Faculty of Science,
M. S. University of Baroda,
Baroda – 390002
Phone No: 0265-2794396, 0265-2750498

E-mail : mnair_in@yahoo.com, coordinator-biotech@msubaroda.ac.in
Website:, http://www.msubiotech.ac.in

21. UNIVERSITY OF MYSORE, MYSORE (10 seats) *

The University of Mysore (UOM) is the sixth oldest university in India. The university is reaccredited for the third time with a score of 3.47 out of 4.00 by NAAC. UOM is recognized by the Ministry of Human Resource and Development/ UGC, Government of India as an Institution of Excellence and awarded Rs.100 crores. Under this programme the university has set up a Centre of Excellence in "Biodiversity, Bioprospecting and Sustainable Development". This centre is equipped with MALDI-GC-LC-MS/ MS, NMR, XRD, Confocal microscope, SEM, Fluorescent microscope, Polarizing microscope, Live cell imaging system, DNA sequences, Multimode plate reader, Flow cytometer, Ultracentrifuge, High speed centrifuge, Fermeters & Bioreactors, Water purification system, Vacuum concentrator, Freeze driers, Ultrafreezers, Biosafety cabinets etc. UGC has recognized this university as University Potential for Excellence (UPE) and granted Rs. 60 crores. DST has recognized this university under Promotion of University Research and Scientific Excellence (PURSE) with a grant of Rs. 9 crores.

M.Sc. Biotechnology is a four- semester (CBCS) programme offered by the Department of Studies in Biotechnology. The course content covers theoretical and practical training in Biophysics and structural biology, Bioanalytical techniques, Bioprocess technology, Molecular genetics, Food & environmental biotechnology, Advanced molecular biology, Gene technology, Biostatistics & Bioinformatics, Molecular biodiversity, Immunotechnology, Cell signaling & communication, Plant biotechnology and Animal biotechnology. The students have to undertake a project work in the fourth semester.

The major thrust areas of research at the department include Plant and microbial biotechnology, Molecular Plant Pathology, Biopesticides, Mycotoxins, Cancer Biology, Biomarkers, Molecular biodiversity and Bioprospecting. The Department is supported by UGC- SAP-DSA, COSIST, DST-FIST, ICAR, DBT-HRD, DBT Indo-German and European Union Programmes. The faculty members are having competitive grants from national and international agencies. The Department has established a Seed Health Center for Asian region with DANIDA support. Good infrastructure has been established at the department for teaching and research.

Fees to be paid at the time of Admission/Registration: Rs.20,000/-.

Contact Address: Prof. Bharathi P. Salimath,
Chairperson and Co-Ordinator,
Department of Biotechnology,
University of Mysore,
Manasagangotri,
Mysore 570006
Ph: 0821-2419879
Mobile: 9972969705 and 9342111705
E-mail: salimathuom@gmail.com

22. UNIVERSITY OF NORTH BENGAL, SILIGURI (10 seats) *

Students admitted to the four-semester (two-year) programme (as per DBT, GoI, prescribed syllabus) of the Department of Biotechnology, University of North Bengal, are eligible for the award of M.Sc degree in Biotechnology on successful completion of the course. Growing with the years, the department has acquired critical expertise in transforming learners of the M.Sc in Biotechnology to future human resources of high quality Science and Technology Institutes of India and abroad. Five salient points of the University's M.Sc program in Biotechnology are: (i) One-to -one teacher -student (teacher student ratio: approx. 1 : 1) interactive and remedial session; (ii) Monitoring and mentoring of individual student to transcend; (iii) exposure to independent hands-on practical connected to a step-up ascent in methods involved to uncover a research problem identified afresh in the respective practical classes; (iv) In-house dissertation projects, beginning from the third semester, as per students' choice, in the fields of biomedical technology, enzyme biotechnology, bioinformatics, agricultural biotechnology, fungal biotechnology, high-throughput biology, phytochemistry, plant biotechnology, animal cell culture, nanobiotechnology, and microbial biotechnology ; and (iv) strong emphasis on learning by doing, holding regular journal club (integral part of the curriculum), presentation of cutting-edge research findings and entrepreneurial projects by students. A PhD level course- work and training program in research design has been developed to recruit highly qualified and motivated PhD students and post-doctoral associates in genomics-proteomics-metabolomics-resistome research programs supported through various extramural funding by CSIR, DBT, UGC, DST etc. and industrial contributions. The department currently provides strong research ties between NBU-department of Biotechnology and different National and international Research Institutes, and Universities.

The steady increase in the quality of publications by the core faculty members of the department is an important index of vibrant intellectual environment. The profile of the sent-out post-graduates pursuing Ph.D as well as post-Ph.D research in internationally recognized centres of higher learning and research , and the quanta of qualifiers in National eligibility tests (NET, GATE, DBT-BET, ICMR) are the main reasons why students qualifying combined entrance examination are attracted to get admitted to M.Sc Biotechnology program of the University of North Bengal.

Fees to be paid at the time of Admission: Rs.2878/- (Approx.)

Contact Address: Dr. Dipanwita Saha
Head and Coordinator
Department of Biotechnology,
University of North Bengal,
P.O. NBU, Siliguri –734013
West Bengal
Phone No. : 0353-2776354(O), 09434429800 (M)

Fax No. : 0353-2699001
E-mail : dsahanbu@yahoo.com
biotechnologynbu@gmail.com

23. NORTH EASTERN HILL UNIVERSITY, SHILLONG (10 seats) *

North Eastern Hill University was set up by an Act of Parliament and notified on 19th July 1973. The objectives of the University, as laid down in the acts, are "to disseminate and advance knowledge by providing instructional and research facilities in such branches of learning as it may deem fit; to pay special attention to the improvement of the social and economic conditions and welfare of the people of the hill areas of the North-eastern region, and in particular, the intellectual, academic and cultural advancement".

All Departments of the University are housed in the buildings on the permanent campus. Now we have high speed internet connectivity to which all the departments located on the campus are linked. The BSNL has wt up a fully automated telephone exchange in the campus. In a short span of 36 years, NEHU has matured into an institution with a proven academic excellence of higher learning and research learning and research, social commitment and cultural interest with a clear vision for its future growth. In the year 2006, it was chosen as a 'University with Potential for Excellence' by the University Grants Commission (UGC). It has been able to attract persons of proven academic excellence from almost all parts of the country to serve on its faculty; the present faculty strength is 342. Its student community is drawn not only from different part of the north-east region but also from other regions of the country and abroad.

Department started:	Year 2005
Number of faculty:	7 (seven)
Course Offered:	M.Sc. (Biotechnology), and Ph.D.
Received support:	DBT for M.Sc. (Biotechnology) teaching Programme from 2007; DST-FIST; UGC-SAP, 2015; R&D Project- six projects per year (approx);

UGC-NET/GATE/DBT-JRF: Six students per year (approx.)

Fees to be paid at the time of Admission: Rs.4500/- (Approx.)

Contact Address: Prof. Anupam Chatterjee
Course Coordinator
Department of Biotechnology & Bioinformatics
North-Eastern Hill University
Shillong - 793022

Phone No.	:	364-2722403, 2722401, 2722402
Fax No.	:	364-2550076
E-mail	:	chatterjeeanupam@hotmail.com, biotechnologynehu@gmail.com

24. PONDICHERRY UNIVERSITY, PONDICHERRY (23 seats)*

Pondicherry University offers M. Sc. Biotechnology since 1993 through DBT - Pondicherry University PG programme. It is a two year programme with Choice based credit system where the students are at liberty to choose courses of their interest in consultation with the Faculty Advisor. Students are encouraged to opt for a limited number of hard and soft core courses offered by other Departments of the University to meet their ambition.

Courses that are offered during programme include Microbiology, Biochemistry, Cell and Molecular Biology, Molecular Genetics, Applied and Industrial Microbiology, Molecular Plant Breeding, Immunology, Plant Biotechnology, Marine Biotechnology, Animal Biotechnology, r-DNA Technology, Immunotechnology, Proteomics and Genomics, Bioprocess Technology, Radiation Biology, Bioinformatics, Microbial Biotechnology, Medical Biotechnology and Pharmaceutical Biotechnology. During summer vacation the students are encouraged to undergo a 6-weeks training programme in any of the reputed National Laboratories/Universities/Industries in India. Besides credit seminar(s), the students are expected to do a dissertation in second year spanning two semesters.

The Department is equipped with instruments necessary for advanced research in Biotechnology. Some of the equipments and facility available are Bioreactor, Blotting apparatus, Deep freezers, Ice-flaker, TG and IEF Electrophoresis, Gel Documentation system, High-speed Centrifuges, Real-Time PCR, ELISA reader, Gas Chromatography, HPLC, LCMS, Lypophilizer, UV-VIS spectrophotometer, Nano Drop Spectormeter, Phase contrast and fluorescence microscope, Inverted microscope, Flow-cytometer, Sonicator, Microplate Luminometer, Spectroflourimeter, Plant Tissue culture facility, Marine Animal house, Animal cell culture facility, Biosafety facility and Central Animal House facility.

The Department receives financial support from National (DBT, DST, UGC, CSIR, ICMR, AICTE, MOES and DAE). The Department also has recognition through DST-FIST and UGC-SAP programmes and Academica-Industry partnership programmes funded by DST.

Major research programmes of the Department are as follows:

1. Bioactive molecules from microbes plants and animals
2. Synthesis and characterization of nanoparticles
3. Crop improvement through genetic engineering and marker assisted breeding
4. Application of probiotics in aquaculture and food processing industries
5. Quorum sensing in bacteria-host interactions and role of cell adhesion molecules in bacterial pathogenesis
6. Protein engineering
7. Hematopoietic stem cell biology
8. Fungal Biotechnology

9. Scientific validation and standardization of AYUSH Drugs.

Fees to be paid at the time of Admission: Tuition Fees: Rs. 18100/-(approx)
Hostel Fees: Rs. 4900/-(approx) per semester

Contact Address: Prof. V. Arul
Head and Coordinator
Department of Biotechnology
Pondicherry University
R. Venkataraman Nagar
Kalapet, Puducherry - 605014
Phone No. : 0413-2654429, 2654428
Mobile : 09444753179
Fax No. : 0413-2656742
E-mail : Varul18@gmail.com, varul18@yahoo.com
head.dbt@pondiuni.edu.in

25. SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE (20 seats) *

The Department of Biotechnology of Savitribai Phule Pune University is a well-established Centre for teaching and research in biotechnology and related areas. It started in 1985 along with a few first centres supported by DBT, New Delhi.

Students admitted to the programme are eligible for the award of M.Sc. degree in Biotechnology on successful completion of the course. There are 94 credits (as per DBT M.Sc. Biotechnology syllabus, 2017) to be completed by a student. In addition to this our University offers mandatory fulfilment of 10 credits divided in 4 semesters and related to various courses including Cyber Information/Security, Human Rights Education, Skill Development, etc. The main thrust areas of the centre are quantitative aspects in Biology. Students are offered core courses in Biochemistry, Cell and Molecular Biology, Plant and Animal Biotechnology, Microbiology, Genetics, Basics of Mathematics and Statistics, Genetic Engineering, Immunology, Bioinformatics, Genomics and Proteomics, Molecular Diagnostics, Research Methodology and Scientific Communication Skills along with Seminar presentations in the first two semesters. In the third semesters, more specialized and advanced courses, namely Bioprocess Engineering and Technology, Emerging Technologies, Bioentrepreneurship, Intellectual Property Rights, Biosafety and Bioethics are offered. In addition to this students are evaluated for their Project Proposal Preparation and Presentation, Critical Analysis of Classical as well as Recent Advances through seminar presentations. The fourth semester includes an Elective Course and a Research Dissertation.

The department has in-house faculty strength of two Professors, **four** Assistant Professors, **three**UGC-FRP, 3 Teaching Research Associates. In addition, there are 24 Adjunct Faculty from NCL, NCCS, IISER, NIV, ARIetc who contribute to our teaching and research programme. The Department has well established state-of-art teaching and research laboratories. A number of Ph.D. and Post doctoral students work in various research programmes of the Department which are as follows:

1. Pathophysiology of Cancer, diabetes and, leishmaniasis etc.
2. Applications of computational tools for SAR, drug design, modelling, etc.
3. Cancer epigenetics &Proteomics.
4. Bioremediation of heavy metals and halogenated compounds at molecular level
5. Nanobiotechnology, live cell imaging etc.
6. Epigenetic studies on micronutrient deficient diabetic subjects and effects of stress and depression on brain.
7. Regulation of insulin/insulin like growth factor signaling in mammalian brain by chaperons.
8. Hypoxia, angiogenesis & Tumor progression
9. Natural Product & Drug Development

For further details including syllabus, our website (www.unipune.ac.in/Department of Biotechnology) may be visited.

Tentative fees to be paid at the time of Admission: Rs. 26,500/- (Approx.). Please note the amount may change as per SPPU rules.

Contact Address:
Prof. Rajesh N. Gacche
Head
Department of Biotechnology,
Savitribai Phule Pune University,
Ganeshkhind,
Pune - 411007
Phone No.: 020-25694952, 25691821
Fax No.: 020-25691821, 25692248
E-mail: hodbiotech@unipune.ac.in
rngacche@unipune.ac.in

26. SARDAR PATEL UNIVERSITY, ANAND, GUJARAT (10 seats) *

Students admitted to the programme are eligible for the award of M.Sc degree in Industrial Biotechnology on successful completion of the course. Under the Choice based Credit System (CBCS) introduced in the department from 2011, there are 100 credits to be completed. The Bhanuben Ratilal Doshi (B R Doshi) school of Biosciences is a renowned state university situated close to the milk city

Anand. The department has nurtured and developed a strong emphasis on basic and applied research in diverse areas of Biology. The department is nationally and internationally recognized for its contributions in research the areas of Environmental Biotechnology, Plant morphogenesis, Microbial technology, Biodiversity; plant Biotechnology, herbal medicines and human diseases.

The department also runs five other post-graduate courses such as Biochemistry, Botany, Biotechnology, Microbiology and Zoology. The DBT sponsored Industrial Biotechnology programme is spread over four semesters. The first three semesters comprise of three core and one elective paper and two practical courses in each semester. In the fourth semester, along with two core papers, a dissertation or research project is to be carried out by the students. The dissertation is an independent, credit based research work carried out under the supervision of a faculty member as a partial requirement for the M.Sc degree. The core as well as elective papers offered include: Molecular Biology, Bioinstrumentation, Cell Biology and genetics, Biostatistics, Transport processes and downstream processing, Bioprocess and biochemical Engineering, Genetic Engineering and Bioinformatics, Microbial technology, Enzymology, Immunology, Environmental Biotechnology and Plant and animal Biotechnology.

These courses are being taught by experienced faculties of the department as well renowned regular visiting faculties. The department at present has 15 permanent faculty members and two ad-hoc faculties. All the faculty members are actively engaged in research supported by various governmental and industrial sponsors such as UGC, DST, CSIR, DBT, ICAR, MoE, DRDO, GSBTM, NDDB, BASF etc. In addition to these individual projects the department has received grants under UGC-SAP, UGC-COSIST and DST-FIST.

Fees to be paid at the time of Admission: Rs. 6550/- (Approx.) per semester

Contact Address:
Prof. R. B. Subramanian
Coordinator
BRD School of Biosciences
Sardar Patel University
Vallabh Vidyanagar - 388120
Distt. Anand, Gujarat
Phone No. : 02692 - 234412
Fax No. : 02692 - 236475
E-mail : subramanianrb@gmail.com

27. SHIVAJI UNIVERSITY, KOLHAPUR (10 seats) *

Shivaji University, Kolhapur named after the great Maratha Warrior Chhatrapati Shivaji, was established in 1962 at Kolhapur (Maharashtra). Currently the University is ranked 28th in the MHRD NIRF ranking and accredited with a 'A' grade from NAAC Students admitted to the programme are eligible for the award of M.Sc. Environmental Biotechnology on successful completion of the four-semester course under CBCS introduced in the University from 2013. This course was started in 2006 at Department of Biochemistry which includes training in-Cell Biology, Microbiology and Virology, Proteins (Structure and Functions), Biomolecules, Biostatistics and Bioinformatics with Computer Orientation, Enzymology, Molecular Biology, Bioenergetics, Tools and Techniques in Bioscience, Genetic Engineering, Immunochemistry, Fermentation Technology, along with Basics of Ecology, Ecotoxicology and Eco chemistry, Environmental Pollution and Control, Environmental Biotechnology, Biodiversity, IPR, Biosafety & Bioethics etc.

Student has to complete 96 credits (Theory courses: 64 credits and Practical/Project/ Seminar/ Scientific Paper Writing: 32 credits). Students also have a choice to take some of the courses from other departments of the University.

This centre is equipped with UV- Vis, IR, GC, HPLC, HPTLC, Gel Documentation system, PCR, RTPCR, DGGE, TGGE and DNA Sequencer etc. along with all basic facility required in Plant tissue culture, Animal Tissue Culture, Enzymology and Bioinformatics.

The research thrust areas of the Department includes Biotransformation, Microbial and Phytoremediation (Textile Dyes and xenobiotics), Bioinformatics, Molecular Modelling/ Computational Biochemistry, Ayurvedic drugs and its biochemical action, Diabetes mellitus, Biodiversity, identification, DNA barcoding and Bioprospecting of Medicinal plants, Molecular community dynamics in rhizosphere of textile dye contaminated ecosystems and genetically modified microorganisms for dye degradation.

Department also offers M. Sc. and PhD. courses in the Biochemistry and one year Post Graduate Diploma in Bioinformatics. Biochemistry department has been recognized by Department of Science and Technology through its FIST, University Grants Commission through SAP-DSR-I programme and is also actively involved in DBT-IPLS and DST-PURSE programmes sanctioned to Shivaji University, Kolhapur. This Department is recognized for its textile dye degradation studies in the International community.

Fees to be paid at the time of Admission: Rs. 13,000/-

Contact Address:
Prof.(Mrs) A. U. Arvindekar
Head & Coordinator
Department of Biochemistry
Shivaji University
Vidyanagar, Kolhapur - 416004
Maharashtra
Phone No. : 0231 - 2609152
Fax No. : 0231 - 2692333
E-mail : **aua_biochem@unishivaji.ac.in,** auarvindekar@rediffmail.com

28. TEZPUR UNIVERSITY, TEZPUR (ASSAM) (20 seats) *

The Department of Molecular Biology and Biotechnology (MBBT), Tezpur University was established on 24th of July 1997. The Department started offering a two-year M.Sc. programme in Molecular Biology and Biotechnology since inception. Besides this the Department is also currently offering Ph.D. in Molecular Biology and Biotechnology as well as a 5-year Integrated dual B.Sc.- M.Sc. in Life Sciences. Students passing out from this Department are able to secure admission into the PhD programme of various reputed research institutions such as IISc, NCBS, CCMB, NII, NBRC, NIPGR, IGIB, NCCS, NIBMG, IMTECH, etc. Over the years the Department has substantially contributed to the development of trained manpower in different fields of biotechnology and molecular biology, which has placed the Department among the leading centers of learning and research in the country.

The current faculty strength of the Department is nineteen, with diverse research specialization. The Department laboratories are well equipped with advanced instrumentation facilities (e.g. DNA sequencer, Real- Time PCR, HPLC, Bioanalyzer, Spectrofluorimeter, Immunofluorescence microscope, GC-MS etc.) and are supplemented by the instruments available at the Sophisticated Analytical Instrumentation Centre (SAIC) of the University. The Department has been following the DBT recommended M.Sc. General Biotechnology syllabus, since July 2011.

The final semester students participate in research projects in any one of the ongoing research areas of the Department that include Genetics Diseases (Cancer, Malaria, Eye, Diabetes, etc.), Evolutionary Genetics, Molecular Toxinology, Molecular Immunology and Immunogenetics, Plant-Microbe Interactions, Venom Biochemistry, Nanobiotechnology, Bioinformatics and Computational Biology, Environmental Biotechnology, Food Microbiology, Industrial Microbiology, Enzyme Technology, Bioremediation, Microbial Enhanced Oil Recovery, Protein Chemistry, Drug Discovery from natural products.

The University has also introduced Choice Based Credit Transfer (CBCT) that enables the students to enrol for credit course in each semester, of their choice, thereby enabling them to opt for the multidisciplinary courses. Details on faculty profiles, research interests and infrastructure facilities can be viewed at our website: http://www.tezu.ernet.in/dmbbt/index.htm

Fees to be paid at the time of Admission: Rs.20,203/- for admission to Semester I and **Rs.11403/-** (approx) for subsequent semesters. Detail of the fees (including medical insurance, Hostel admission and refundable caution deposits) can be found in the Tezpur University Prospectus.

Contact Address: Prof. Anand Ramteke
Head & Coordinator
Department of Molecular Biology & Biotechnology
Napaam, Tezpur University
Tezpur - 784028
Phone No. : 03712-275401
Mobile No. : 09954678888
Fax No. : 03712-267005, 267006
E-mail : hod_mbbt@tezu.ernet.in

*** Number of seats is subject to revision by the Department of Biotechnology, Government of India.**

29. UTKAL UNIVERSITY, BHUBANESWAR (10 seats) *

Utkal University established in the Year 1943 accredited by NAAC (A+) and is also declared Category-I University by MHRD. It is the seventeenth oldest University in India. Its present campus at Vani Vihar, Bhubaneswar is located on a sprawling 399.9 acre area in the heart of Bhubaneswar, the Capital city of Odisha. P.G. Department of Biotechnology is established in the year 2002 and the M.Sc. Biotechnology Teaching Programme is supported by the Department of Biotechnology, Govt. of India, New Delhi. Students admitted to the Teaching programme of the Department are eligible for the award of M.Sc. Degree in Biotechnology on successful completion of the Course.

Eligibility Criteria: Bachelor's Degree under 10+2+3 pattern of Education in Physical or, Biological Sciences with at least 55% marks in aggregate or, as decided by the Department of Biotechnology, Govt. of India, New Delhi from time to time.

M.Sc. Biotechnology Programme is a four semesters (two years) teaching programme offered through semester choice based credit system adopting UGC guidelines. Under this system students have flexibility to take some courses/credit hours in 3rd/4th semester in the related or cross disciplinary areas from related P.G. Departments of the University. The Course curriculum has been designed to impart theoretical and practical training to the students in Cell Biology and Genetics, Biochemistry, Microbial Physiology and Genetics, Biotechniques, Molecular Biology, Environmental Biotechnology, IPR & Bio-safety, Immunology, Plant Biotechnology, Biostatistics and Bioinformatics in the first two Semesters. In 3rd Semester more specialized and advanced courses i.e., Genetic Engineering, Animal Biotechnology, Enzyme and Bioprocess Technology are offered. In 4th Semester the students shall have to undertake an extensive project work for a period of six months with an aim to have laboratory exposure and proficiency in the methodology of Biological Research. Student Seminar is also an integral part of the course curriculum. The Department has active interaction in teaching and research with various Departments of the University and a number of National Institutes in and around Bhubaneswar. The Department is having well established and equipped research laboratories through fundings from the DBT, Govt. of India, DST, Govt. of India, ICMR, DAE (BARC), UGC, Central Council for Research in Homeopathy (CCRH), Ministry of AYUSH, Govt. of India and State-DST etc. The Department is also under DST-PURSE Programme. The M.Sc. Biotechnology course is taught by the core faculties and eminent visiting faculty. Students of this Department have always excelled in various competitive examinations held for the award of Research fellowships at National level i.e., UGC-CSIR NET, GATE, DBT-JRF, ICMR-JRF and carrying out research in reputed Institutes and

Universities in India. The Alumni of the Department are well placed in reputed Research Institutes in India and Abroad. The Department is currently pursuing research activities in the following areas.

- Redox homeostasis; Endocrine disruptions and Epigenetic modifications.
- Pharmacological screening of Bioresources for Therapeutic Interventions.
- Development of biopolymeric scaffolds and Nano medicines.

Infrastructure facilities : Student Laboratory, Research Laboratory, Library, Computers, Internet facility and equipments such as UV-Visible spectrophotometer, Microplate (ELISA) Reader, Microplate Spectrophotometer, Spectrofluorimeter, Chemi Doc. System, Orbital shaker incubator, High speed refrigerated centrifuge, Gel Electrophoresis, Blotting System, Gel Doc. System, Thermal Cycler (PCR), -80^0C, -50^0C & -20^0C Deep freezers, Hybridization oven, Sonicator, Research Microscopes, Fermenter, Millipore water purification system, Cold room, Power backup system, Oxygraph, Microscope with digital camera attachment and Microtome for histochemical studies are available in this Department. Besides the above facilities, Department has developed cell culture facilities with Biosafety Cabinet(Level-II), CO_2 Incubator and also has procured sophisticated equipments like Real Time PCR, High Performance Liquid Chromatography (HPLC) system and Fluorescence Microscope.

The University has established Central Instrumentation facility through Centre of Excellence in Integrated Omics and Computational Biology (COE-IOCB) and Centre for Enviornment, Climate Change and Public Health faciliating National and International collaborations for Academic and Research Exchange.

For detail information please visit University/Department website: www.utkaluniversity.nic.in

Contact Address:

Dr. Sabuj Sahoo
Head, P.G. Department of Biotechnology
Utkal University, Vani Vihar, Bhubaneswar-751 004, Odisha
Telephone No.(O) 0674-2567390, (M)09437344766
E-mail ID: sabujbiotech@rediffmail.com

30. VISVA-BHARATI UNIVERSITY, SANTINIKETAN (17 Seats) *

Visva-Bharati at Santiniketan, founded by Nobel Prize (literature) winner and great poet Rabindranath Tagore, is a Central University of National importance since 1951. Santiniketan is located about 150 km north of Kolkata in the Bolpur town of West Bengal among natural and scenic environment. It is a major attraction that is visited by tourists from all over the world. Bolpur station is easily connected by many express trains (~3 - 4 hours) from the three trains stations in Kolkata (Howrah, Sealdah and Kolkata stations) and Burdwan station. M.Sc. Biotechnology program was started in this University in the year 1997 and from 2004 it is supported by the Department of Biotechnology, Government of India. Students admitted to the program are eligible for the award of M.Sc. degree in Biotechnology on successful completion of the course in 4 semesters (2 years duration). The primary objective of the department is to impart advanced knowledge in various cutting edge areas of modern biotechnology through class room and hands-on practical/research training so that the students feel themselves adequate, self-sufficient and confident.

The first three semesters each have four theory and one laboratory courses with a provision of summer training for 4 to 6 weeks in any Institute/University of choice in India at the end of the 2nd semester. In the 4th semester there are two theory and one laboratory courses. In addition, each student carry out a project work which sometimes lead to scientific publication, under the careful supervision of a faculty of the Department. The project work is spread over the 3rd and 4th semesters and is evaluated at the end of the 4th semester. The entire course carries 96 credits. The courses of the first two semesters are designed with the objective to strengthen the basic concepts of Biotechnology. These courses are Cell Biology, Biochemistry, Genetics & Molecular Biology, Biotechniques, Microbiology, Immunology, Virology, Computer applications, Biostatistics and relevant laboratory courses. The 3rd and 4th semester offer theory courses in the applied aspects of biotechnology such as Animal biotechnology, Plant biotechnology, Genetic engineering, Bioprocess engineering, Bioinformatics, Bioethics and IPR, Environmental Biotechnology, Biosafety, Research methodologies, Emerging technologies, Bioentrepreneurship etc. in addition to the relevant laboratory courses. In addition, one paper in the fourth semester has been devoted to student seminar on high-impact classical papers. All students are also required to present talks on recent advances in Biotechnology in weekly seminars, beginning right in the first semester, which are also evaluated. Guest lectures are organized, inviting scientists from other Institutions/Universities to strengthen the academic and business/commercial exposure of the students. The department also encourages visits of the students to institutes having research &/or commercial activities of various kinds. The department has computer and wi-fi internet facility in the class rooms and a departmental well-stocked library in addition to a well established Central library, for academic uses by the students. The teachers very actively encourage and support students to appear for various competitive exams such as NET, GATE, DBT-JRF etc. and every year several students succeed in these exams. The department also has a vibrant PhD program with many students engaged in cutting edge research under different faculty members who have garnered large amounts of research grants from various funding agencies (e.g. by DBT, DST, UGC, CSIR etc.) and published more than 100 research articles in national/international journals of repute in the last five - six years.

The Department has seven permanent faculty for the M.Sc. Biotechnology course; all the faculty members have substantial research exposure abroad which strengthens the departmental teaching profile to a great extent. Some of them also have collaboration with National and International Institutes/Universities. The Department has received financial supports through DST-FIST program, DBT-HRD program, UGC and the University itself. Many state-of-the-art instruments (e.g. Flow cytometer, HPLC, -80^oC deep freezers, Imaging system, Fluorescence and Nanodrop and UV-VIS Spectrophotometers, Incubators, Cold centrifuges, ELISA reader, PCR machines etc.) have been purchased with funds from various sources. Proposals are also there for the purchase of a common DNA synthesis & sequencing facility. Priority areas of research work of the faculty are following: Tumor Virology, Parasitic Immunology, Cancer Biology, Plant Bioactive compounds, Cloning and characterization of carbohydrate splitting enzymes, Ageing mediated damage to cellular macromolecules and their modulation, Genomics & transcriptomics of plant-pathogen interactions, Abiotic stress responses in plants etc.

Further details about the University, faculty profiles and their academic interests can be viewed at our website: http://www.visvabharati.ac.in

Fees to be paid at the time of Admission : Approx. Rs. 7500/- (Indicates 2018-2019 fees; Amount shown included first year tuition fees and did not include hostel and mess charges)

Contact Address:

Dr. Amit Roy
Head & Coordinator
Department of Biotechnology
Integrated Science Building, Siksha-Bhavan
Visva-Bharati University
Santiniketan - 731235, West Bengal
Cell Phone: 9748124142 / 9433144948
Phone No. : 03463 - 261101
Fax No. : 03463-261101
E-mail : hod.biotech@visva-bharati.ac.in

31. Jiwaji University, Gwalior (10 seats)*

The School of Studies in Neuroscience, Jiwaji University, Gwalior, offers a platform for research and teaching towards understanding the structure and function of the brain. This is the first and only Post-Graduate Department in Indian Universities extending interdisciplinary and inter-Institutional training to students leading to the award of M.Sc. Neuroscience degree. The M.Sc. Neuroscience teaching programme takes care of the basic disciplines such as Cell biology, biochemistry, cell and molecular biology, genetics, laboratory tools and techniques, etc. which provide a broad base during the first semester. This is followed by gradually specialized areas of neuroscience like neuroanatomy, neurochemistry, molecular neurobiology, genetics, neuroimmunology, developmental neurobiology, degeneration and regeneration of nervous system, systems neuroscience, learning, memory and cognition, clinical neurochemistry, nanotechnology, bioinformatics, tools, techniques and methods in neurobiology research. Generous financial support from the Department of Biotechnology, Department of Science & Technology, Council of Scientific and Industrial Research, Indian Council of Medical Research, University Grants Commission and other agencies during past 25 years and strong academic backup and support from distinguished neuroscientists of national and international stature have allowed us to develop a research centre which one can boast of. We have successfully executed several major research projects, organized training workshops for research scientists and University and college teachers, symposia and conferences of National and International level. The School is well equipped with modern instrumentation as well as a good library. Our neuroscientists have been trained in leading Institutes in India and abroad. In order to inculcate research skills in our students, in addition to their training at our research laboratory they get an exposure by way of project work/ training for about 6 months. We also make special efforts to promote an excellent general education that would provide the basis for careers in other areas such as teaching, commerce, and administration and management. We also organize lectures and Professional Development Workshops for which Prof. Thomas D. Albright (California, USA), Prof. Krekelberg (Newark, USA), Prof. Michael J. Zigmond and Prof. Beth Fischer (Pittsburgh, USA) and several senior faculties from Indian Universities were invited. Objective of the Course: The M.Sc. programme has been designed to prepare students for: (1) neuroscience research oriented positions in academia and industry, (2) careers at the interface of the bench and bedside in the academic neuroscience or (3) even in the application oriented biomedical industry.

Course Structure: The students with a M.Sc. degree in Neuroscience would have acquired the basic knowledge in major disciplines of the subject such as neuroanatomy, neurophysiology, neurochemistry, molecular neurobiology, neurogenetics and the working of motor, sensory and regulatory systems. The development and regeneration of the brain as well as the knowledge in basics of clinical neuroscience in terms of diseases and diagnostic tools would also be provided. They would also acquire practical training in the above aspects as well as in research methodology and computational skills. Teaching Methods: The course is completed in a truly interdisciplinary and inter-Institutional mode. A variety of teaching methods are adopted including interactive lectures and seminars, group work, practical classes, computer based exercises as well as external visits to hospitals, Laboratories, Institutes, etc. Eligibility: Graduation with 50% marks with one or two of the following subjects: Biology/ Biotechnology/ Biochemistry/ Neurobiology/ Neuroscience/ Zoology. In addition veterinary science, MBBS and B.Tech (Biotech)and BE (Biotech) graduates shall also be eligible. Benefits for reservation as per Madhya Pradesh and University rules. Scope for placement: M.Sc. Neuroscience programme has been designed to train students for neuroscience research oriented positions in Universities/Institutes/ R&D Units of Pharmaceutical Companies engaged in production of neuropharmacological products and diagnostics, in India and abroad.

Fees for the course: Open Seat

Course	I Semester	II Semester	III Semester	IV Semester
M.Sc. Neuroscience	Rs. 8815.00	Rs. 4425.00	Rs. 5775.00	Rs. 4425.00

Contact Person:

Prof. P. K. Tiwari
Head & Coordinator
School of Studies in Neuroscience

Jiwaji University, Gwalior- 474011, M.P.
Email: neuroscienceju@gmail.com,
pk_tiwari@hotmail.com, ishanpatro@gmail.com
Phone : 0751-2442789
Mob : 9425712787, 9425110063
Web site : www.jiwaji.edu, www.neuroscienceju.com

32. Sri Padmavathi Mahila Vishvavidyalayam (Women University), Tirupati (19 seats)*

Sri Padmavati Mahila Visvavidyalayam, (Women's University) accredited with NAAC "A" Grade was founded in the temple town of Tirupati in 1983 by Sri.N.T.Rama Rao, the then chief Minister of Andhra Pradesh, to face the social challenges of 21st century for the self development and empowerment of women through access to education, particularly higher education in varied disciplines.

Department of Biotechnology was established during 2002-2003 to provide an avenue for girl students to peruse a job oriented post graduation course in Biotechnology. In addition to this, the Department also offers M.Sc. Integrated Biotechnology (regular course) and a certificate course in "Analytical techniques" (through Distance Mode) . These courses ensure proper and complete technical and industrial training for students to take up jobs or to pursue higher studies or to become entrepreneurs with confidence.

The Department has well equipped laboratories and infrastructure to allow and encourage the students to undertake research in specialized areas of Biotechnology. To impart individual hands-on training, the department utilizes various other laboratory facilities established by the university under DST-CURIE, DBT-BIF centre, DST-FIST, UGC-SAP, etc.

M.Sc. BIOTECHNOLOGY: DBT Sponsored (Since 2003)

Duration : Two years (Four Semesters) - Choice Based Credit System
No. of seats : 20(15 + 5 (30%) extra)
Eligibility : Bachelor's Degree with group aggregate of 50% with Chemistry/Biochemistry/Botany/Zoology/Biotechnology/ Microbiology/Genetics/Medical Lab Technology/Applied Nutrition/ Bioinformatics and Computer Applications/B.Tech Biotechnology/B.Tech Industrial Biotechnology/ B.Sc Nursing.

Fee to be paid : Rs. 31,125/-per Annum (Hostel Fee Extra)

Contact Address:
Dr. P. Josthna
Coordinator
Department of Biotechnology,
Sri Padmavati Mahila Visvavidyalayam
Tirupathi -517502 Andhra Pradesh
Tel : 0877-2284529
Mobile: : 9848464059
Email ID: : dbtspmvv@gmail.com
Website : http://www.spmvv.ac.in/

II. ELIGIBILITY

Bachelor's degree under 10+2+3 pattern of education in Physical, Biological, Agricultural, Veterinary and Fishery Sciences, Pharmacy, Engineering/Technology, 4-years B.Sc. (Physician Assistant Course); OR Medicine (MBBS) OR B.D.S. with at least 55% marks.

IMPORTANT NOTES: Before applying, please ensure that you fulfil the eligibility requirements as prescribed above. Also please note that permission to appear in the entrance examination is subject to your fulfilling the minimum eligibility requirements prescribed above. You may, therefore, appear in the entrance examination only if you fulfil the eligibility requirements for M.Sc. Biotechnology Program. Despite this caution, in case you do not meet the minimum eligibility criteria and still appear in the entrance examination, you will do so at your own risk and cost, and if at any stage, it is found that you do not fulfil the minimum eligibility requirements, the admission, if granted to you, shall be cancelled ipso facto.

III. ELIGIBILITY OF CANDIDATES WHO ARE DUE TO APPEAR IN THE QUALIFYING EXAMINATION

The candidates who are due to appear in the respective qualifying examination prescribed as eligibility for admission shall also be considered for appearing in the entrance examination. Such of the candidates will be allowed to appear in the entrance examination **at their own risk and on the clear stipulation that in the event of their selection, they will be entitled to admission only if they secure the minimum prescribed percentage of marks in their qualifying degree examination** and that they will be required to submit all the documents including final mark-sheet of the qualifying examination (indicating the final and overall percentage of marks) before the deadline for admission fixed by the concerned participating University.

IV. SCHOLARSHIPS

Students selected for admission to M.Sc. Biotechnology Program of the participating Universities will be eligible to receive scholarship at the rate of Rs.5000/- p.m.

V. RESERVATION/CONCESSION

(a) Upto 22.5 per cent (15% for SC and 7.5% for ST) of seats are reserved for SC/ST candidates respectively. As per the provisions of Rights of Persons with Disabilities Act, 2016, not less than five percent (5%) seats are reserved for Persons with Benchmark Disabilities, where "person with benchmark disability" means a person with not less than forty percent (40%) of a specified disability where specified disability has not been defined in measurable terms and includes a person with disability, as certified by the certifying authority. 27% seats are reserved for OBC candidates (non-creamy layer). The persons belonging to EWS who are not covered under the scheme of reservation for SCs, STS and OBCs shall get 10% reservation in admission, wherever applicable, will be implemented as per the policy of each participating university.

(b) Concession for Kashmiri Migrants: 10% marks will be added to the overall marks scored by a Kashmiri migrant candidate in the Entrance Examination. After adding 10% marks, in case he/she is covered in the cut-off point in the merit list, he/she will be offered admission strictly in accordance with his/her inter-se merit alongwith other candidates subject to his/her meeting the minimum prescribed eligibility requirements and also subject to his/her producing valid registration documents issued by the notified authorities certifying the candidate's Kashmiri Migrant status.

VI. GUIDELINES/COURSE OUTLINES FOR ENTRANCE EXAMINATION

The question paper for the Entrance Examination will be of three hours duration and divided into two parts:

Part -A will have multiple choice type questions at the level of 10+2 in the subjects: **Physics, Chemistry, Mathematics and Biology. The Candidates will be required to attempt 60 questions**: Total marks for Part A will be (60 questions x 1 mark each) of 60 marks.

Part-B will also have multiple-choice questions of Bachelor's level requiring thinking and analysis. **There will be questions from Physics, Mathematics, Biology (e.g., Botany, Zoology, Biochemistry, Microbiology, Genetics and Molecular Biology) and Chemistry.** The candidates will be required to attempt 60 questions. Total marks for Part B will be 60 questions x3 marks each = 180 marks.

VII. PREVIOUS YEARS' QUESTION PAPERS

For the reference of intending candidates, a set of question papers pertaining to the last three years are available on JNU website www.jnu.ac.in.

VIII. SELECTION PROCEDURE

The selection will depend strictly on the basis of inter- se merit of the candidate in the Entrance Examination vis-a-vis preferences for joining the Universities indicated by the candidate. **In case a candidate has not indicated his/her choice for joining a particular University, his/her name will not be considered for that University.**

The Selection procedure will be as follows:

1) After the merit list is drawn more than double the number of candidates than the total intake only will be informed of their merit rank in the entrance examination. The candidates will also be informed about the total number of seats in each participating University. The candidates will be asked to exercise their options through online mode for joining the Universities. The candidates will be asked to pay through online mode an amount of Rs.5,000/- (Rs.2,500/- in the case of SC, ST, PWD candidates) **as initial security deposit** giving their willingness to be considered for admission to the participating Universities in accordance with their options for joining the universities vis-à-vis their inter-se merit in the Entrance Examination. **ALL CANDIDATES ARE ADVISED TO CHECK THE RESULT ON THE WEB SITE OF THE UNIVERSITY (www. jnu.ac.in) IN THE SECOND WEEK OF JUNE.**

2) The candidates who do not be exercise their options for joining any of the participating universities will not be considered for admission to that university/universities.

3) After allotment of seats, the JNU will send intimation to the candidates about their allotment of the university and also to the concerned participating university to which the candidate has been selected. Please note that once allotment of University is made on the basis of inter se merit vis-à-vis options, other options of the Universities given by the candidate shall stand frozen. **CANDIDATES ARE ADVISED TO CHECK THE ALLOTMENT OF UNIVERSITY ON THE WEB SITE OF THE UNIVERSITY (www. jnu.ac.in) IN THE FIRST WEEK OF JULY.**

4) The participating university will then inform the candidate about the complete admission procedure and schedule of their university as well as the amount of fee etc. to be deposited by the candidate. The initial security deposit already sent by the candidate through demand draft to JNU will be sent to the concerned University for refund after first semester.

5) In case the candidate is offered admission in accordance with his/her options for joining the University vis-à-vis his/her inter-se merit, but subsequently either does not join the concerned University or withdraw after joining during the first semester then in that event, the initial deposit of Rs. 5,000/- and Rs.2,500/- for General/OBC/EWS and SC/ST/PWD categories respectively, shall stand forfeited.

6) The initial security deposit of Rs.5000/-, (Rs.2,500/- in the case of SC/ST, PWD category candidates) will be refunded in full to those of the candidates who are not offered admission to any of the participating university.

7) **Candidates may note that request for transfer from one university to another will not be entertained under any circumstances. Therefore, candidates are advised not to make any request in this regard.**

8) Only those candidates who will be asked to exercise their option, the letter of these candidates will be available on JNU website (www.jnu.ac.in)) although intimation to this effect is also sent to the candidates on their e-mail account. However, the candidates are advised to find out through their own sources whether their names appear in the list and thereby make arrangement for sending their final option together with initial security deposit by the stipulated date. **The University will not issue any paper intimation to the candidates. Candidates are advised to regularly check JNU website for updates.**

9) **PLEASE NOTE THAT AFTER THE FIRST MERIT LIST, THE SECOND LIST MAY BE RELEASED ONLY BASED ON VACANCIES. THE DECISION TO RELEASE THE SECOND LIST RESTS SOLELY WITH JNU.**

IX. TIME -TABLE FOR ADMISSION

1.	Start of Online Application Process	-	15.03.2019
2.	Closing of Online Application Process	-	15.04.2019
3.	Last date of successful transaction of fee Through Credit/Debit Card/Net-Banking up to 11.50 pm up to bank hours of 16 April, 2019	-	16.04.2019
4.	Correction in particulars of Application Form on website only	-	17.04.2019 to 19.04.2019
5.	Downloading of Admit Card from NTA website	-	22.04.2019
6.	Date of Entrance Examination	-	30th May, 2019 (9:30 am – 12:30 pm)
7.	Display of recorded responses and Answer Keys for inviting challenges on NTAs Website	-	To be announce later by NTA
8.	Results of Entrance Examination		
	(i) Merit list of candidates to exercise their option for Universities		2nd week of June, 2019
	(ii). Final result of allotted Universities		1st week of July, 2019
9.	For admission/result queries candidate may visit our website www.jnu.ac.in		

Although the University will inform the candidates falling under consideration zone about their merit in CEEB on their e-mail account, it is the responsibility of the candidate to see the result on University website. The letter of these candidates will also be available on JNU website (www.jnu.ac.in). The University will not issue any paper intimation to the candidates. Candidates are advised to regularly check JNU website for updates.

X. HOSTEL FACILITIES

The outstation candidates admitted to the program of study of the participating Universities will be considered for hostel accommodation as per rules of the concerned University subject to availability of hostel accommodation. Students may please note that grant of admission in a University would not ensure automatic allotment of hostel accommodation and that the same will be offered subject to its availability.

XI. CERTIFICATES AND OTHER DOCUMENTS REQUIRED AT THE TIME ADMISSION

(a) Two self-attested copies of the Matriculation, Higher Secondary Pre-University of Indian School Certificate or Senior School Certificate (10+2) or an equivalent examination certificate, showing the age/date of birth of the candidate;

(b) A Character Certificate from the Head of the Institution last attended;

(c) Two self-attested copies of the statement of marks obtained by the candidate in Senior School, Bachelor's Degree/ Master's Degree examination etc; or their equivalent examination;

(d) Two self-attested copies of the Bachelor's Degree and/Master's Degree;

(e) SC/ST/OBC/EWS Certificate, if belonging to SC/ST/OBC/EWS category

(f) A Medical Certificate for PWD Candidates certifying nature & percentage of disability issued by the competent medical authority.

(g) Migration Certificate (in original) from the Head of the Institution/University last attended.

Important: The candidates are also required to produce all originals of the above certificates/documents for verification at the time of registration/admission. In the absence of any of the original certificates/documents, registration/ admission shall not be allowed.

XII. INSTRUCTIONS FOR COMPLETING THE APPLICATION FORM

1. **Name of the Candidate:** Please note that your name, your parent's/guardian's name, and your date of birth should exactly be the same as given in your 10th class or first Board/Pre-University examination certificate. Any deviation, whenever discovered, may lead to cancellation of your candidature.

2. **Entrance Examination Centre:** A list of cities* where entrance examination is to be held is given below. **No change will be permitted and no correspondence in this context will be entertained.** In case it is not possible to allot the Centre of your choice, the University reserves the right to allot you alternative centre.

Sl. No.	State	Name of Examination Centre
1	**ANDHRA PRADESH**	Chittoor
2		Kakinada
3		Nellore
4		Rajahmundry
5		Tirupati
6		Vijayawada
7		Visakhapatnam
8	**ARUNACHAL PRADESH**	Naharlagun
9	**ASSAM**	Guwahati
10		Silchar
11	**BIHAR**	Darbhanga
12		Aurangabad
13		Patna
14		Purnia (Purnea)
15		Gaya
16		Bhagalpur
17	**Chandigarh (UT)**	Chandigarh
18	**CHHATISGARH**	Bilaspur
19		Raipur
20	**DELHI**	Delhi
21	**GUJARAT**	Ahmedabad
22		Gandhinagar
23		Anand
Sl. No.	**State**	**Name of Examination Centre**
24		Rajkot

25		Surat
26		Vadodara
27		Mehsana
28	**HARYANA**	Ambala
29		HIssar
30		Kurukshetra
31		Panipat
32		Gurugram
33		Karnal
34		Faridabad
35	**HIMACHAL PRADESH**	Shimla
36		Hamirpur
37	**JAMMU & KASHMIR**	Jammu
38	**JHARKHAND**	Dhanbad
39		Jamshedpur
40		Ranchi
41	**KARNATAKA**	Bangalore
42		Belgaum
43		Dharwad
44		Gulbarga
45		Hubli
46		Mangaluru
47		Manipal
48		Mysuru
49	**KERALA**	Alappuzha
50		Thiruvananthapuram
51		Ernakulam/Kochi
52		Kannur
53		Kottayam
54		Kollam
55		Kozhikode
56	**MADHYA PRADESH**	Gwalior
57		Sagar
58		Jabalpur
59		Bhopal
60		Indore
61		Satna
62		Ujjain
63	**MAHARASHTRA**	Mumbai
64		Nagpur
65		Pune
66		Aurangabad (Maharashtra)
67		Kolhapur
68		Nanded
69		Nasik
70		Navi Mumbai

71		Amravati
72		Jalgaon
73		Thane
74	**MANIPUR**	Imphal
75	**MEGHALAYA**	Shillong
76	**MIZORAM**	Aizwal
77	**NAGALAND**	Dimapur
78	**ORISSA**	Bhubaneshwar
79		Sambalpur
80		Balasore
81		Cuttack
82		Rourkela
83	**Puducherry**	Puducherry
84	**PUNJAB**	Amritsar
85		Bhatinda
86		Ludhiana
87		Jalandhar
88		Mohali
89		Patiala
90		Sangrur
91	**RAJASTHAN**	Jaipur
92		Jodhpur
93		Udaipur
94		Ajmer
95		Alwar
96		Bikaner
97		Kota
98		Sikar
99	**SIKKIM**	Gangtok
100	**TAMIL NADU**	Chennai
101		Coimbatore
102		Madurai
103		Nagarcoil
104		Tiruchirappalli
105	**TELANGANA**	Hyderabad
106		Warangal
107	**TRIPURA**	Agartala
108	**UTTAR PRADESH**	Lucknow
109		Varanasi
110		Allahabad
111		Bareilly
112		Ghaziabad
113		Gorakhpur
114		Noida
115		Agra
116		Aligarh

117		Kanpur
118		Meerut
119	**UTTARAKHAND**	Dehradun
120		Roorkee
121		Haldwani
122	**WEST BENGAL**	Kolkata
123		Siliguri
124		Kalyani
125		Hooghly
126		Asansol
127	**UNION TERRITORIES**	Goa (Panaji/Madgaon)

** Subject to sufficient number of candidates available.*

Note:

1. **The University reserves the right to change/cancel any Centre of Examination within India/abroad without assigning any reason.**

5. Entrance Examination Fee: The entrance examination fee is Rs. 1000/- for general category candidates including OBC & EWS candidates; and Rs. 500/- for the candidates belonging to SC/ST and Person with Disability categories. The entrance examination fee for Foreign Nationals is US$ 40.00 or Rs. 2880/-.

Important Notes:

1. **If any information furnished by the candidate in the application form is found to be false, his/her admission, if granted on the basis of such information will be cancelled, ipso facto.**
2. **The candidate must fulfil the eligibility requirements as detailed in the Prospectus. The candidate should, appear in the entrance examination only if the eligibility requirements for M.Sc. Biotechnology programme is fulfilled. Despite this caution, in case a candidate does not meet the minimum eligibility criteria and still appears in the entrance examination, then the candidate will be doing so at their own risk and cost, and if at any stage, it is found that the candidate does not fulfil the minimum eligibility requirements, the admission, if granted, shall be cancelled ipso facto.**
3. **Any dispute with regard to any matter relating to admission shall be subject to the jurisdiction of Delhi Courts only.**

*****

Combined Entrance Examination conducted by Jawaharlal Nehru University for admission to M.Sc.(Agri.) Biotechnology & M.V.Sc. Animal Biotechnology Programmes of Study

www.jnu.ac.in

PROSPECTUS

ACADEMIC SESSION

2019-20

CONTENTS

I. GENERAL

Biotechnology is a multi- disciplinary area in the educational scene and programmes have been developed to meet the growing demand for trained manpower for any meaningful Biotechnology activity. The Government of India has allotted high priority to development in the area of Biotechnology and its exploitation in agriculture and other related disciplines.

Jawaharlal Nehru University will hold Combined Entrance Examination for admission to:-

[i] M.Sc. (Agri.) Biotechnology Programme being offered at the following participating Universities:

1. Assam Agricultural University, Jorhat
2. Ch. Sarwan Kumar H.P. Krishi Vishvavidyalaya, Palampur;
3. G.B. Pant University of Agriculture and Technology, Pant Nagar
4. Indira Gandhi Krishi Viswavidyalaya, Raipur
5. Kerala Agricultural University, Thrissur
6. Vasantrao Naik Marathwada Krishi Vidyapeeth, Latur (Maharashtra)
7. Orissa University of Agriculture & Technology, Bhubaneswar
8. Tamil Nadu Agricultural University, Coimbatore
9. University of Agricultural Sciences, G.K.V.K., Bangalore
10. University of Agricultural Sciences, Dharwad
11. Dr. Rajendra Prasad Central Agricultural University, Pusa, Samastipur

[ii] M.V.Sc. Programme is being offered at

1. Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar;
2. G.B. Pant University of Agriculture & Technology, Pantnagar;
3. Assam Agricultural University, Guwahati

The Entrance Examination will be held on May 30, 2019 at Centers all over the country (detail of these examination centers is shown under Section XI of this Prospectus).

* Subject to revision of seats in programs

1. ASSAM AGRICULTURAL UNIVERSITY, JORHAT (06 seats) *

The Department of Agricultural Biotechnology was established in 1989 at Assam Agricultural University, the oldest Agricultural University in the North East of India. This Department, supported by the Department of Biotechnology, Govt of India, has been conferring M.Sc. degree in Biotechnology ever since its inception and from 2010-11 and now offers Ph.D. degree for students with both Agricultural and non-Agricultural sciences background. The Department has of 15 faculty members, majority of whom have been well trained abroad on different areas of Biotechnology. It also has well-equipped laboratory facilities for Gene Technology, Plant Genomics, Molecular Markers, RNAi, Microbial Biotechnology, Bioinformatics etc. with state of the art equipments.

Several competitive research grants from national agencies like DBT, ICAR, DST, UGC etc. and international agencies, such as, Kirkhouse Trust, UK, have been awarded to the Department. In addition, several international collaborating research projects under Indo-Swiss, Indo-Australia, Indo-USA collaborative funds have been completed and are presently running in the Department. Recently the European Union has awarded a project on "Strengthening education, research and innovation for climate smart crops in SouthEast Asia - AdaptNET" to the department. A major research achievement of the department has been generation of insect resistant transgenic chickpea lines which have been transferred to public (IIPR, Kanpur; ICRISAT; Patancheru; UAS, Darwad and PAU, Ludhiana) and private (Sungro Seeds) organizations for varietal development. As recognition of the department's achievement in teaching and research, in 2011 it was awarded a Centre of Excellence in Agricultural Biotechnology in the form of DBT-AAU Centre in Agricultural Biotechnology, which has now been renewed as DBT-North-East Centre for Agricultural Biotechnology (DBT-NECAB).

The thrust areas of research include, Crop improvement through genetic engineering and/or molecular breeding, genome editing; Genomics; Microbial Biotechnology and Plant Molecular Biology.

*Can accommodate extra 30% seats if offered

Fees to be paid at the time of Admission: Approx Rs.14,000/- + Rs.6000.00 (Hostel fee including mess advance).

Contact Address: Prof. M. K. Modi,
Head & Coordinator
Department of Agricultural Biotechnology
Assam Agricultural University, Jorhat,
Assam - 785013
Phone No. : 0376-2340095, 2304002(R)
Fax No. : 0376-2340001, 2340101,
E-mail : mkmodi@aau.ac.in

2. CHAUDHARY SARWAN KUMAR H.P. KRISHI VISHVAVIDYALAYA, PALAMPUR (10 seats) *

Chaudhary Sarwan Kumar H.P. Krishi Vishvavidyalaya, Palampur offers programme in Agricultural Biotechnology leading to the award of M.Sc. Agricultural Biotechnology degree. This programme is instituted in collaboration with the CSIR-Institute of Himalayan Bioresource Technology, Palampur. Under this programme, the students admitted are imparted intensive training in the basic principles and applied aspects, both in theory and practicals of Plant Biotechnology. The students are eligible for award of studentship of Rs. 7500/- per month. Candidates having B.Sc. (Agriculture)/B.Sc. (Horticulture)/B.Sc. (Forestry)/ B. Sc. (Ag. Biotechnology) are eligible for M.Sc. (Agri Biotech) programme.

The thrust area of thesis research include, DNA fingerprinting; gene tagging, gene pyramiding and markers-assisted selection; transgenics; biotic and abiotic stress-induced gene expression and cloning; metabolomics and proteomics; and in vitro techniques in crop improvement.

Fees to be paid at the time of Admission: Rs. 30,540/- (Non-Hosteller) & Rs. 45,000/- (Hosteller) approx.

Contact Address:
Dr. Kamal Dev Sharma
Professor & Coordinator
Department of Agricultural Biotechnology,
CSK Himachal Pradesh Krishi Vishvavidyalaya,
Palampur, Kangra - 176062 (HP)
Phone No. : 01894-230314 (O), 94184-68896
Fax No. : 01894-230511, 01894-230371
Email : kml1967@rediffmail.com
mctlhkc@gmail.com
agrilbiotechcskhpkv@gmail.com

3. G.B. PANT UNIVERSITY OF AGRICULTURE & TECHNOLOGY, PANTNAGAR
(15 seats for M.Sc. (Agri.) and 05 seats for M.V.Sc.)

Department of Molecular Biology & Genetic Engineering at G.B. Pant University of Agriculture & Technology serves as the nodal department for Pantnagar Biotechnology Program, which celebrated its silver jubilee (1988-2013) after completion of 25 years of excellence in teaching and research. The department offers both M.Sc. Agriculture and M.V.Sc. courses in Biotechnology and Animal Biotechnology respectively. The Department has accomplished several milestones including the department being recognized as one of the best department of the College of Basic Science & Humanities by UGC appointed NAAC accreditation team & our Master's Program in Agricultural Biotechnology has been twice adjudged as 'A' rank by Department of Biotechnology (Govt. of India, 2011, 2015) and also the department being one of the Top Ten Biotech schools in the country. Students with B.Sc. (Ag.), B.Sc. in ZBC/PCM and B.Sc. (Biotechnology) are eligible for M.Sc. Agriculture (Biotechnology). However, students except with B.Sc.(Ag.) degree, will have to study remedial courses of 24 credit hours in relevant fields of Agriculture and the degree awarded will be M.Sc. Agriculture (Biotechnology) and for them the course duration will be of three years with the same DBT norms of studentship (provision for only two years). For candidates desirous of taking admission in M.V.Sc. (Animal Biotechnology), the minimum eligibility is B.V.Sc. with not less than 6.000/10.000 or 3.000/5.000 or 55% marks in aggregate. Candidates admitted to the Programme are awarded scholarship of Rs. 7,500/- and Rs. 12,000/- per month for M.Sc. Agriculture and M.V.Sc. respectively. The major thrust areas of research at this department include Recombinant DNA Technology, Tissue culture, Signal transduction in relation to host-parasite interactions, Abiotic and Biotic stress management, Transgenic development for nutritive value addition and disease resistance, Molecular Cytogenetics, Nutraceuticals, Nutrigenomics, Proteomics, Bioprospection and Metabolomics, Edible and Recombinant Vaccine production, Immunodiagonstics for plant and animal disease surveillance and Embryo Transfer Technology, Nanotechnology.

Fees to be paid at time of Admission: **Rs. 42,145/- (Approx)**
(Including of food advance of Rs. 15,000)

Contact Address:
Dr. Anil Kumar,
Professor & Head,
Department of Molecular Biology & Genetic Engineering,
College of Basic Sciences & Humanities,
G B Pant University of Agriculture & Technology,
Pantnagar -263145 (U S Nagar)
Uttarakhand
Phone No. : 05944-233898
Fax No. : 05944-233287, 233473
E-mail : ak_gupta2k@rediffmail.com

4. INDIRA GANDHI KRISHI VISHWAVIDYALAYA (IGKV), RAIPUR (10 seats) *

Indira Gandhi Krishi Vishwavidyalaya, Raipur, offers post-graduate programme in Plant Molecular Biology & Biotechnology and successful candidates are eligible for the award of M.Sc. (Agri) in Plant Molecular Biology & Biotechnology.

Major thrust areas of teaching and research are Molecular Biology, Plant Tissue Culture & Genetics Engineering, Genomics & Proteomics, Nano-Biotechnology, Bio-informatics etc. The Centre is actively involved in research on various aspects of Genomics particularly related to Biotic and Abiotic Stress and in the area of transgenics. The department has number of projects funded by DBT, CGCOST, ICAR, State Government with good international linkage. The courses are innovative and cover basic, fundamental and specialized topics. Our program has a strong laboratory component with majority of courses that gives you hands on experience on diverse biotechnological research skills with special emphasis on genomics. Submission of thesis dissertation based on research projects carried out by students is part of the degree programme. We are also going to have a Biotech based incubation centre at our university, which will also gives an excellent opportunity for starts-up. The students are eligible for award of studentship of Rs.7,500/- per month given by DBT. Fees to be paid at the time of Admission: Rs.8500/- (Approx). DBT has awarded "A" grade to our PG program.

Contact Address: Prof. S.B. Verulkar
Head & Coordinator
Department of Plant Molecular Biology and Biotechnology
Indira Gandhi Krishi Vishwavidyalaya
Krishak Nagar Raipur – 492 012 Chhattisgarh
Mobile – (Dr. S. B. Verulkar – 9752152034), (Dr. Shubha Banerjee – 9993583206)
E-mail: satishverulkar@gmail.com, hod.biotech.igkv@gmail.com

II. ELIGIBILITY FOR ADMISSION

FOR INDIRA GANDHI KRISHI VISHWAVIDYALAYA, RAIPUR: Agriculture, Agricultural Biotechnology, Horticulture or Forestry with Bachelor's Degree under 10+2+4 pattern with at least 60% marks or equivalent OGPA.

5. KERALA AGRICULTURAL UNIVERSITY, THRISSUR (10 seats) *

Candidates with B.Sc. (Agriculture) / B.Sc. (Horticulture) / B.Sc. (Ag. Biotechnology) degree, as four year programme and qualified in the Entrance Examination are eligible for admission. Students admitted to the programme are eligible for the award of M.Sc. (Ag.) Plant Biotechnology degree on successful completion of the course.

The MSc .(Ag) Plant Biotechnology degree programme (4 semesters) is offered by the Centre for Plant Biotechnology and Molecular Biology, College of Horticulture, located in the main campus of Kerala Agricultural University, Thrissur. The courses are designed as Major (Molecular biology and Plant biotechnology), Minor (Horticulture, Biochemistry, Microbiology, Entomology, Genetics and Plant breeding), supporting and compulsory. The students have to register 37 course credits and 20 research credits. Students have to submit a thesis based on their research project, in partial fulfillment of the requirement of the degree. Students' seminar is also an integral part of the curriculum. The evaluation for the programme is done in 10-point grade system. Minimum OGPA to obtain the degree is 6.5/10.0 . The students are eligible for the DBT fellowship of Rs. 7,500/- per month.

The courses on Molecular biology and Plant biotechnology include Fundamentals of Molecular Biology, Techniques in Molecular Biology, Plant Tissue Culture and Genetic Engineering, Immunology and Molecular Diagnostics, Cell Biology, Molecular breeding, Bioinformatics etc. The areas of thesis research include DNA finger printing, Marker assisted selection, Gene cloning and characterization, Enzyme kinetics, differential gene expression, Real time PCR assays, molecular docking and metabolomics research, Plant tissue culture, Nanobiotechnology, Metagenomics etc.

The centre is well equipped with facilities for doing advanced teaching and research activities. The facilities include Molecular Biology lab with High Speed Refrigerated Centrifuge, Nanodrop spectrophotometers, Bioanalyser, Real Time and Gradient PCRs, Phosphorimager, Electrophoresis units, Sequencing page units and Gel documentation systems. Translation Lab facilities include, Growth Chamber, 2- Dimensional gel electrophoresis units, Cold Room and facilities for electro blotting and detection techniques, Genetic Transformation lab is equipped with Biolistic gene gun. Metabolomics lab with Accelerated solvent Extractor and HPLC. The Cell biology lab with fluorescent, phase contrast and stereo microscopes. Plant Tissue Culture Research lab is equipped with mass production facility as per NCS-TCP guidelines. Molecular diagnostics lab is equipped with facilities for virus indexing and clonal fidelity analysis. Bioinformatics Centre (DIC) with DBT support is also functioning in the centre. Considering the accomplishments, Kerala state has recognized Centre for Plant Biotechnology and Molecular Biology as Centre of Excellence in Agricultural Biotechnology.

The centre has very good interaction and collaboration with a number of national institutes in teaching and research activities. Faculty members are actively engaged in Biotechnology research projects funded by DBT, DBT-BIRAC, DST, ICAR, KSCSTE, MIDH etc.

More details can be had from the web site: www.kau.in,

Fees to be paid at the time of Admission: First semester fee Rs. 16,750 (Approx), Hostel fee including mess advance – Rs. 17,450 (Approx)

Contact Address: Prof. M.R. Shylaja,
Head & coordinator
Centre for Plant Biotechnology and Molecular Biology, College of Horticulture
IT-BT Complex
Kerala Agricultural University Vellanikkara, Thrissur – 680656 Kerala
Phone No. : 0487-2438577, 9446364216 (M)
E-mail : shylaja.mr@kau.in
cpbmb@kau.in

6. VILASRAO DESHMUKH COLLEGE OF AGRICULTURAL BIOTECHNOLOGY, LATUR VASANTRAO NAIK MARATHWADA KRISHI VIDYAPEETH, PARBHANI, MAHARASHTRA (10 seats) *

The students will be awarded the M.Sc. (Agri) Biotechnology degree on successful completion of the course.

The students are taught basic principles and applied aspects of biotechnology in plant system. The syllabus covers basic courses in principles of Biotechnology, Fundaments of Molecular Biology, Molecular Cell Biology, Biostatistics and Computers, Microbial Biotechnology, Plant Tissue Culture & Genetic Transformation, Techniques in Molecular Biology I, Genomics and Proteomics, Biosafety, IRP and Bioethics, Immunology and Molecular Diagnostics, Dynamic Web design, introduction to Bioinformatics, Molecular Breeding, Master's Seminar, Master's Research. The College is actively involved in research on various aspects of Plant Genetic Transformation, Molecular Breeding, Food Biotechnology, Plant Tissue Culture, Genomics and Bioinformatics. The department has number of projects funded by DBT, DST and State Government. The students are eligible for award of studentship of Rs.7,500/- per month given by DBT.

Fees to be paid at the time of Admission: Rs.22,556/- (approx.)

Contact Address: Dr. R. L. Chavhan
Course Coordinator
Vilasrao Deshmukh College of Agricultural Biotechnology,
Vasantrao Naik Marathwada Krishi Vidyapeeth,
Nanded Road, Latur - 413512 (Maharashtra)
Phone No. : 02382-251366
Fax No. : 02382-251366
E-mail : rlchavhan@gmail.com
coablatur@rediffmail.com

7. ORISSA UNIVERSITY OF AGRICULTURE & TECHNOLOGY, BHUBANESWAR (10 seats)

Orissa University of Agriculture and Technology, Bhubaneswar is the 2nd oldest Agricultural University of India.
The University offers 2 years Post Graduate programme in Agriculture Biotechnology and successful candidates are awarded **M.Sc. (Agril.) Biotechnology** degree.

During the 2 years programme the students are exposed to both basic and applied aspects of biotechnology and are taught the multidisciplinary areas of Agricultural and allied field of Biotechnology. The syllabus covers core courses in principles of Biotechnology, Fundamentals of Molecular Biology, Molecular Cell Biology, Techniques in Molecular Biology, Plant Tissue Culture and Genetic Transformation, Biostatistics and Computers. The supporting courses like principles of Genetics, Enzyme Technology, Genomics and Proteomics, Gene Regulation, Microbiology, Immunology and Molecular Diagnostics, Nano Biotechnology, Microbial and Industrial Biotechnology, Molecular Breeding, Environmental Biotechnology, Biosafety, IPR and Bioethics, Bioinformatics are provided. Minor Courses in the syllabus are Plant Physiology, Plant Biochemistry, Cell Biology and Cytology and Genetics and Plant Breeding. Submission of thesis based on research findings of the student is essential for the degree programme. The areas of thesis research include DNA fingerprinting, Gene cloning, DNA library, Molecular cytogenetics, Marker-assisted selection, Transgenics, Gene-cloning and expression, Enzyme technology, Molecular Physiology, Phytochemistry and In vitro techniques in crop improvement. Besides, the students have an opportunity to undertake training in National / International Institutes and reputed Biotechnology industries inside the country. Students from other Institutes/Universities are doing their project work for short periods (1-6 months) as well as Ph.D. studies in related fields.

Candidate admitted to the programme are eligible to get studentship of Rs. 7,500/- per month.

Fees to be paid at the time of Admission: Rs.23,600/- (Approx)

Contact Address: Prof. Gyana Ranjan Rout
Professor & Head
Department of Agricultural Biotechnology
College of Agriculture
Orissa University of Agriculture and Technology (OUAT)
Siripur, Bhubaneswar – 751003, Odisha
Phone No. : 0674-2397755
Fax No. : 0674-2397755
E-mail : grrout@rediffmail.com
headabt_bbsr@rediffmail.com

8. TAMIL NADU AGRICULTURAL UNIVERSITY, COIMBATORE (15 seats)*

Tamil Nadu Agricultural University (TNAU), Coimbatore, is a leading agrotechnology provider at national level and is involved in teaching, research and extension activities to cater the needs of the farming community through modern scientific practices. It offers M. Sc. (Ag.) Biotechnology degree programme with a duration of two years. The students are introduced to basic principles and applied aspects of biotechnology in plant systems. They are given intensive training in the multidisciplinary areas of plant biotechnology which covers recent advances in various fields of cell biology, molecular biology, plant tissue culture, genetic engineering, genomics, proteomics and bioinformatics. The minor courses *viz.,* plant physiology, plant biochemistry and applied concepts of crop breeding are also offered to strengthen the knowledge. Supporting courses *viz.,* statistical methods, design of experiments and computer applications are also offered to the students to get needed knowledge in related fields. Six compulsory non-credit courses *viz.,* (i) Library and information services (ii) Technical writing and communications skills (iii) Intellectual property and its management in agriculture (iv) Basic concepts in laboratory techniques (v) Agricultural research, research ethics and rural development programs and (vi) Disaster management will also be taught. Submission of thesis based on research carried out by the student is a part of the degree programme.
All the students selected through JNU entrance examination are eligible to get a studentship as per DBT-HRD norms (Rs. 7500/- per month).

Fees to be paid at the time of Admission: Rs. 12,588/- (General); Rs. 9258/- (SC/ST)*
Fees / Semester: Rs. 21027/- per semester (General); Rs. 16909/- per semester (SC/ST)*
Hostel fees at the time of admission: Rs. 12,000/- *
*Subject to the approval of ensuing academic council

Contact Address: Dr. S. Mohankumar, Ph.D.
Director & Coordinator
Centre for Plant Molecular Biology & Biotechnology,
Tamil Nadu Agricultural University,
Coimbatore – 641003 Tamil Nadu.
Phone No. : 0422-6611262
Mobile No. : 09489056706;
Fax No. : 0422-2431672
E-mail : directorcpmb@tnau.ac.in

ELIGIBILITY FOR ADMISSION:

FOR TAMIL NADU AGRICULTURAL UNIVERSITY, COIMBATORE: Bachelor of Science degree in Agriculture/Ag. Biotechnology/ Horticulture/ Forestry/ Sericulture or B. Sc. (Hons.) in Agriculture/ Horticulture/ Forestry/ Sericulture or B. Tech in Agrl. Biotechnology/ Biotechnology/ Horticulture/ Bioinformatics under 10+2+4 pattern of education with at least 70% marks or equivalent OGPA of 3.00/4.00 or 7.00/10.00 from a Agricultural/ Horticultural University. For SC/ST candidates, a pass in the qualifying degree is sufficient.

9. UNIVERSITY OF AGRICULTURAL SCIENCES, G.K.V.K., BANGALORE, KARNATAKA (10 Seats)*

Candidates should possess a bachelor's degree with a minimum OGPA of 6.50/10.00 or its equivalent from a recognized Agricultural / Horticultural University or deemed university accredited by ICAR. Incase of Candidates belonging to SC/ST/Cat-I. a minimum OGPA of 6.00/10.00 i.e. pass in bachelor's degree is adequate.

Candidate should possess good moral character and conduct. Candidates who have studied under trimester system should compulsorily submit a copy of the certificate declaring equivalent percentage of marks issued by the competent authority.

The students will be awarded M.Sc. (Agri.) Plant Biotechnology degree. The Department of Plant Biotechnology, University of Agricultural Sciences, Bangalore is one of the best Departments in the University with modern equipment's like Gene sequencer, HPLC, Fermenters, RT-PCR, Floor model Ultra Centrifuge and all types of molecular biology equipment's. University of Agricultural Sciences, Bangalore is winner of the Sardar patel Best Agricultural University award in the year 2002 & 2012, initiated several research programmes in Agri. Biotech. Bangalore being a hub of IT-BT, the University has established collaborations with the Biotechnology Industries and Institutes. The staff of the Biotechnology Department is working in there research areas of Gene isolation, Transgenic, Bio pharming, Molecular Breeding, Microbial Biotechnology, Fuel Biotechnology

and Bioinformatics. The University is successful in attracting competitive grants for time bound projects from central and state governments. The students need to do a thesis research project as part of the master's programme.

All the students are eligible to get studentship as per DBT-HRD norms.

Fees to be paid at the time of Admission: Rs. 36,430/- (For General Category)
Rs. 21,950/- for SC/ST Category (with annual Income limit Rs.0 to 2.5 Lakhs)
Rs.30,930/- for SC/ST Category (with annual Income limit Rs. 2.5 Lakhs to 10.00 lakhs) Rs. 21,000/- (Hostel deposit) for all students (10% enhancement during 2019-20).

Contact Address:
Prof. K. M. Harinikumar,
Professor & Coordinator
Department of Plant Biotechnology,
Kempegowda International Airport Road,
Near Yelahanka,
University of Agricultural Sciences,
Gandhi Krishi Vignana Kendra,
Bengaluru – 560065
Phone No. : 080-23330153 EXTN.276
FAX NO. : 080-23330277
E-mail: harinikumarkm@gmail.com
harinikm@rediffmail.com

10. UNIVERSITY OF AGRICULTURAL SCIENCES, DHARWAD (8 seats)

University of Agricultural Sciences, Dharwad offers M. Sc. (Agri.) in Molecular Biology and Biotechnology. The Department of Biotechnology, which is a part of the Institute of Agri-Biotechnology (IABT), has state-of-the-art equipment and facilities for research. The research at IABT/Department focuses primarily on agricultural biotechnology and focused on cloning and characterization of agriculturally important genes from plants and microbial sources for biotic and abiotic stresses, plant transformation, gene silencing, genome editing, molecular mapping, QTL detection and transfer, marker assisted selection, food biotechnology, metagenomics etc. The students need to do a thesis research project as part of the master's programme.

***Fees to be paid at the time of admission:**

Year	**I year**		**II year**	
Semester	I stSem.	IInd Sem.	I stSem.	IInd Sem.
GM/ others/Cat-I	28,154	-	-	-
SC/ST with annual income limit				
Rs. 0 to 2.5 lakh	8,209	-	-	-
Rs. 2.5 to 10 lakh	21,432	-	-	-

*** Likely to go up by 10% during 2019-20**
PG Hostel deposit (refundable): Rs. 10,000
Monthly rent and mess: ~Rs: 3,600

Contact Address:
Prof. Ramesh S. Bhat
Head of the Department & Coordinator
Department of Biotechnology
University of Agricultural Sciences Dharwad
PIN: 580005, Dharwad, Karnataka
Phone No.: 0836- 2214315, Mobile: 9945667300
Email:hodbthacd@uasd.in

11. DR. RAJENDRA PRASAD CENTRAL AGRICULTURAL UNIVERSITY, PUSA, SAMASTIPUR (10 seats) *

Dr. Rajendra Prasad Central Agricultural University, Pusa, Samastipur (Bihar) offers M.Sc.(Ag.) Degree Programme in Agricultural Biotechnology. This is a four semester programme supported by the DBT offered by Faculty of Basic Sciences & Humanities, Dr. Rajendra Prasad Central Agricultural University, Pusa, Samastipur,leading to award of M.Sc.(Ag.) degree in Agricultural Biotechnology. The evaluation is done in 10 point credit system. The students will have to offer a minimum 35 credit hours courses in Major subject Agricultural Biotechnology, minor and supporting courses and 20 credit hours for research work.

The major thrust areas in teaching and research are Tissue Culture/Cell Biology/Molecular Biology/Genetic Engineering/Molecular Biology of Biotic and Abiotic Stresses/Plant Rhizobium interaction/Protoplast fusion/Plant transgenics etc. Submission of thesis dissertation based on research programme carried out by students is part of the degree programme.

Infrastructural facilities for various well equipped laboratories like Tissue Culture/Molecular Biology/Bio-imaging/Cell Biology/GeneticTransformation/Biochemistry/Computer Laboratory/Recombinant DNA Laboratory/Microbiology/Bioinformatics etc. are available.

Fees to be Paid at the time of Admission: Rs.12665/- for General Category
Rs.9915/- for SC/ST Category

Contact Address: Prof. Harsh Kumar
Head & Coordinator
Department of Agricultural Biotechnology & Molecular Biology
Dr. Rajendera Prasad Central Agricultural University
Pusa, Samastipur (Bihar)
Bihar - 848125
Phone No. : 06274-240272
Fax No. : 06274-240272
Mobile No. : +91 9431254328
E-mail : head.abmb@rpcau.ac.in
dean.fbsh@rpcau.ac.in

12. LALA LAJPAT RAI UNIVERSITY OF VETERINARY & ANIMAL SCIENCES, HISAR (10 seats)*

Lala Lajpat Rai University of Veterinary & Animal Sciences, Hisar offers post-graduate programme (M.V.Sc) in Animal Biotechnology. Candidates admitted in M.V.Sc. programme are eligible for "studentship at the prescribed rate of Rs. 12,000/- per month" from "Department of Biotechnology" (Human Resources Development Project), Govt. of India.

Master's in Animal Biotechnology comprises of course work (basics and specialized courses of Animal Biotechnology) and research work in any relevant areas of Animal Biotechnology.

Thrust Areas of Postgraduate course work (M.V.Sc.): Core courses of Master's degree programme (M.V.Sc.) in Animal Biotechnology are fundamental of cell and Molecular Biology, Animal cell culture, Reproductive Biotechnology, Principles of Biotechnology, Techniques in Molecular and Genetic Engineering, Basic and applied Biotechnology, Bioinformatics, Biodiversity, Biosafety and Bioethics, Molecular Forensics, Industrial Biotechnology and Probiotics, Animal Genomics and Feed Biotechnology.

Thrust Area of Postgraduate Research Work (M.V.Sc.): Post graduate research work covers investigation on livestock genomics, DNA based diagnostics, recombinant DNA technology, gene expression, molecular characterization and phylogenetic analysis of bacterial and viral pathogens, genetic aspect of assessment of quality of oocyte and sperm for "in-vitro fertilization and embryo transfer", micro-manipulation of embryos, sexing and transfer of embryos.

Department of Animal Biotechnology is well equipped with modern research infrastructure as well as trained and experienced postgraduate faculty of international repute to supervise post-graduate teaching and research.

Fees to be paid at the time of Admission: Rs.45000/- approx. (including hostel charges)

Contact Address: Prof. Sushila Maan
Head & coordinator
Department of Animal Biotechnology, College of Veterinary Sciences
Lala Lajpat Rai University of Veterinary & Animal Sciences
Hissar-125004, Haryana
Phone No. :01662-256130 (O), 09466088610 (M)
Fax No. :01662-284312, 01662-289547
E-mail:sushilamaan105@gmail.com, sushilamaan105@luvas.edu.in

13. ASSAM AGRICULTURAL UNIVERSITY, GUWAHATI (5 Seats) *

The College of Veterinary Science, Assam Agricultural University is one of the premier institutions in the North Eastern Region of India established in the year 1948. The DBT-supported M.V.Sc. programme in Animal Biotechnology was started in the college from the year 2010 and subsequently Ph.D. programme was also started since 2013. Both these courses are being offered by the Department of Animal Biotechnology, which also hosts the DBT-supported State Level Biotech Hub for the State of Assam. A number of research projects funded by national funding agencies are being implemented in the department.

The thrust areas of research in Animal Biotechnology include molecular characterization of animal pathogens, development of molecular diagnostics and recombinant vaccines for infectious diseases including zoonoses, livestock genomics and molecular fingerprinting of indigenous livestock, in-vitro fertilization and embryo transfer, cloning and micromanipulation of embryo, etc.

The department has state-of-the-art infrastructure equipped with latest modern instruments including a DBT-supported

Bioinformatics Centre as well as highly qualified, motivated faculty to teach and guide the students.

Fees to be Paid at the time of Admission: Day scholar -Rs.8,480.00
Hosteller - Rs.13,680.00 (excluding Mess dues)

Contact Address: Dr. Probodh Borah
Professor & Head
Department of Animal Biotechnology
College of Veterinary Science Assam
Agricultural University, Khanapara,
Guwahati - 781022
Phone No. : 0361-2334990
Fax No. : 0361-2337700
E-mail : cvsguwahati.btisnet@nic.in
borahp@vetbifguwahati.ernet.in

II. ELIGIBILITY FOR ADMISSION

Bachelor's degree under 10+2+3/4/5 pattern of education with at least 55% marks or its equivalent grade point average from any recognized university in the concerned subjects shown hereunder against each university:

1. **FOR ASSAM AGRICULTURAL UNIVERSITY, JORHAT:** B.Sc. (Agri.), B.Sc (Hort), B. Sc. Agril. Biotechnology) from any recognized university. Graduates from general stream may also be admitted in case seat remains vacant, however, they will have to undergo extra 20 credit hours bridge course.

2. **FOR CH. SARWAN KUMAR H.P. KRISHI VISHWAVIDYALAYA, PALAMPUR:** Agriculture, Horticulture, Forestry and Agricultural Biotechnology.
3. **FOR G.B. PANT UNIVERSITY OF AGRICULTURE & TECHNOLOGY, PANT NAGAR:** Agriculture, Veterinary Sciences, Horticulture or Forestry. Students from Bachelor of Science (B.Sc. in ZBC/PCM and B.Sc.(Biotechnology) are also eligible.
4. **FOR INDIRA GANDHI KRISHI VISHWAVIDYALAYA, RAIPUR:** Agriculture, Biotechnology (Agriculture), Horticulture or Forestry with Bachelor's Degree under 10+2+4 pattern with at least 60% marks or equivalent OGPA.
5. **FOR KERALA AGRICULTURAL UNIVERSITY, THRISSUR:** Agriculture, Horticulture, or Forestry.
6. **FORVASANTRAO NAIK MARATHWADAKRISHI VIDYAPEETH, LATUR (MAHARASHTRA):**B. Sc./B. Tech. in Agriculture, Horticulture, Forestry, Agri. Biotechnology, Bioinformatics (03/04 Yrs.) from recognized University with minimum CGPA 6.5 on 10 scale or 65% marks.
7. **FOR ORISSA UNIVERSITY OF AGRICULTURE & TECHNOLOGY, BHUBANESWAR:** Applicants must have passed 4 year Bachelor Degree in Agriculture/Horticulture/Forestry from a duly recognized University securing at least 65 % marks in aggregate.
8. **FOR TAMIL NADU AGRICULTURAL UNIVERSITY, COIMBATORE:** Bachelor of Science degree in Agriculture / Ag. Biotechnology / Horticulture/ Forestry / Sericulture or B. Tech in Biotechnology / Horticulture / Bioinformatics under 10+2+4 pattern of education with at least 70% marks or equivalent OGPA of 3.00/4.00 or 7.00/10.00 from a Farm University. For SC/ST candidates, a pass in the qualifying degree is sufficient.
9. **FOR UNIVERSITY OF AGRICULTURAL SCIENCES, G.K.V.K., BANGALORE:** Agriculture, Horticulture, Forestry or Seri-culture or B. Sc. Agril. Biotechnology/B. Tech. [Biotechnology]/ B. Sc (Ag. Biotech)/ B. Sc (Agri) in Biotechnology from recognized Agriculture/Horticulture/Forestry University..
10. **FOR UNIVERSITY OF AGRICULTURAL SCIENCES, DHARWAD:** Bachelors degree in Agriculture, Horticulture, Forestry, B. Sc. (Agril. Biotechnology)/B. Tech (Biotechnology)/B.Sc. (Ag. Biotech.)/B. Sc. (Agri) in Biotechnology from recognized Agricultural/Horticultural/Forestry universities.
11. **FOR DR. RAJENDRA PRASAD CENTRAL AGRICULTURAL UNIVERSITY, PUSA, SAMASTIPUR:** Four years Bachelor's degree in Biotechnology/Agriculture/Horticulture/Microbiology/Biology(BZC). Candidates with Bachelor Degree in Biology (3 Years duration) will have to spend 3 years in M.Sc. programme.
12. **FOR LALA LAJPAT RAI UNIVERSITY OF VETERINARY AND ANIMAL SCIENCES, HISAR:** B.V.Sc.&A.H. degree recognized by Veterinary Council of India with minimum OGPA 6.0/10.0 or equivalent.
13. **FOR ASSAM AGRICULTURAL UNIVERSITY, GUWAHATI :** B.V.Sc. & A.H. or equivalent degree from a recognized university with minimum CGPA 2.60 in 4.00 scale or 6.00 in 10.00 scale.

IMPORTANT NOTES: Before applying please ensure that you fulfil the eligibility requirements as prescribed by various Universities. Also please note that permission to appear in the entrance examination is subject to your fulfilling the minimum eligibility requirements prescribed for admission to the concerned programme. You may, therefore, appear in the entrance examination only if you fulfil the eligibility requirements for the programme for which you are seeking admission. Despite this caution, in case you do not meet the minimum eligibility criteria and still appear in the entrance examination, you will do so at your own risk and cost, and if at any stage, it is found that you do not fulfil the minimum eligibility requirements, the admission, if granted to you, shall be cancelled ipso facto.

III. RESERVATION/CONCESSION

(a) Upto 22.5 per cent (15% for SC and 7.5% for ST) of seats are reserved for SC/ST candidates respectively. As per the provisions of Rights of Persons with Disabilities Act, 2016, not less than five percent (5%) seats are reserved for Persons with Benchmark Disabilities, where "person with benchmark disability" means a person with not less than forty percent (40%) of a specified disability where specified disability has not been defined in measurable terms and includes a person with disability, as certified by the certifying authority. 27% seats are reserved for OBC candidates (non-creamy layer). The persons belonging to EWS who are not covered under the scheme of reservation for SCs, STS and OBCs shall get 10% reservation in admission, wherever applicable, will be implemented as per the policy of each participating university.

(b) Concession for Kashmiri Migrants: 10% marks will be added to the overall marks scored by a Kashmiri migrant candidate in the Entrance Examination. After adding 10% marks, in case he/she is covered in the cut-off point in the merit list, he/she will be offered admission strictly in accordance with his/her inter-se merit alongwith other candidates subject to his/her meeting the minimum prescribed eligibility requirements and also subject to his/her producing valid registration documents issued by the notified authorities certifying the candidate's Kashmiri Migrant status.

IV. SYLLABUS

Syllabus for M.Sc. (Agri.) Biotechnology

1. Agricultural Biochemistry - Isomerism, hydrogen bond and hydrophobic interaction in biomolecules; chemistry of biomolecules-carbohydrates, amino acids, proteins, lipids and nucleic. Metabolism of carbohydrates, fatty acids and protein. Genetic code, replication, transcription and translation. Enzymes and their kinetics, factors affecting enzyme activity. Competitive- and non-competitive inhibitions. Coenzymes and cofactors. Plant pigments.
2. Animal Husbandry and Veterinary Science- Importance of livestock in agriculture; relationship between plant and animal husbandry; mixed farming; animal breeding; breeds of indigenous and exotic cattle, buffaloes, goats, sheep, pigs and poultries and their potential for milk, egg, meat and wool production; classification of feed and fodder; major contagious diseases affecting cattle and drought animals, poultries and pigs; reproduction biology of cattle; artificial insemination, fertility and sterility; principles of immunization and vaccination; description, symptoms, diagnosis and treatment of major contagious diseases; drugs used for killing, tranquillizing and doping farm and wild animals; study of milk composition; physical properties and food value of milk; quality control of milk, tests and legal standards; dairy equipments and their cleaning; organization of dairy, milk processing and distribution; microorganism found in dairy and milk products; pregnancy and distochea.
3. Cell Biology - Modern tools and techniques in the study of cytology; prokaryotic and eukaryotic cells-structural and ultrastructural details; functions of organelles including membrane; cell cycle, mitosis and meiosis; numerical structural variation in chromosomes and their significance.
4. Protection - Diseases of field, vegetable, orchard and plantation crops of India and their control; causes and classification of plant diseases; principles of plant disease control biological control of diseases; Seed health testing, Integrated pest management-concepts and components; host plant resistance-biological control of insect pests; genetic
5. manipulation of insects for their control; pesticides, their formulation, classification and safe use; behavioural methods; use of computer modeling in pest and disease outbreak; use of semiochemicals in IPM; insect growth regulators; biotechnological approaches in IPM; IPM in major crops, Principles of nematode management-integrated nematode management in major crops-silkworm types; mulberry silkworm, culturing methods; pests and diseases of mulberry and mulberry silkworm and their management.
6. Cropping Systems and Crop Management - Impact of the high yielding and short duration varieties on shifts in cropping patterns; concepts of multiple cropping, relay cropping and inter-cropping and their importance in relation to food production crop production practices for important cereals, pulses, oilseeds, fibre, sugar and cash crops; crop weed, their characteristics, cultural biological and chemical weed control; remote sensing and agriculture.
7. Ecology and Environment - Ecology and its relevance to man; natural resources their management and conservation-Climatic elements as factors of crop growth- impact of changing environment on cropping pattern- change in environment due to agriculture-environmental pollution and associated hazards to crops, animals and humans-liquid and solid waste disposal- Pollution prevention and remediation.
8. Principles of Food Science and Processing - Food production and consumption trends in India; food Science objective food composition; nutritive value of foods; importance and scope of food processing; Indian scenario; Effect of processing on different food groups; Food spoilage; Principles and methods of preservation; Quality Standards, Ventra Centicals.
9. Genetics and Plant Breeding -Earlier concepts of heredity; Mendel's work and laws of heredity; Chromosomal theory of inheritance; Gene interactions; Multiple alleles; Multiple factor hypothesis; Linkage and crossing over; Linkage analysis; Construction of genetic map; Sex determination; Sex linked; sex influenced and sex limited traits; Spontaneous and induced mutations; Centre of origin; Domestication of crop plants; Conservations and utilization of genetic resources; Reproductive and pollination mechanisms in plants; Methods and principles in plant breeding; Methods of breeding self-

pollinated crops; Methods of breeding cross- pollinated crops; Methods of breeding asexually propagated crops; self incompatibility and male sterility in crop breeding; mutation breeding in crop improvement; Ploidy breeding in crop improvement; Innovative breeding methods in crop improvement.

10. Horticulture and Forestry - Climatic requirements and cultivation of major fruits, flowers and vegetable crops spice in plantation crops, the package of practices and the scientific basis for the same; handling and marketing of fruit and vegetables; preservation of fruits and vegetables; fruit and vegetable in human nutrition; landscaping and floriculture; ornamental plants and design and lay out of lawns and gardens; tissue culture and micropropagation of important fruit, vegetable and ornamental plants including major spices and plantation crops, important features, scope and propagation of various types of forestry plantations, such as, extension/social forestry, agroforestry and the management of natural forests.

10. Agricultural Microbiology - Spontaneous generation theory-Grem theory-Discovery of antibiotics-Types of Microscopes-Principles and equipment of different kinds of sterilisation-staining Techniques-Nutritional types of bacteria-Growth curve-Factors influencing bacterial growth-Fermentation: Principle and Application-Classification of Bacteria-Gene transfer methods in microorganisms Antigen and antibody reaction. Contributions of Beijerinck and Winogradsky-Role of microbes in carbon and nitrogen cycles-Influence of Rhizosphere on soil microorganism-Various types of nitrogen fixing microorgranism-Production of bacterial biofertilizers: Rhizobium, Azospirillum, Phosphobacteria etc.- Fungal biofertilizers; Ecto- and Endomychorizae- Azolla and BGA- Method of application for different biofertilizers.

11. Plant Physiology - Plant physiology and its significance in agriculture; physical properties and chemical constitution of protoplasm; plant cell water relation - imbibition, surface tension, diffusion, osmosis; absorption and translocation of water and nutrients; transpiration, guttation, mineral deficiencies and their symptoms; physiological disorders, correction hydrophonics, foliar nutritions aerobic and anaerobic respiration; Photo respiration Factors affecting respiration and Photo- respiration. Photosynthesis- modern concept and the factors affecting photosynthesis, nitrogen fixation growth development and differentiation; growth hormones, growth retardants, growth inhibitors and their use in agriculture; tropism in plants photoperiodism and vernalization; seed dormancy and germination; fruit ripening process and its control.

12. Seed Technology - Seed technology and its importance; production processing and testing of seeds of crop plants; seed storage, seed certification; role of NSC in production; New seed policy and seed control order, Terminator Technology.

13. Soil Science and Agricultural Chemistry - Soil as a medium of plant growth and its composition; mineral and organic constituents of soil and their role in crop production; chemical physical and microbiological properties of soil; essential plant nutrients, their functions occurrence and recycling; micro-secondary and micro nutrient sources and their management; integrated nutrient management, soil water relationship, principles of soil fertility and its evaluation for judicious use of fertilizers; organic manure and biofertilizers; soil conservation planning on water shed basis; erosion and run -off management in hilly, foot hills and valley lands; processes and factors affecting soil erosion; dryland agriculture and its problems; rainfed agriculture.

14. Biostatistics - Compilation, classification, tabulation and diagrammatic representation of data; measures of central tendency, correlation and regression involving two variables; concept of random sampling; tests of significance testing of hypothesis; statistical tests two kinds of error; chi-square test; principles of sampling; sampling and sampling errors; analysis of variance transformations to stabilize variance; principles of experimental design, randomized block design; latin square design; factorial experiments; missing plot techniques. Introduction to computer-Electronic data processing, operating system-common software available-Internet applications-Databases and bioinformatics.

15. Agricultural Biotechnology - Concepts and scope of biotechnology. Tissue culture and its application, Micropropagation. Meristem culture and production of virus-free plants. Anther and microspore culture. Embryo and ovary culture. Protoplast isolation. Protoplast fusion-somatic hybrids, cybrids. Somaclones. Synthetic seeds. In vitro germplasm conservation. Cryopreservation. Organelle DNA, Satellite-and repetitive DNAs. DNA repair. Regulation of gene expression. Recombinant DNA technology-cloning vectors, restriction enzymes, gene cloning. Methods of gene transfer in plants. Achievements and recent developments of genetic engineering in agriculture. Development of transgenies for biotic & abiotic stress tolerance, Ribozfore Technology microarray, bioethics, terminator technology, nanotechnology, DNA finger printing, gene silencing.

SYLLABUS FOR M.V.Sc.

ANIMAL BIOTECHNOLOGY

Structure of prokaryotic and etukaryotic cells, cell wall, membranes, cell organelles, organization and functions, chromosome structure and functions, cell growth division and differentiation. Sub unit structure of macromolecules and supermolecular systems. Self assembly of sub units, viruses, bacteriophage, ribosomes and membrane systems.

Scope and importance of biochemistry in animal sciences, cell structure and functions. Chemistry and biological significance of carbohydrates, lipids, proteins, nucleic acids, vitamins and hormones. Enzymes— chemistry, kinetics and mechanism of action and regulation. Metabolic inhibitors with special reference to antibiotics and insecticides. Biological oxidation, energy metabolism of carbohydrates, lipids, amino acids and nucleic acids. Colorimetry, spectrophotometry, chromatography and electrophoresis methods.

Chemistry of antigens and antibodies and molecular basis of immune reaction, radio -immune assay and other assays.

Chemistry of respiration and gas transport, water and electrolyte metabolism. Deficiency diseases, metabolic disorders and clinical biochemistry. Endocrine glands, biosynthesis of hormones and their mechanism of action.

History of molecular biology, biosynthesis of proteins and nucleic acids, genome organization, regulation of gene expression, polymerase chain reaction, basic principles of biotechnology applicable to veterinary science gene sequence, immunodiagnostics, animal cell culture, in vitro fertilization. Sub-unit vaccines: Principles of fermentation technology.

VETERINARY SCIENCE

Anatomy Physiology. Structure of cells, cell organelles, chromosome structure and functions, cell growth, division and differentiation and functions. Histology and physiology of mammalian organs and systems, major sense organs and receptors; Exocrine and endocrine glands, hormones and their functions, blood composition and function. Homeostasis, osmoregulation and blood clotting.

Veterinary Microbiology (Bacteriology, Virology, Immunology), Veterinary Pathology Veterinary Parasitology. Classification and growth characteristics of bacteria, important bacterial diseases of livestock and poultry, general characters, classification of important fungi. Nature of viruses, morphology, and characteristics, viral immunity, important viral diseases of livestock and poultry. Viral vaccines. Antigen and antibody, antibody formation, immunity, allergy, anaphylaxis hypersensitivity, immunoglobulins, complement system. Etiology of diseases and concept, extrinsic and intrinsic factors, inflammation degeneration, necrosis, calcification, gangrene, death, atrophy, hypertrophy, benign and malignant tumours in domestic animals. General classification, morphology, life cycle of important parasites, important parasitic diseases (Helminths, Protozoa and Arthropods) of veterinary importance with respect to epidemiology, symptoms pathogeneses diagnosis, immunity and control.

Veterinary Medicine, Epidemiology veterinary surgery and Veterinary Obstetrics and Gynaecology including reproduction. Clinical examination and diagnosis, Etiology, epidemiology, symptoms, diagnosis, prognosis, treatment and control of diseases affecting different body systems of various species of domestic animals, epidemiology— aims, objectives, ecological concepts and applications. General surgical principles and management of surgical cases. Types, administration and effects of anaesthesia. Principles and use of radiological techniques in the diagnosis of animal diseases. Estrus and estrus cycle in domestic animals, Synchronization of estrus, fertilization, pregnancy diagnosis, parturition, management of postpartum complications dystokias and its management, fertility, infertility and its management, artificial insemination.30 Information Bulletin 2010–2011

Veterinary Public Health, Veterinary Pharmacology & Toxicology. Zoonotic diseases through milk and meat, Zoo animal health. Source and nature of drugs, pharmacokinetics, Chemotherapy-sulpha drugs, antibiotics, mechanism and problem of drug resistance. Drug allergy, important poisonous plants, toxicity of important agro-chemicals and their detoxification, drugs action on different body systems.

ANIMAL SCIENCES

Animal Genetics and Breeding. Inheritance of acquired characters, cell structure and functional organization, mitosis, meiosis, Mendel's laws, gene interaction, sex determination, sex linkages, cytoplasmic, heredity, quantitative inheritance, linkages and combination, different types of chromosomes, gene structure and functions, mutation, speciation and evolution, inbreeding and crossbreeding, general and specific combining ability, heterosis, sire evolution, breeds of various important livestock species, breeding programmes, population statistics of livestock species.

Animal Nutrition, Feed Technology, Animal Physiology. General nutrition, carbohydrates, proteins and fats their digestion and metabolism protein value of the feed measure of protein quality and its application, requirement of energy, protein, minerals (macro and micro), vitamins and additives for pigs and poultry, protein-energy interrelationship, comparative design of nutrients in various species. Feed and animal body composition, function of water in body, rumen digestion and metabolism, nonprotein nitrogen metabolism in rumen, feeds and fodders, role of antibiotics, hormones and biostimulators. Digestion - control and motility and secretion of alimentary tract, gastric hormones, digestion and absorption in ruminants and monogasteric animals, avian digestion. Mechanism, neutral and chemical control of respiration, gaseous transport and exchange, high attitude living, physiology of work and exercise. Control of male sexual behaviour, ovarian function, estrus, ovulation, mechanism of sperm capacitating, sperm and ovum transport, female genital tract, fertilization, implantation, maintenance of pregnancy and physiology of placenta. Artificial insemination collection, preservation, transport of semen, semen diluters, artificial insemination, embryo transfer-collection, preservation, transport and transplantation of zygotes, oocytes culture and in vitro fertilization.

Animal Husbandry, Dairy Science, Livestock Production and Management, Animal Product Technology & Meat Science and Poultry Science. General concepts of livestock production and management in Indian agro-climatic and socioeconomic conditions, impact of livestock farming in Indian agriculture; concept of livestock housing, production and reproduction management of livestock species, lactation management, concept of machine milking. Poultry industry in India, random sample test, breeding programmes for broilers and layers. Composition of milk, meat, fish, poultry and eggs, technology or processing and preservation of livestock products, methods of processing and storage of meat. Meat products, eggs, poultry meat, food preservation, refrigeration, freezing, freeze drying, dehydration canning, radio pasteurization, chemical additives, curing, smoking.

Veterinary Extension. Definition and concept of sociology, differences between rural, tribal and urban communities, social change, factors of change. Principles and steps of extension education, community development—aims, objectives, organizational set up and concept evolution of extension in India, extension teaching method. Role of livestock in economy, health and socio-psychology of rural, semi-urban and urban society. Identifying social taboos, social differences, obstacles in the way of organizing programmes. Concept of marketing, principles of co-operative

societies, animal husbandry development planning and programme, key village scheme, ICDD, Gosadan, Goshala, Role of Gram Panchayat in Livestock production of rural economy. Data analysis, basics of statistics and computational techniques.

V. GUIDELINES FOR ENTRANCE EXAMINATION

The question paper for entrance examination will be of three hours duration and will consist of two parts, PART-A and PART - B.

Part - A: will have multiple choice type questions at the level of 10+2 in the subjects: **Physics, Chemistry, Mathematics and Biology. The Candidates will be required to attempt 60 questions** Total marks for Part A will be (60 questions x1 mark each) of 60 marks.

PART - B will also have multiple choice questions from the syllabus detailed above in Section IV of this Brochure. There will be 100 questions out of which the candidates will have to attempt 60 questions. Each correct answer will have a weightage of 3 marks.

VI. PREVIOUS YEARS' QUESTION PAPERS

For the reference of intending candidates, a set of question papers pertaining to the last three years are available on JNU website www.jnu.ac.in

VII . SELECTION PROCEDURE

The selection will depend strictly on the inter- se merit of the candidate in the Entrance Examination vis-à-vis preferences for joining the Universities indicated by the candidate. **In case a candidate has not indicated his/her choice for joining a particular University, his/her name will not be considered for that University.**

The Selection procedure will be as follows:

1) After the merit list is drawn more than double the number of candidates than the total intake only will be informed of their merit rank in the entrance examination. The candidates will also be informed about the total number of seats in each participating University. The candidates will be asked to exercise their options through online mode for joining the Universities. The candidates will be asked to pay through online mode an amount of Rs.5,000/- (Rs.2,500/- in the case of SC, ST, PWD candidates) **as initial security deposit** giving their willingness to be considered for admission to the participating Universities in accordance with their options for joining the universities vis-à-vis their inter-se merit in the Entrance Examination. **ALL CANDIDATES ARE ADVISED TO CHECK THE RESULT ON THE WEB SITE OF THE UNIVERSITY (www. jnu.ac.in) IN THE SECOND WEEK OF JUNE.**
2) Before exercise the options candidates are advised to check their eligibility as prescribed by different University and ensure that they fulfil the prescribed eligibility.
3.a) The candidates who do not be exercise their options for joining any of the participating universities will not be considered for admission to that university/universities3.b) Candidates who do not fulfil the eligibility for any University would not be considered for admission to that University/
Universities.
4) After allotment of seats, the JNU will send intimation to the candidates about their allotment of the university and also to the concerned participating university to which the candidate has been selected. Please note that once allotment of University is made on the basis of inter se merit vis-à-vis options, other options of the universities given by the candidate shall stand frozen. **CANDIDATES ARE ADV ISED TO CHECK THE ALLOTMENT OF UNIVERSITY ON THE WEB SITE OF THE UNIVERSITY (www. jnu.ac.in) IN THE FIRST WEEK OF JULY.**
5) The participating university will then inform the candidate about the complete admission procedure and schedule of their university as well as the amount of fee etc. to be deposited by the candidate. The initial security deposit already sent by the candidate through demand draft to JNU will be sent to concerned University for refund to the students after first semester.
6) In case the candidate is offered admission in accordance with his/her options for joining the University vis-à-vis his/her inter-se merit, but subsequently either does not join the concerned University or withdraw after joining during the first semester then in that event, the initial deposit of Rs. 5,000/- and Rs.2,500/- for General/ OBC/EWS and SC/ST/PWD categories respectively, shall stand forfeited.
7) The initial security deposit of Rs.5,000/-, (Rs.2,500/- in the case of SC/ST, PWD category candidates) will be refunded in full to those of the candidates who are not offered admission to any of the participating university.
8) **Candidates may note that request for transfer from one university to another will not be entertained under any circumstances. Therefore, candidates are advised not to make any request in this regard.**
9) Only those candidates who will be asked to exercise their option, the letter of these candidates will be available on JNU website (www.jnu.ac.in)) although intimation to this effect is also sent to the candidates on their e-mail account. However, the candidates are advised to find out through their own sources whether their names appear in the list and thereby make arrangement for sending their final option together with initial security deposit by the stipulated date. **The University will not issue any paper intimation to the candidates. Candidates are advised to regularly check JNU website for updates.**

10) PLEASE NOTE THAT AFTER THE FIRST MERIT LIST, THE SECOND LIST MAY BE RELEASED ONLY BASED ON VACANCIES. THE DECISION TO RELEASE THE SECOND LIST RESTS SOLELY WITH JNU.

VIII. TIME-TABLE FOR ENTRANCE EXAMINATION

1.	Start of Online Application Process	-	15.03.2019
2.	Closing of Online Application Process	-	15.04.2019
3.	Last date of successful transaction of fee Through Credit/Debit Card/Net-Banking up to 11.50 pm up to bank hours of 16 April, 2019	-	16.04.2019
4.	Correction in particulars of Application Form on website only	-	17.04.2019 to 19.04.2019
5.	Downloading of Admit Card from NTA website	-	22.04.2019
6.	Date of Entrance Examination	-	30th May, 2019 (2:30 pm – 5:30 pm)
7.	Display of recorded responses and Answer Keys for inviting challenges on NTAs Website	-	To be announce later by NTA
8.	Results of Entrance Examination		
	(i) Merit list of candidates to exercise their option for Universities		2nd week of June, 2019
	(ii). Final result of allotted Universities		1st week of July, 2019
9.	For admission/result queries candidate may visit our website www.jnu.ac.in		

Although the University will inform the candidates falling under consideration zone about their merit in CEEB on their e-mail account, it is the responsibility of the candidate to see the result on University website. The letter of these candidates will also be available on JNU website (www.jnu.ac.in). The University will not issue any paper intimation to the candidates. Candidates are advised to regularly check JNU website for updates.

IX. HOSTEL FACILITIES

The outstation candidates admitted to the programme of study of the participating Universities will be considered for hostel accommodation as per rules of the concerned University subject to availability of hostel accommodation. Students may please note that grant of admission in a University would not ensure automatic allotment of hostel accommodation and that the same will be offered subject to its availability.

X. CERTIFICATES AND OTHER DOCUMENTS REQUIRED AT THE TIME OF ADMISSION

(a) Two self attested copies of the Matriculation, Higher Secondary, Pre-University of Indian School Certificate or Senior School Certificate (10+2) or an equivalent examination certificate, showing the age/date of birth of the candidate;

(b) A Character Certificate from the Head of the Institution last attended;

(c) Two self attested copies of the statement of marks obtained by the candidate in Senior School, Bachelor's Degree/ Master's Degree examination etc; or their equivalent examination;

(d) Two self attested copies of the Bachelor's Degree and/Master's Degree;

(e) SC/ST/OBC/EWS Certificate, if belonging to SC/ST/OBC/EWS category.

(f) A Medical Certificate for PWD Candidates; certifying that the disability is not less than 40%.

(g) Migration Certificate (in original) from the Head of the Institution/University last attended.

Important: The candidates are also required to produce all originals of the above certificates/documents for verification at the time of registration/admission. In the absence of any of the original certificates/documents, registration/admission shall not be allowed.

XI. INSTRUCTIONS FOR COMPLETING THE APPLICATION FORM

1. **Name of the Candidate:** Please note that your name, your parent's/guardian's name, and your date of birth should exactly be the same as given in your 10th class or first Board/Pre-University examination certificate. Any deviation, whenever discovered, may lead to cancellation of your candidature.

2. **Entrance Examination Centre:** A list of cities* where entrance examination is to be held is given below. **No change will be permitted and no correspondence in this context will be entertained.** In case it is not possible to allot the Centre of your choice, the University reserves the right to allot you alternative centre.

Sl. No.	State	Name of Examination Centre
1	**ANDHRA PRADESH**	Chittoor
2		Kakinada
3		Nellore
4		Rajahmundry
5		Tirupati
6		Vijayawada
7		Visakhapatnam
8	**ARUNACHAL PRADESH**	Naharlagun
9	**ASSAM**	Guwahati
10		Silchar
11	**BIHAR**	Darbhanga
12		Aurangabad
13		Patna
14		Purnia (Purnea)
15		Gaya
16		Bhagalpur
17	**Chandigarh (UT)**	Chandigarh
18	**CHHATISGARH**	Bilaspur
19		Raipur
20	**DELHI**	Delhi
21	**GUJARAT**	Ahmedabad
22		Gandhinagar

23		Anand
Sl. No.	**State**	**Name of Examination Centre**
24		Rajkot
25		Surat
26		Vadodara
27		Mehsana
28	**HARYANA**	Ambala
29		HIssar
30		Kurukshetra
31		Panipat
32		Gurugram
33		Karnal
34		Faridabad
35	**HIMACHAL PRADESH**	Shimla
36		Hamirpur
37	**JAMMU & KASHMIR**	Jammu
38	**JHARKHAND**	Dhanbad
39		Jamshedpur
40		Ranchi
41	**KARNATAKA**	Bangalore
42		Belgaum
43		Dharwad
44		Gulbarga
45		Hubli
46		Mangaluru
47		Manipal
48		Mysuru
49	**KERALA**	Alappuzha

50		Thiruvananthapuram
51		Ernakulam/Kochi
52		Kannur
53		Kottayam
54		Kollam
55		Kozhikode
56	**MADHYA PRADESH**	Gwalior
57		Sagar
58		Jabalpur
59		Bhopal
60		Indore
61		Satna
62		Ujjain
63	**MAHARASHTRA**	Mumbai
64		Nagpur
65		Pune
66		Aurangabad (Maharashtra)
67		Kolhapur
68		Nanded
69		Nasik
70		Navi Mumbai
71		Amravati
72		Jalgaon
73		Thane
74	**MANIPUR**	Imphal
75	**MEGHALAYA**	Shillong
76	**MIZORAM**	Aizwal
77	**NAGALAND**	Dimapur

78	**ORISSA**	Bhubaneshwar
79		Sambalpur
80		Balasore
81		Cuttack
82		Rourkela
83	**Puducherry**	Puducherry
84	**PUNJAB**	Amritsar
85		Bhatinda
86		Ludhiana
87		Jalandhar
88		Mohali
89		Patiala
90		Sangrur
91	**RAJASTHAN**	Jaipur
92		Jodhpur
93		Udaipur
94		Ajmer
95		Alwar
96		Bikaner
97		Kota
98		Sikar
99	**SIKKIM**	Gangtok
100	**TAMIL NADU**	Chennai
101		Coimbatore
102		Madurai
103		Nagarcoil
104		Tiruchirappalli
105	**TELANGANA**	Hyderabad

106		Warangal
107	**TRIPURA**	Agartala
108	**UTTAR PRADESH**	Lucknow
109		Varanasi
110		Allahabad
111		Bareilly
112		Ghaziabad
113		Gorakhpur
114		Noida
115		Agra
116		Aligarh
117		Kanpur
118		Meerut
119	**UTTARAKHAND**	Dehradun
120		Roorkee
121		Haldwani
122	**WEST BENGAL**	Kolkata
123		Siliguri
124		Kalyani
125		Hooghly
126		Asansol
127	**UNION TERRITORIES**	Goa (Panaji/Madgaon)

** Subject to sufficient number of candidates available.*

Note:

1. **The University reserves the right to change/cancel any Centre of Examination within India/abroad without assigning any reason.**

5. **Entrance Examination Fee:** The entrance examination fee is Rs. 1000/- for general category candidates including OBC & EWS candidates; and Rs. 500/- for the candidates belonging to SC/ST and Person with Disability categories. The entrance examination fee for Foreign Nationals is US$ 40.00 or Rs. 2880/-.

Important Notes:

1. **If any information furnished by the candidate in the application form is found to be false, his/her admission, if granted on the basis of such information will be cancelled, ipso facto.**
2. **The candidate must fulfil the eligibility requirements as detailed in the Prospectus. The candidate should, appear in the entrance examination only if the eligibility requirements for M.Sc. (Agri) Biotechnology/M.V.Sc. Programme is fulfilled. Despite this caution, in case a candidate does not meet the minimum eligibility criteria and still appears in the entrance examination, then the candidate will be doing so at their own risk and cost, and if at any stage, it is found that the candidate does not fulfil the minimum eligibility requirements, the admission, if granted, shall be cancelled ipso facto.**
3. **Any dispute with regard to any matter relating to admission shall be subject to the jurisdiction of Delhi Courts only.**
4. **Studentship Support:** All selected students for **M.Sc. (Agri.) Biotechnology** will paid Rs. 7500/- studentship and **M.V.Sc. Programme** will paid Rs. 12,000/- studentship under DBT Support.

Combined Entrance Examination
conducted by
Jawaharlal Nehru University
for admission to

M.Tech. Biotechnology Programme
(General Biotechnology, Bioprocess Technology, Food Biotechnology, Marine Biotechnology, Pharmaceutical Biotechnology and Computational Biology)

www.jnu.ac.in

PROSPECTUS

ACADEMIC SESSION
2019-20

CONTENTS

I. GENERAL

Biotechnology is a multi-disciplinary area on the educational scene and programmes have been developed to meet the growing demand for trained manpower for any meaningful Biotechnology activity. The Government of India has allotted high priority for the development of Biotechnology and its exploitation in agriculture and other related disciplines.

The Jawaharlal Nehru University will hold an entrance examination for the academic year 2019-20 for admission to four-semesters (Two years) M.Tech Biotechnology programme being offered by the following participating Universities:

1. ANNA UNIVERSITY, CHENNAI
2. COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY, KOCHI, KERALA (M.Tech. in Marine Biotechnology)
3. MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY (formerly known as West Bengal University of Technology), KOLKATA.
4. INSTITUTE OF CHEMICAL TECHNOLOGY (ICT), MUMBAI (M.Tech. in Bioprocess Technology)
5. INSTITUTE OF CHEMICAL TECHNOLOGY (ICT), MUMBAI (M.Tech in Food Biotechnology)
6. INSTITUTE OF CHEMICAL TECHNOLOGY, (ICT), MUMBAI (M.Tech. in Pharmaceutical Biotechnology)
7. INDRAPRASTHA INSTITUTE OF INFORMATION TECHNOLOGY DELHI, NEW DELHI (M.Tech. in COMPUTATIONAL BIOLOGY)

The Entrance Examination will be held on May 30, 2019 at Centers all over the country
(detail of these examination centers is shown under Section XI of this Prospectus).

* Subject to revision of seats in programs

1. Anna University, Chennai (25 Seats) *

The Centre for Biotechnology was established in 1987 in Anna University with a financial support from the Department of Biotechnology, Government of India with the objectives of providing excellent state-of-art educational and research facilities in frontier areas of Biotechnology. The Centre also carries out fundamental and translational research to develop technologies to benefit society. It also promotes research and consultancy services in Biotechnology and Food Technology.

The Centre for Biotechnology has two campuses, one at Guindy which houses the teaching and administrative blocks and a R&D campus at Taramani which houses state-of-art bioprocess laboratories and impressive facilities in Cellular and Molecular Biology, and advanced proteomics facility. The Centre for Food Technology operates on a separate building offering Teaching, Research and Consultation.

The major thrust areas of teaching and research offered by experienced faculty at the Centre for Biotechnology, Anna University, for the programme are:

1. Biochemistry and Protein Biotechnology
2. Molecular Biology and Recombinant DNA Technology
3. Bioprocess Engineering, Technology and Metabolic Engineering
4. Computational Biology, Genomics and Proteomics
5. Infectious Diseases, Diagnostics and Drug Discovery
6. Molecular Immunotechnology
7. Tissue Engineering and Regenerative Medicine
8. Food Technology, Food Processing and Preservation

The candidates admitted to the program are eligible for the award of M.Tech degree in Biotechnology on successful completion of the programme. The candidates admitted to the programme are also eligible to receive scholarship at the rate prescribed by DBT.

****Fees to be paid at the time of Admission:**
For Tamil Nadu State: General -Rs.27520/- and SC/ST - Rs.22520/-
For Other State: General -Rs.28020/- and SC/ST - Rs. 28020/-
Note: The fee is for 2019 - 2020, and is subjected to change every year.

Contact Address:

Dr. Anuradha Dhanasekaran
Director and Head of the Department
Centre for Biotechnology
Anna University
Chennai – 600 025 Tamil Nadu
Telefax : 044-22350299
Phone No : 044-222350772/22358362
Fax No. : 044-22350299
E-mail : directorcbt@annauniv.edu, hoddirbtauc@gmail.com, anu@annauniv.edu

2. Cochin University of Science and Technology, Kochi, Kerala (8 Seats)

The M.Tech. programme in Marine Biotechnology sponsored by Department of Biotechnology, Government of India is a unique course of its kind in the country. Over above two decades, Government of India has been supporting infrastructure development and research in focused areas of Marine Biotechnology to develop novel processes and products aiming at enhancement of manifold industrial processes, biomedical material development and environment management. These efforts paved the way for the development of Marine Biotechnology industry in the country harnessing the potentials of the marine environment. The Department of Biotechnology, Government of India on taking stock of the situation realized that to infuse power to the sector effective human resource with vibrant entrepreneurship and high level technical expertise were the prime requirements. This paved the way for instituting the M.Tech. programme in Marine Biotechnology at National Centre for Aquatic Animal Health, Cochin University of Science and Technology in 2008 with the objective of generating the right kind of human resource to augment the developments in Marine Biotechnology industry in the country. The National Centre for Aquatic Animal Health is equipped with state-of -the -art facilities for research and education in Marine Biotechnology.

The four semester M.Tech programme consists of two semesters of theory, practical classes, assignments, problem analysis, short term projects, skill development under the area of specialization and case studies with in-house research during the third and fourth semesters. The thrust areas are:

1. Advanced molecular biology
2. Marine genomics and proteomics
3. Animal cell culture technology
4. Marine algal biotechnology
5. Marine bioprospecting
6. Marine microbiology
7. Preventive healthcare in aquaculture
8. High health broodstock development
9. Bioprocess technology
10. Sustainable aquaculture production systems

A training programme in an industry or in an Institution is placed during summer vacation after the first year. Scholarships are paid at the rate prescribed by Department of Biotechnology, Government of India.

Fees to be paid at the time of Admission: Rs.19710/-(approx.)

Contact Address:

Dr. Valsamma Joseph
Director
National Centre for Aquatic Animal
Health, Cochin University of Science
and Technology, Lakeside Campus
Fine Arts Avenue
Kochi - 682016 Kerala
Phone No. : 0484 - 2381120
Fax No. : 0484 - 2381120
E-mail : valsamma@cusat.ac.in/ncaah@cusat.ac.in
web site :www.ncaah.org

3. Maulana Abul Kalam Azad University of Technology, West Bengal (Haringhata) (18 Seats) *

The Government of West Bengal under its Ministry of Higher Education has set up the Department of Biotechnology with a view to establish a Centre for Excellence in Biotechnology at Maulana Abul Kalam Azad University of Technology, West Bengal (formerly known as West Bengal University of Technology). The Department of Biotechnology (DBT), Government of India has been supporting this 4-semester M.Tech. programme in Biotechnology at Maulana Abul Kalam Azad University of Technology, West Bengal since 2002. The M.Tech.(Biotechnology) programme took off successfully in early 2003. A good and sufficient infrastructure has been established with the financial support received from the Department of Biotechnology, Govt. of India, UGC and University funds. Recently the University has shifted to its new permanent campus at Haringhata (approx. 50 km from the city of Kolkata) with modest hostel facilities and other amenities. The main focus of this department is training of students and developing expertise in various facets of Biotechnology. The research trainings (R&D) that will be undertaken as a part of the future programme, and the knowledge students would gather from the course curricula would help them and the researchers in future to develop commercially viable biotechnological processes / products. Scholarships will be payable at the rates prescribed by the Department of Biotechnology.

Fees to be paid at the time of Admission: Rs.26700/-(approx.) (excluding accommodation & food)

Contact Address: Prof. Arup Mukherjee
Coordinator
Department of Biotechnology
Maulana Abul Kalam Azad University of Technology,West Bengal
NH 12, Haringhata, Post Office - Simhat, Police Station – Haringhata, Pin - 741249 (Main Campus)
Phone No.07044950373/ 09433475981
E-mail arupm1234@gmail.com

4. INSTITUTE OF CHEMICAL TECHNOLOGY (ICT), MUMBAI (30 seats)*

M.Tech. Bioprocess Technology (Special Emphasis on upstream and downstream processing)

Fees to be paid at the time of Admission: Rs 70,000/- per year (approx.)

Contact Address: Dr. Parag R. Gogate
Head & Coordinator
Department of Chemical Engineering, Institute of Chemical Technology,
N. P. Marg, Matunga (E),
Mumbai – 400019

Phone No. : 91-22-33612024
Fax No. : 91-22-33611020
Mobile : 91-9820491575
E-mail : pr.gogate@ictmumbai.edu.in, paraggogate@yahoo.co.in

5. INSTITUTE OF CHEMICAL TECHNOLOGY (ICT), MUMBAI (10 seats)*
M.Tech. Food Biotechnology

Fees to be paid at the time of Admission: Rs 70,000/- per year (approx.)

Contact Address: **Dr. Laxmi Ananthanarayan**
Coordinator
Department of Food Engineering and Technology,
Institute of Chemical Technology,
N. P. Marg, Matunga (E)
Mumbai – 400019
Phone No. : 91-22-33612506
Fax No. : 91-22-33611020
Mobile No. : 09664540070
E-mail : l.ananthanarayan@ictmumbai.edu.in; laxmi.ananth.iyer@gmail.com

6. INSTITUTE OF CHEMICAL TECHNOLOGY (ICT), MUMBAI (10 seats)*
M.Tech. Pharmaceutical Biotechnology

Fees to be paid at the time of Admission: Rs 70,000/- per year (approx.)

Contact Address: Prof. Padma V. Devarajan
Coordinator
Department of Pharmaceutical Sciences and Technology Institute of Chemical Technology,
N. P. Marg, Matunga (E),
Mumbai – 400019

Phone No. : 91-22-33612210
Fax No. : 91-22-33611020
Mobile No. : 91-9820518009
E-mail : pv.devarajan@ictmumbai.edu.in; pvdevarajan@gmail.com

Institute of Chemical Technology (ICT), Mumbai, established on October 1, 1933 as the UDCT –University Department of Chemical Technology of the University of Bombay (now Mumbai), with the noble intention of advancing India's knowledge reserves in chemical science and technology, is now a premier (deemed) university devoted to education, training, research and industrial collaboration in Chemical Engineering, Biotechnology and Bio-processing, Chemical Technology, Applied Chemistry, and Pharmacy. The Institute's alumni have distinguished themselves in all walks of life, be it in industry, academia, government or public service in India as well as abroad. . Indeed the Institute has produced 19 Padma awardees. ICT is ranked among the best in India having the highest NAAC rank of A^{++} with CGPA of 3.77/4.00. It was also declared at Category I institute by MHRD/UGC Notification (The Gazette of India dated Feb. 12, 2018; University Grants Commission [Categorisation of Universities (Only) for Grant of Graded Autonomy] Regulations, 2018. F. No. 1-8-2017(CPP-II)). On 3rd April, 2018, The National Institutional Ranking Framework (NIRF) of MHRD placed ICT at No. 10 in Engineering, No. 4 in Pharmacy, No. 19 among Universities and No. 30 among all. The magic for the success is a concoction of dedicated faculty, meritorious students, admirable support staff, distinguished alumni, strong connectivity with industry, and assistance to all needy students, a grand alumni association and above all relevance of our courses in wealth creation. The Web of Science, an international agency, showed in September 2016 that based on the normalized citation index, ICT was ranked number one, ahead of IISc and IITs, and central universities. In QS BRICS 2018 ranking, ICT secured 118th rank among all with 100/100 marks for research and innovation, along with IISc Bangalore and IIT-Delhi. Once again in the Scopus Survey of April 2018, ICT is found to be the top most using the Weighted Average Citation Impact in the country among all universities and IITs.

The Institute's strong multi-disciplinary research programs have helped create a unique learning environment that places great emphasis on synergizing knowledge from several sources to develop creative and effective solutions to many of the problems faced in industry and society and providing an eclectic combination of rigorous and up-to-date curriculum, excellent laboratory and demonstration facilities, world-renowned faculty and a conducive learning environment brimming with the next generation of great minds.

ICT conducts three multidisciplinary programs supported by Department of Biotechnology (DBT), New Delhi. These programs are M.Tech. Bioprocess Technology, M.Tech. Food Biotechnology and M.Tech. Pharmaceutical Biotechnology. All three programs are two year (four semester) full time programs with first two semesters involving theory and practicals, third semester involving 3 to 6 months of industrial internship and fourth semester involving full time research work on specific topic under the guidance of faculty from ICT. At ICT, students get exposed to various analytical techniques, processing equipment and other facilities. Students are also sent on factory visits and are encouraged to attend various national and international conferences to participate and present technical papers/ posters based on their research work. While a large number of students get placed in the Industry every year through central and departmental placement cell, students are also motivated to go for higher studies i.e. Doctoral program and also to become entrepreneur through entrepreneurship development cell. The M. Tech. programmes supported at ICT are very well received by industries. For more information, please visit, **www.ictmumbai.edu.in**.

The brief details about the three DBT supported M. Tech. Programs at ICT are as follows:

M. Tech. in Bioprocess Technology

M. Tech. in Bioprocess Technology is an interdisciplinary program started in year 1993 with support from DBT and has current intake of 30 seats. This program is conducted in five departments of ICT and is coordinated by the Chemical Engineering Department. The program holds theory and research work involving topic of strong industrial relevance and large societal impact with balance between fundamental aspects and recent advancements in the field with upstream and downstream processing, bioanalyticals, secondary agriculture, molecular biotechnology, food and pharmaceutical biotechnology, bioprocess development and engineering, industrial biotechnology, bioprocess integration and intensification, technology translation, scale-up and building of business model for small, medium and large scale industries.

The major thrust areas of teaching and research offered by experienced faculty for this program are:

1. Upstream and Downstream Processing
2. Protein and Enzyme Engineering, and Biocatalysis
3. Fermentation and Cell Culture Engineering and Technology
4. Molecular biology, cloning and synthetic biology
5. Analytical techniques in bioprocessing
6. Bioreactor design and control
7. Bioprocess optimization(QbD, PAT, DOE etc.), scale up and controls
8. Patents and IPR in biotechnology
9. Biosystems and bioreaction engineering

10. Computational Biology, Genomics and Proteomics
11. Microbial and algal technology
12. Biofuels and biochemcials
13. Secondary agriculture
14. Enzyme immobilization
15. Bioreaction engineering and Biosystem Engineering

The candidates admitted to the program are eligible for the award of M. Tech. Degree in Bioprocess Technology on successful completion of the program. The candidates admitted to the program are eligible to receive scholarship at the rate prescribed by DBT.

M. Tech. in Food Biotechnology

M. Tech. in Food Biotechnology program is supported by DBT and was initiated in 2008 in the Food Engineering and Technology Department of ICT with intake capacity of 10 seats. The M. Tech. in Food Biotechnology is an interdisciplinary program and has been initiated to impart education in Food Biotechnology to enable students to work in areas such as food fermentations, applications of enzymes in food processing, food product development, nutraceuticals, nutritional and functional foods, nutrigenomics etc.

The major thrust areas of teaching and research offered by experienced faculty for this program are:

1. Introduction to Food Science and Technology
2. Comprehensive Techniques in Food Analysis
3. Fundamentals of Food Process Engineering
4. Food Packaging Science and Technology
5. Food Standards and Safety Regulations
6. Fundamentals of Food Biotechnology, Genetics, and Cell Culture Technology
7. Biotechnology of Fermented Foods
8. Bioprocess Engineering and Technology
9. Basics of Human Nutrition
10. Enzymes in the Food and Feed Industry
11. Food analysis and Food processing laboratory
12. Food Biotechnology laboratory
13. Nutrigenomics, food genomics, molecular biology
14. Nutraceuticals and functional foods
15. Recovery of microbial metabolites
16. Food industry waste utilization
17. Development of novel food formulations

The candidates admitted to the program are eligible for the award of M. Tech. Degree in Food Biotechnology on successful completion of the program. The candidates admitted to the program are eligible to receive scholarship at the rate prescribed by DBT.

M. Tech. in Pharmaceutical Biotechnology

M. Tech. in Pharmaceutical Biotechnology program has been started in 2016 with intake of 10 seats and is supported by DBT. The main emphasis of this program is on production and formulation of quality biopharmaceuticals with desired degree of safety and efficacy. This also involves biotech product development, characterization, stabilization, and regulatory affairs.

The major thrust areas of teaching and research offered by experienced faculty for this program are:

1. Biopharmaceuticals, Biologicals and Biosimilars
2. Formulation, Characterization and stabilization of biotech products
3. Bioinformatics (molecular modeling) and bio-drug development as well as discovery
4. Molecular Immunology
5. Stem cell technology and Regenerative Medicine
6. Drug Delivery Technology
7. Bioanalytical techniques and formulation of biotech products

The candidates admitted to the program are eligible for the award of M.Tech. Degree in Pharmaceutical Biotechnology on successful completion of the program. The candidates admitted to the program are eligible to receive scholarship at the rate prescribed by DBT.

7. Indraprastha Institute of Information Technology Delhi (20 Seats)*

M.Tech.in Computational Biology

Brief about Program and University: Indraprastha Institute of Information Technology, Delhi (aka. IIIT-Delhi or IIIT-D) was created as a State University by an act of Delhi Government (**The IIIT Delhi Act, 2007**) empowering it to do research and development and grant degrees. IIIT-Delhi was officially established on 10th June, 2008 in the Delhi Gazette. IIIT-Delhi offers various educational programs B.Tech, M.Tech, B.Tech with minor in specialized streams & focused PhD programs.

B.Tech in following disciplines:

- Computer Science and Engineering (CSE)
- Electronics and Communications Engineering (ECE)
- Computer Science and Biosciences (CSB)
- Computer Science and Applied Mathematics (CSAM)
- Computer Science and Design (CSD)
- Computer Science and Social Sciences (CSSS)

M.Tech in following disciplines:

- Computer Science
- Electronics and Communications Engineering
- Computational Biology

IIIT-D has a world class campus with robust computing facilities, Internet & Wi-Fi, library, hostel, well – equipped labs & classrooms & 24*7 medical supports. The Institute puts strong emphasis on research, innovation and development to create impact through published papers, projects, and technology development and have highly qualified faculty members. Institute also motivates students to join various students clubs.There are about 18 active, student-driven clubs including the programming club Foobar and the software development club Byld, and other clubs like MadToes, AudioBytes, Ink.,Trivialis, LitSoc, Tasveer, Hasratein, etc.

M.Tech (CB) Program strives for rigorous training in theoretical and computational approaches (for solving real life biological problems) and includes algorithms and programming, fundamentals of biology, genetics, bioinformatics, systems and synthetic biology, mathematical modelling, stochastic simulations, and biophysics. Some advanced and recent topics (such as computational neuroscience, single cell biology/ genomics, bio-simulations, biostatistics, machine learning, big data analytics etc.) will also be covered. The main objective of the M.Tech in CB is to train students to become professionals for high-end jobs and also to introduce to them the cutting-edge research at the interface of biological sciences and computer science. The program is designed to allow rigorous pursuit of both the disciplines to bridge the gap between diverse biological streams, starting from biological networks to molecular biology, to computational fields including algorithm development, high performance computing etc. This program emphasizes multidisciplinary competency, interdisciplinary collaboration between industry and academia and offers a customizable curriculum that consists of four semesters of didactic course work tailored to each student's background and interests and dissertation research supervised by CB faculty mentors. Students completing the program will be highly competent and knowledgeable in the interdisciplinary area of computational biology that is in great demand in both academia and industry.

Contact Details of Program Coordinator:
Dr. Ganesh Bagler, Assistant Professor, IIIT-Delhi
Phone: 011-26907400 (During office hours between 9:30 am to 5:30 pm)
Email: mtech-admissions@iiitd.ac.in
Website –https://cb.iiitd.ac.in/
Office:
Center for Computational Biology, Research and Development Block
Indraprastha Institute of Information Technology, Delhi
Okhla Industrial Estate,Phase III,
(Near GovindPuri Metro Station)
New Delhi, India – 110020

Fees to be paid at the time of Admission –
The fee for the entire M.Tech program is Rs. 2.5 Lac. The payment schedule is as follows:
Rs. 87,500/- [(Tuition fees of Rs. 62,500/- + Campus Maintenance Charges Rs. 15,000/-+ Security money of Rs. 10000(refundable)] at the time of accepting offer of admission.
Rs. 62,500 (Tuition fees) at the start of Sem II of the program
Rs. 77,500 (Tuition fees of Rs. 62,500/- + Campus Maintenance Charges Rs. 15,000/-) at the start of Sem III of the program, and
Rs. 62,500 (Tuition fees) at the start of Sem IV of the program.

II. ELIGIBILITY FOR ADMISSION

Minimum 60% marks or equivalent CGPA (under grading system) from any recognized university in any one of the following: **or Anna University:** **For University:**

	B. Pharmacy OR B.Tech / BE in:		**M. Sc. in**
1.	Chemical Engineering		1. Biotechnology
2.	Biochemical Engineering	**OR**	2. Life Sciences
3.	Pharmaceutical Technology		3. Botany, Zoology, Biochemistry
4.	Leather Technology		4. Microbiology, Genetics
5.	Chemistry/Biotechnology		5. Biophysics
6.	Biomedical Engineering		6. Microbial Genetics & Bioinformatics
7.	Industrial Biotechnology		
8.	Chemical Technology		
9.	Food Technology		
10.	Dairy Technology		
11.	Food Engineering		

For Anna University: Candidates with B.Tech/B.E in Electrochemistry, Bioengineering, Pharmaceutical Technology, Food Technology, B.Tech. in Agricultural Biotechnology and M.Sc. in Chemistry & Physics are also eligible.

For Cochin University of Science and Technology: Candidates with M.Sc in Marine Biotechnology, Marine Biology/Aquatic Biology & Fisheries, Environmental Biotechnology are also eligible.

For West Bengal University of Technology: Candidates with M.Sc. in Bioengineering are also eligible.

For Institute of Chemical Technology:

a) ***M. Tech. Bioprocess Technology***: Candidates with B. Pharmacy; B. Tech. degree any branch of chemical technology of ICT or or any other equivalent degree of any University recognized by the UGC of four- year degree course after HSSC/Std. XII, with 60% marks in aggregate or equivalent CGPA [55% marks in aggregate or equivalent CGPA for the backward class candidate]. B. Tech./ B.Sc. (Tech.)/ B. E. in Food Engineering and Technology/ Food Engineering/ Food Technology/ Food Process Technology/ Food Process Engineering/ Dairy Technology/ Biotechnology/ Biochemical Engineering/ Pharmaceutical Technology/ Oil Technology, pharmaceutical technology, food technology, textile and fibers technology, polymer engineering and technology, dairy technology, industrial biotechnology, Oil & Oleochemicals technology, dyes and dyestuff technology or any equivalent degree of full four year duration of any University recognized by the UGC. B.E/B. Tech in Chemical Engineering, food engineering, biochemical engineering, biomedical engineering; B. Chemical Engineering; Three year degree programs in these disciplines are not recognized for admission; MSc in biotechnology, life sciences, biochemistry, microbiology, molecular biology, microbial genetics, genetics & bioinformatics or equivalent thereof from any recognized university are eligible.

b) M. Tech. Food Biotechnology: The candidate should have passed B. Tech. degree in Food Engineering and Technology of the ICT or any other equivalent degree of any University recognized by the UGC of four- year degree course after HSSC/Std. XII, with 60% marks in aggregate or equivalent CGPA [55% marks in aggregate or equivalent CGPA for the backward class candidate]. OR B. Tech./ B.Sc. (Tech.)/ B. E. in Food Engineering and Technology/ Food Engineering/ Food Technology/ Food Science/ Food Process Technology/ Food Process Engineering/ Dairy Technology/ Biotechnology/ Biochemical Engineering/ Pharmaceutical Technology/ Oil Technology or any equivalent degree of full four year duration of any University recognized by the UGC. Three year degree programs in these disciplines are not recognized for admission; OR M. Sc. in Biotechnology/ Life Sciences/ Biochemistry/ Microbiology/ Genetics/ Microbial Genetics and Bioinformatics or equivalent thereof from any recognized university.

c) M. Tech. Pharmaceutical Biotechnology: Candidates with B. Pharmacy; B. Tech. degree any branch of chemical technology of ICT or or any other equivalent degree of any University recognized by the UGC of four- year degree course after HSSC/Std. XII, with 60% marks in aggregate or equivalent CGPA [55% marks in aggregate or equivalent CGPA for the backward class candidate]. B. Tech./ B.Sc. (Tech.)/ B. E. in Biotechnology/ Biochemical Engineering/ Pharmaceutical Technology, pharmaceutical technology, industrial biotechnology, or any equivalent degree of full four year duration of any University recognized by the UGC. B.E/B. Tech in Chemical Engineering, biochemical engineering, biomedical engineering; B. Chemical Engineering; Three year degree programs in these disciplines are not recognized for admission; MSc in biotechnology, life sciences, biochemistry, microbiology, molecular biology, microbial genetics, genetics & bioinformatics or equivalent thereof from any recognized university are eligible.

7. For Indraprastha Institute of Information Technology Delhi, New Delhi :

Eligibility for admission: Applicants must have done one of the following courses:

1. B.Tech/BE in any discipline

2. MCA
3. MSc. (Physics, Chemistry, Mathematics , Computer Science, Biochemistry, Microbiology, Biotechnology, Biophysics, Bioinformatics, Biomedical sciences)
4. B.Pharm
5. MBBS

Applicants must have done the following at their qualifying degree from a recognized institution / online education portal: At least one computer programming course, and at least two Mathematics courses. All applicants must have CGPA of at least 6.5 out of 10 or 65% in qualifying exam. The applicant must have at least 60% in all previous degrees including 10+2. Candidates in the final year of their programs and who expect to complete all their qualifying degree requirements before the date of registration are also eligible to apply for admissions. For selection purposes, their performance until the preceding semester (preceding year if their programs are year based) would be considered but their admission would be provisional, subject to their meeting the minimum eligibility criteria after their final qualifying examination results are announced.

Note: Students shortlisted from JNU-CEEB would be required to appear for an interview at IIIT-Delhi, after which the final selections would be made.

Reservation Norms: IIIT-Delhi provides relaxation to SC, ST, OBC, PWD and CW category candidates. Specifically, candidates under these categories have CGPA of at least 6.0 out of 10 or 60%. They must have at least 55% in all previous degree including 10+2. Applicants who do not satisfy the above criteria will not be able to submit the application form.

Important Notes:

- **Before applying, please ensure that you fulfil the eligibility requirements as prescribed above. Also please note that permission to appear in the entrance examination is strictly subject to your fulfilling the minimum eligibility requirements prescribed by each University as detailed above. You may, therefore, appear in the entrance examination only if you fulfil the eligibility requirements for M. Tech Biotechnology Programme. Despite this caution, in case you do not meet the minimum eligibility criteria and still appear in the entrance examination, you will do so at your own risk and cost, and if at any stage, it is found that you do not fulfil the minimum eligibility requirements, the admission, if granted to you, shall be cancelled ipso facto.**
- Number of seats is subject to change by the participating Universities.
- Candidates who are due to appear in the final semester/year of the qualifying examination shall also be considered for appearing in the entrance examination provided they have secured 60% or equivalent CGPA (under grading system) in previous semesters/year. However, in the event of their selection, the admission will be granted to them subject to their securing minimum 60% marks or equivalent CGPA in their qualifying examination.
- Candidates seeking admission to above mentioned M. Tech programmes and who are GATE/GAPT qualified or wishing to appear to such national level exams need to apply to JNU-CEEB.

III. RESERVATION/CONCESSION

(a) Upto 22.5 per cent (15% for SC and 7.5% for ST) of seats are reserved for SC/ST candidates respectively. As per the provisions of Rights of Persons with Disabilities Act, 2016, not less than five percent (5%) seats are reserved for Persons with Benchmark Disabilities, where "person with benchmark disability" means a person with not less than forty percent (40%) of a specified disability where specified disability has not been defined in measurable terms and includes a person with disability, as certified by the certifying authority. 27% seats are reserved for OBC candidates (non-creamy layer). The persons belonging to EWS who are not covered under the scheme of reservation for SCs, STS and OBCs shall get 10% reservation in admission, wherever applicable, will be implemented as per the policy of each participating university.

(b) Concession for Kashmiri Migrants: 10% marks will be added to the overall marks scored by a Kashmiri migrant candidate in the Entrance Examination. After adding 10% marks, in case he/she is covered in the cut-off point in the merit list, he/she will be offered admission strictly in accordance with his/her inter-se merit alongwith other candidates subject to his/her meeting the minimum prescribed eligibility requirements and also subject to his/her producing valid registration documents issued by the notified authorities certifying the candidate's Kashmiri Migrant status.

IV. GUIDELINES FOR ENTRANCE EXAMINATION

The question paper for Entrance Examination will be of 3-hours duration consisting of Two Streams: (i) Technology Stream and (ii) Life Sciences Stream.

(i) Technology Stream :

Part A : Basic Engineering & Technology..... at under graduate level
Part B : Physics/Chemistry/Maths..... at under graduate level
Part C : Fundamental Life Sciences, chemical sciences and Informatics..... at 10+2 level

(ii) Life Science Stream:

Part A : Life Sciences (Biochemistry, Molecular Biology & Immunology)……at post graduate level
Part B : Physics/Chemistry.....……...at undergraduate level
Part C : Maths, Computer & Information Sciences.....……...……at 10+2 level**.**

(iii) Computational Biology Stream Syllabus

Part A Mathematics …….. Undergraduate level
Part B Computer science …….. Undergraduate level
Part C Life sciences/Chemical sciences…….. 10 + 2 level

V. SYLLABUS

Section I

Technology/Engineering Stream

Part A

(Basic Engineering and Technology, Pharmacology)

i) Basic Engineering and Technology

Basic concepts/principles in mechanical engineering, chemical & biochemical engineering, electrical and electronics engineering:

Chemical Engineering: Computer applications in chemical engineering- chemical process industries instrumentation methods of chemical analysis, thermodynamics- laws of conservation of mass and energy, First and Second laws of thermodynamics, reversible and irreversible processes, internal energy, enthalpy, Kirchoffs equation, heat of reaction, Hess law, heat of formation, Applications of first law to close and open systems, Second law and Entropy Thermodynamic properties of pure substances: equation of state and departure function, free energy, and work function. Gibbs-Helmholtz equation, Clausius-Clapeyron equation, free energy change and equilibrium constant, Troutons rule, properties of mixtures: partial molar properties, excess properties and activity coefficients; phase equilibria: predicting VLE of systems; Azeotrope and eutectic mixtures, and ideal gas mixtures, Third law of thermodynamics, stoichiometry, fluid dynamics, mechanical operations, heat and mass transfer operations- chemical kinetics/reaction engineering- process instrumentation dynamics and control- process equipment design. Material and Energy Balances: Laws of mass conservation, heats of reactions, law of mass action, Correlation, linear regression and analysis; degree of freedom analysis.

Chemical Reaction Engineering : Basic laws of chemical kinetics, chemical rate equations, parallel, sequential and other complex system kinetics, differential and integral kinetics analysis, CSTR and Plug Flow reactors, ideal and non-ideal reactors, tank-in-series and APDF models, residence time distribution concept, homogeneous and heterogeneous catalysis

Fluid Mechanics: Fluid statics, Newtonian and non-Newtonian fluids, Bernoulli equation and its application, energy balance, flow through pipeline systems (laminar and turbulent flows, friction factor), flow meters, pumps and compressors, packed and fluidized beds, size reduction and size separation; free and hindered settling; centrifuge and cyclones; thickening and classification, filtration, mixing and agitation; conveying of solids. Relation between stress and strain rate for Newtonian fluids.

Heat and Mass Transfer: Conduction, convection and radiation, heat transfer coefficients, steady and unsteady heat conduction, boiling, condensation and evaporation; types of heat exchangers and evaporators. Fick's laws, Diffusion of fluids, mass transfer coefficients, film, penetration and surface renewal theories; momentum, heat and mass transfer analogies; stage-wise and continuous contacting and stage efficiencies; HTU & NTU concepts design and operation of equipment for distillation, absorption, leaching, liquid-liquid extraction, drying, humidification, dehumidification and adsorption.

Principles of Biochemical Engineering: Enzyme catalysis (Michaelis Menton Kinetics) and reactor design. Material & energy balances of fermentation processes. Kinetics of microbial growth and product formation (Monad model-Leudeking-Piret model). Nature of fermentation processes. Transport phenomena in biochemical reactors- Mass transfer in immobilized enzyme systems and Oxygen transfer in submerged fermentation process, examples of primary metabolites, secondary metabolites and enzymes. Bioreactor operation and design, reactor sterilization. Batch, fed-

batch and continuous culture process and cell recycle processes. Modelling of non-ideal behavior in bioreactors. Novel bioreactors, air-lift reactors, membrane bioreactors and fluidized bed reactors. (Filtration and membrane based separations, centrifugation, extraction, absorption and chromatography – to be removed). \

(ii) Pharmaceutical Sciences & Bioprocess technology, and Pharmacology

Physiology, Pharmacology & Biochemistry: Basic physiology and biochemistry pertaining to all the systems in the body. Classification, mode of action, pharmacological effects, side effects, toxicity and posology of drugs acting on the CNS, ANS, CVS, gastrointestinal system, endocrine system. Principles of chemotherapy, chemotherapeutic agents, anticancer drugs, vitamins and minerals.

Industrial Pharmacy : Pharmaceutical processing - mixing, milling, drying, powder compression, clarification, filtration, Rheology, sterilization, sterility testing, disinfection, Pharmaceutical dosage forms : Formulation, manufacture and evaluation of solid, semisolid, liquid, aerosols and parentrals. Chemistry of natural products, SAR and Chemistry of analgesics, anticancer, CVS drugs, drugs acting on the CNS, GIT, chemotherapeutic agents, vitamins, hormones. classification, identification, extraction and isolation of active principles of commonly used medicinal plants. Immunological preparations, genetic engineering, fermentation, Biopharmaceutics, Pharmacokinetics-drug absorption, distribution, metabolism and elimination- general principles. Basic concepts of analysis of drugs.

Biologicals and Biopharmaceuticals: Antibodies: polyclonal and monoclonal antibodies, catalytic antibodies, diagnostic antibodies; production of antibodies, vaccines: types, production and applications; Therapeutic proteins and peptides: Insulin, erythropoietin, interleukins, hormones, sterilization methods for biopharmaceuticals, biosimilars, blood plasma products, Cohn fractionation, recent examples of biopharmaceuticals.

Food Science and Technology: Food chemistry and analysis, microbiology and biochemistry of fermented food products, food spoilage and food borne diseases, Food additives and ingredients, Chemistry and technology of various food commodities like cereals, legumes and oil seeds, fruits and vegetables, meat, fish and poultry, plantation crops, milk and dairy products, confections, beverages etc., Food processing and preservation, Food packaging, Use of enzymes in food industry, Human nutrition, Nutraceuticals and functional foods, Food safety and Food laws.

Agricultural Biotechnology: Production of value added products (biofuel, secondary metabolites, natural products, bioplastics, etc.) from agricultural waste, traditional crop improvement vs biotechnological interventions, secondary agriculture, post-harvest technologies.

Fermentation Technology: Introduction to fermentation processes, Isolation, preservation and improvement of industrially important microorganisms, Optimization of media and culture conditions, Bioreactor design and operations, Modes of culture – batch, fed batch, perfusion, continuous, chemostat etc., Types of bioreactors, Scale up of microbial and animal cell based processes with case studies related to applications in biopharma, biochemical, food and agro-industries, Bioprocess considerations for animal & plant cell cultures. Applications of cell culture technology for production of vaccines, growth hormones; interferons, cytokines and therapeutic proteins; hybridoma technology and gene knockout; stem cells and its application in organ synthesis; gene therapy; transgenic animals and molecular pharming, strategies for improving yield and productivity.

Downstream Processing: Centrifugation, liquid-liquid extraction, solid-liquid extraction, sedimentation & flocculation, Cell disruption- physical, chemical, mechanical and enzymatic methods, Concentration methods, Purification by adsorption, chromatographic and membrane (microfiltration, ultrafiltration, nanofiltration, plate and frame filters, hallow fibers, cassette filters) techniques including charge based, size based and affinity based processes, drying; Process design of industrial bio-products such as proteins & enzymes, peptides, antibiotics, vitamins, natural products, polysaccharides & biopolymers, oils and Oleochemicals, enzyme immobilization, methods of controlling bioburden in biopharma and biological products and food products.

Cell Culture Techniques: Cell culture materials and tools, growth conditions and other requirements for establishment and maintenance of plant and animal cells, cell lines and tissues, micro propagation, virus free plants, protoplast & haploid culture, synthetic seeds, hairy root culture. Animal cell cultivation: primary culture, growth kinetics, biology and characterization of cultured cells

Section I

Technology/Engineering

Stream Part - B

(Physics, Chemistry and Mathematics)

Mathematics:

Calculus - Differential Equation- Complex numbers- Complex integration- Power series- Three Dimensional Geometry- Algebra.

Physics:

Mechanics: Kinematics- Newton's laws - work and mechanical energy- dynamics of rotary motion- fundamentals of special theory of relativity- gravitation- motion in non-inertial frames.

Thermodynamics: Ideal gases- Ist law of thermodynamics- Kinetic theory of gases- 2nd law of thermodynamics -real gases.

Electricity and Magnetism: Electrostatics- Coulomb's law- electric field potential- capacitance- dielectrics in an

electric field- energy of an electric field- direct current- magnetic field of direct current- - eletromagnetic induction.

Waves and Optics: Free harmonic oscillators- elastic waves- electromagnetic waves- interference, diffraction, scattering and polarisation of light- thermal radiation.

Modern Physics: Structure of matter and basic solid state physics - elementary nuclear physics- elementary quantum mechanics- structure of atom.

Chemistry:

Inorganic chemistry: Electronic structure of atoms, periodic table and periodic properties. General characteristics, structure and reactions of non-transition elements and transition elements. Coordination compounds, structure, crystal field and ligand field theories, spectral and magnetic properties.

Organic chemistry: Synthesis, reactions and mechanisms of alkenes, alkynes, arenes, alcohols, phenols, alde-hydes, ketones, carboxylic acids and their derivatives, halides, nitro compounds and amines. Structure and properties of biomolecules, carbohydrates, oils, oleochemical, amino acids and proteins.

Physical chemistry: Chemical equilibrium, first law, thermochemistry, second law and entropy, free energy, properties of dilute solutions. chemical kinetics, rates of reactions and factors affecting rates of reactions.

Analytical techniques in Biotechnology: Principle and applications of spectroscopy, principles of UV- visible and IR spectroscopy, analytical chromatography such as HPLC, GC, TLC, HPTLC, FPLC, ion chromatography, Gel permeation chromatography (GPC) etc., hyphenated techniques such as LC-MS and GC-MS, thermo-gravimetric analysis (DSC, TGA), Karl fisher titration, fluorescence spectroscopy, dynamic light scattering (DLS) techniques, Immunological techniques: Immunodiffusion, immunoelectrophoresis, RIA and ELISA techniques, southern & western blotting, gel Electrophoresis (PAGE, SDS-PAGE) and capillary electrophoresis, PCR & Q-PCR, AFM, SEM, TEM, EDX, X-ray diffraction, Zetasizer, acid-base titrations, common methods of organic and inorganic analysis, validation of analytical methods as per ICH guidelines, characterization of biotech products as per regulatory guidelines & pharmacopoeial guidelines, Pharmacopoeial assay, LAL-Test, BET Test, Principles and methods of microbial assay of pharmacopoeia, filter integrity test, sterility testing of biopharmaceuticals, methods of analysis of for proteins,.

Section I

Technology/Engineering Stream

Part C

(Fundamentals of Life Sciences, Chemical Sciences and Informatics)

Life Sciences: Organization of unicellular organisms, invertebrates and vertebrates. Ultrastructure of plant and animal cells. Nucleic acids, protein synthesis, Mendalian genetics. Morphology of angiosperms. Biotechnology, Physiology.

Information Technology: Introduction to www.Networking: Basics-modem-hub-switch-commands to transfer files-remote login. Elements of languages used on the Internet JAVA- Perl. Elements of databases- Relational databases.

Genetics and Genetic Engineering: Genotype and Phenotype, nucleic acid structure, Cell division, crossing over and mapping, Mutations and their role in evolution, Genetic Disorders, Enzymes in Genetic Engineering, Cloning Vehicles, gene cloning strategies, mutagenesis, Cloning & expression of transgenes in Prokaryotic & Eukaryotic systems, DNA sequencing, PCR technologies, gene transfer in plant and animals, molecular markers, Applications and impact of rDNA technology.

Molecular Biology: Central dogma of molecular biology, Gene structure in prokaryotes and eukaryotes, Coding and non-coding DNA & RNA, Gene regulation, Molecular mechanisms of recombination, Transposons and rearrangement of DNA, DNA damage and repair, Post transcriptional and post-translational modification. Concept of system and synthetic biology.

Bioenergy biosciences: Types of biofuels, Biomass characterization and processing, biodiesel, biogas and biohydrogen production, algal biofuels (microalgae and macroalgae cultivation, harvesting, processing and value addition). Application of enzymes in biofuels.

Chemistry and chemical equilibria: Ionic and covalent bonding, M.O. and V.B. approaches for diatomic molecules, VSEPR theory and shape of molecules, hybridisation, resonance, dipole moment, structure parameters such as bond length, bond angle and bond energy, hydrogen bonding, van der Waals interactions. Ionic solids, ionic radii, lattice energy (Born-Haber Cycle). Identification of functional groups by chemical tests. Acids and bases, electronic and steric effects, optical and geometrical isomerism, tautomerism, conformers, concept of aromaticity. Reaction kinetics: Rate constant, order of reaction, molecularity, activation energy, zero, first and second order kinetics, catalysis and elementary enzyme reactions. Colligative properties of solutions, ionic equilibria in solution, solubility product, common ion effect, hydrolysis of salts, pH, buffer and their applications in chemical analysis, equilibrium constants for homogeneous reactions. Zeta potential and electronic double layer.

Section II

Science Stream Part A

Life Sciences

Biochemistry and Microbiology: Cell structure and function; protein synthesis; genetic code; DNA & RNA; carbohydrate, protein and lipid metabolism, clinical biochemistry; In born erros of metabolism; hormones and their function. Enzymes- classification, nomenclature, kinetics etc., Metabolism & regulation of: carbohydrates, proteins, fats & nucleic acids, Metabolic disorders, Classification and taxonomy of microorganisms; Growth and physiology; Laboratory cultivation of microbes, Methods of microbial enumeration; Microbial metabolism, photosynthesis, fermentation, aerobic & anaerobic respiration, Pathogenic microorganisms, Microbial genetics, Microbes in industry, Endotoxins, viruses (enveloped and non-enveloped).

Molecular biology & recombinant DNA technology: Properties of nucleic acids, chromosomes, DNA replication, damage and repair, gene manipulation, cloning vectors, gene libraries, screening of libraries, gene cloning, applications of recombinant DNA technology, PCR, RFLP, Western, Northern and Southern blotting. microarray technology, DNA fingerprinting and recombinant DNA technology; prokaryotic and eukaryotic expression systems; Vectors: plasmids, phages and cosmids. Gene mutation: Types of mutation; UV and chemical mutagens; Selection of mutants; Ames test for mutagenesis; Bacterial, yest, cyanobacteria, fungi genetic system: transformation, conjugation, transduction, recombination, transposons genome shuffling, electroporation; DNA repair and chromosomal aberrations, synthetic biology for production of biochemicals and biotech products.

.

Immunology : Cells of the immune system, lymphoid tissues, complement, antibodies, hybridoma technology, applications of monoclonal antibodies, antigen recognitioin, processing and presentation, cell mediated immunity, cytokines, hypersensitivity, vaccines & vaccine technology, auto-immunity, transplantation, immune responses to various infections, Immunotechnology, B-cells and T-cells, Antibody structure, function and diversity, T-cell receptors, Antigen-antibody Reaction, Complement system and Cytokines, Hyper-Sensitivity, MHC and HLA, Hybridoma, Immunodeficiency diseases.

Section II

Science Stream

Part B

(Physics and Chemistry)

Physics:

Mechanics : Kinematics- Newton's laws- work and mechanical energy- dynamics of rotary motion- fundamentals of special theory of relativity- gravitation- motion in non-inertial frames.

Thermodynamics: Ideal gases – 1st law of thermodynamics- Kinetic theory of gases- 2nd law of thermodynamics-real gases.

Electricity and Magnetism : Electrostatics- Coulomb's law- electric field potential- capacitance- dielectrics in an electric field- energy of an electric field- direct current- magnetic field of direct current- electromagnetic induction

Waves and Optics: Free hormonic oscillators- elastic waves- Electromagnetic waves- interference, diffraction, scattering and polarisation of light- thermal radiation.

Modern Physics: Structure of matter and basic solid state physics- elementary nuclear physics- elementary quantum mechanics- structure of atom.

Chemistry:

Inorganic Chemistry: Electronic structure of atoms, periodic table and periodic properties. General characteristics, structure and reactions of non- transition elements and transition elements. Coordination compounds, structure, crystal field and ligand field theories, spectral and magnetic properties.

Organic Chemistry: Synthesis, reactions and mechanisms of alkenes, alkynes, arenes, alcohols, phenols, aldehydes, ketones, carboxylic acids and their derivatives, halides, nitro compounds and amines. Structure and properties of boimolecules, carbohydrates, amino acids an proteins.

Physical Chemistry: Chemical equilibrium, first law, thermochemistry, second law and entropy, free energy, properties of dilute solutions. Chemical kinetics, rates of reactions and factors affecting rates of reactions. Spectroscopy, principles of UV-visible and IR spectroscopy.

Section II

Science Stream

Part C

(Mathematics, Computer and Information Sciences)

Mathematics: Vectors- Trignometry- Differentiation & Integration- Matrices

Information Sciences: Introduction to www. Networking: Basics-modem-hub- switch-commands to transfer files- remote login. Elements of languages used on the Internet JAVA- Perl. Elements of databases- Relational database.

Computer Application: Basics of computers- hardware-components of a computer. Operating systems- windows- linux- simple commands. Elementary Boolean arithmetic- substraction- addition- multiplication. Applications- word processing- spread sheets. Elementary basic programming commands and syntax.

Computational Biology Stream Syllabus

Mathematics: Linear algebra, matrices, determinants, vector calculus, eigenvalues, eigenvectors, orthogonality, differential equations, integral calculus, multivariate calculus, probability, discrete and continuous distributions, conditional probability, Bayes theorem, statistics, hypothesis testing, complex variables, permutation & combination, Boolean logic

Computer Science: Data structures like list, stack, queue, linked lists, trees, running time analysis of algorithms, recurrence relations, graph algorithms, searching and sorting algorithms, greedy algorithms, dynamic programming, divide and conquer, recursive algorithms, file I/O, databases, basic operating system concepts.

Life sciences/Chemical sciences: Cell and its structure, eukaryotes and prokaryotes, Cellular organisms such as mitochondria and ribosomes, Mendelian genetics, Genotype and Phenotype, nucleic acid structure, Cell division, Central dogma of molecular biology, Gene structure in prokaryotes and eukaryotes, Coding and non-coding DNA & RNA, Gene regulation, genetic codes, protein synthesis. pH, water properties, acid and bases, chemical kinetics, order of reactions, equilibrium, laws of thermodynamics, free energy, entropy, stereochemistry, structure and properties of simple bioorganic molecules like alkanes, alkenes, aromatic compounds, amino acids, and nucleic acids

VI. PREVIOUS YEARS' QUESTION PAPERS

For the reference of intending candidates, a set of question papers pertaining to the last three years are available on JNU website www.jnu.ac.in

VII. SELECTION PROCEDURE

Selection of the candidates will be done in accordance with their inter-se merit drawn on the basis of All India Entrance Examination vis-à -vis the preference of Universities exercised by candidates. In case a candidate has not indicated his/her option for joining a particular university, his/her name will not be considered for that university.

The Selection procedure will be as follows:

1) After the merit list is drawn more than double the number of candidates than the total intake only will be informed of their merit rank in the entrance examination. The candidates will also be informed about the total number of seats in each participating University. The candidates will be asked to exercise their options through online mode for joining the Universities. The candidates will be asked to pay through online mode an amount of Rs.5,000/- (Rs.2,500/- in the case of SC, ST, PWD candidates) **as initial security deposit** giving their willingness to be considered for admission to the participating Universities in accordance with their options for joining the universities vis-à-vis their inter-se merit in the Entrance Examination. **ALL CANDIDATES ARE ADVISED TO CHECK THE RESULT ON THE WEB SITE OF THE UNIVERSITY (www. jnu.ac.in) IN THE SECOND WEEK OF JUNE.**

2) Before exercise the options candidates are advised to check their eligibility as prescribed by different University and ensure that they fulfil the prescribed eligibility.

3.a) The candidates who do not exercise their options for joining any of the participating universities will not be considered for admission to that university/universities.

3.b) Candidates who do not fulfil the eligibility for any University would not be considered for admission to that University/ Universities.

4) After allotment of seats, the JNU will send intimation to the candidates about their allotment of the university and also to the concerned participating university to which the candidate has been selected. Please note that once allotment of University is made on the basis of inter se merit vis-à-vis options, other options of the universities given by the candidate shall stand frozen. **CANDIDATES ARE ADVISED TO CHECK THE ALLOTMENT OF UNIVERSITY ON THE WEB SITE OF THE UNIVERSITY (www. jnu.ac.in) IN THE FIRST WEEK OF JULY.**

5) The participating university will then inform the candidate about the complete admission procedure and schedule of their

university as well as the amount of fee etc. to be deposited by the candidate. The initial security deposit already sent by the candidate through demand draft to JNU will be sent to concerned University for refund to the students after first semester.

6) In case the candidate is offered admission in accordance with his/her options for joining the University vis-à-vis his/her inter-se merit, but subsequently either does not join the concerned University or withdraw after joining during the first semester then in that event, the initial deposit of Rs. 5,000/- and Rs.2,500/- for General/OBC/EWS and SC/ST/PWD categories respectively, shall stand forfeited.

7) The initial security deposit of Rs.5,000/-, (Rs.2,500/- in the case of SC/ST, PWD candidates) will be refunded in full to those of the candidates who are not offered admission to any of the participating university.

8) **Candidates may note that request for transfer from one university to another will not be entertained under any circumstances. Therefore, candidates are advised not to make any request in this regard.**

9) Only those candidates who will be asked to exercise their option, the letter of these candidates will be available on JNU website (www.jnu.ac.in)) although intimation to this effect is also sent to the candidates on their e-mail account. However, the candidates are advised to find out through their own sources whether their names appear in the list and thereby make arrangement for sending their final option together with initial security deposit by the stipulated date. **The University will not issue any paper intimation to the candidates. Candidates are advised to regularly check JNU website for updates.**

10) **PLEASE NOTE THAT AFTER THE FIRST MERIT LIST, THE SECOND LIST MAY BE RELEASED ONLY BASED ON VACANCIES. THE DECISION TO RELEASE THE SECOND LIST RESTS SOLELY WITH JNU.**

VIII. TIME-TABLE FOR ENTRANCE EXAMINATION

1.	Start of Online Application Process	-	15.03.2019
2.	Closing of Online Application Process	-	15.04.2019
3.	Last date of successful transaction of fee Through Credit/Debit Card/Net-Banking up to 11.50 pm up to bank hours of 16 April, 2019	-	16.04.2019
4.	Correction in particulars of Application Form on website only	-	17.04.2019 to 19.04.2019
5.	Downloading of Admit Card from NTA website	-	22.04.2019
6.	Date of Entrance Examination	-	30th May, 2019 (2:30 pm – 5:30 pm)
7.	Display of recorded responses and Answer Keys for inviting challenges on NTAs Website	-	To be announce later by NTA
8.	Results of Entrance Examination		
	(i) Merit list of candidates to exercise their option for Universities		2nd week of June, 2019
	(ii). Final result of allotted Universities		1st week of July, 2019
9.	For admission/result queries candidate may visit our website www.jnu.ac.in		

Although the University will inform the candidates falling under consideration zone about their merit in CEEB on their e-mail account, it is the responsibility of the candidate to see the result on University website. The letter of these candidates will also be available on JNU website (www.jnu.ac.in). The University will not issue any paper intimation to the candidates. Candidates are advised to regularly check JNU website for updates.

IX. HOSTEL FACILITIES

The outstation candidates admitted to the programme of study of the participating Universities will be considered for hostel accommodation as per rules of the concerned University subject to availability of hostel accommodation. Students may please note that grant of admission in a University would not ensure automatic allotment of hostel accommodation and that the same will be offered subject to its availability.

X. CERTIFICATE AND OTHER DOCUMENTS REQUIRED AT THE TIME OF ADMISSION

(a) Two self attested copies of the Matriculation, Higher Secondary Pre-University of Indian School Certificate or Senior School Certificate (10+2) or an equivalent examination certificate, showing the age/date of birth of the candidate;

(b) A Character Certificate from the Head of the Institution last attended;

(c) Two self attested copies of the statement of marks obtained by the candidate in Senior School, Bachelor's Degree/ Master's Degree examination etc; or their equivalent examination;

(d) Two self attested copies of the Bachelor's Degree and/Master's Degree;

(e) SC/ST/OBC/EWS Certificate, if belonging to SC/ST/OBC/EWS category

(f) A Medical Certificate for PWD Candidates certifying that the disability is not less than 40%.

(g) Migration Certificate (in original) from the Head of the Institution/University last attended:

Important: The candidates are also required to produce all originals of the above certificates/documents for verification at the time of registration/admission. In the absence of any of the original certificates/documents, registration/admission shall not be allowed.

XI. INSTRUCTIONS FOR COMPLETING THE APPLICATION FORM

1. **Name of the Candidate:** Please note that your name, your parent's/guardian's name, and your date of birth should exactly be the same as given in your 10th class or first Board/Pre-University examination certificate. Any deviation, whenever discovered, may lead to cancellation of your candidature.

2. **Entrance Examination Centre:** A list of cities* where entrance examination is to be held is given below. **No change will be permitted and no correspondence in this context will be entertained.** In case it is not possible to allot the Centre of your choice, the University reserves the right to allot you alternative centre.

Sl. No.	State	Name of Examination Centre
1	**ANDHRA PRADESH**	Chittoor
2		Kakinada
3		Nellore
4		Rajahmundry
5		Tirupati
6		Vijayawada
7		Visakhapatnam
8	**ARUNACHAL PRADESH**	Naharlagun
9	**ASSAM**	Guwahati
10		Silchar
11	**BIHAR**	Darbhanga
12		Aurangabad
13		Patna
14		Purnia (Purnea)
15		Gaya
16		Bhagalpur
17	**Chandigarh (UT)**	Chandigarh
18	**CHHATISGARH**	Bilaspur
19		Raipur
20	**DELHI**	Delhi
21	**GUJARAT**	Ahmedabad

22		Gandhinagar
23		Anand
Sl. No.	**State**	**Name of Examination Centre**
24		Rajkot
25		Surat
26		Vadodara
27		Mehsana
28	**HARYANA**	Ambala
29		HIssar
30		Kurukshetra
31		Panipat
32		Gurugram
33		Karnal
34		Faridabad
35	**HIMACHAL PRADESH**	Shimla
36		Hamirpur
37	**JAMMU & KASHMIR**	Jammu
38	**JHARKHAND**	Dhanbad
39		Jamshedpur
40		Ranchi
41	**KARNATAKA**	Bangalore
42		Belgaum
43		Dharwad
44		Gulbarga
45		Hubli
46		Mangaluru
47		Manipal
48		Mysuru
49	**KERALA**	Alappuzha
50		Thiruvananthapuram
51		Ernakulam/Kochi
52		Kannur
53		Kottayam
54		Kollam
55		Kozhikode
56	**MADHYA PRADESH**	Gwalior
57		Sagar
58		Jabalpur
59		Bhopal
60		Indore
61		Satna
62		Ujjain
63	**MAHARASHTRA**	Mumbai
64		Nagpur
65		Pune
66		Aurangabad (Maharashtra)

67		Kolhapur
68		Nanded
69		Nasik
70		Navi Mumbai
71		Amravati
72		Jalgaon
73		Thane
74	**MANIPUR**	Imphal
75	**MEGHALAYA**	Shillong
76	**MIZORAM**	Aizwal
77	**NAGALAND**	Dimapur
78	**ORISSA**	Bhubaneshwar
79		Sambalpur
80		Balasore
81		Cuttack
82		Rourkela
83	**Puducherry**	Puducherry
84	**PUNJAB**	Amritsar
85		Bhatinda
86		Ludhiana
87		Jalandhar
88		Mohali
89		Patiala
90		Sangrur
91	**RAJASTHAN**	Jaipur
92		Jodhpur
93		Udaipur
94		Ajmer
95		Alwar
96		Bikaner
97		Kota
98		Sikar
99	**SIKKIM**	Gangtok
100	**TAMIL NADU**	Chennai
101		Coimbatore
102		Madurai
103		Nagarcoil
104		Tiruchirappalli
105	**TELANGANA**	Hyderabad
106		Warangal
107	**TRIPURA**	Agartala
108	**UTTAR PRADESH**	Lucknow
109		Varanasi
110		Allahabad
111		Bareilly

112		Ghaziabad
113		Gorakhpur
114		Noida
115		Agra
116		Aligarh
117		Kanpur
118		Meerut
119	**UTTARAKHAND**	Dehradun
120		Roorkee
121		Haldwani
122	**WEST BENGAL**	Kolkata
123		Siliguri
124		Kalyani
125		Hooghly
126		Asansol
127	**UNION TERRITORIES**	Goa (Panaji/Madgaon)

** Subject to sufficient number of candidates available.*

Note:

1. **The University reserves the right to change/cancel any Centre of Examination within India/abroad without assigning any reason.**

5. **Entrance Examination Fee:** The entrance examination fee is Rs. 1000/- for general category candidates including OBC & EWS candidates; and Rs. 500/- for the candidates belonging to SC/ST and Person with Disability categories. The entrance examination fee for Foreign Nationals is US$ 40.00 or Rs. 2880/-.

Important Notes:

1. **If any information furnished by the candidate in the application form is found to be false, his/her admission, if granted on the basis of such information will be cancelled, ipso facto.**
2. **The candidate must fulfil the eligibility requirements as detailed in the Prospectus. The candidate should, appear in the entrance examination only if the eligibility requirements for M.Sc. Biotechnology programme is fulfilled. Despite this caution, in case a candidate does not meet the minimum eligibility criteria and still appears in the entrance examination, then the candidate will be doing so at their own risk and cost, and if at any stage, it is found that the candidate does not fulfil the minimum eligibility requirements, the admission, if granted, shall be cancelled ipso facto.**
3. **Any dispute with regard to any matter relating to admission shall be subject to the jurisdiction of Delhi Courts only.**
4. **Studentship Suport:** All selected students will paid Rs. 12,000/- studentship under DBT Support.