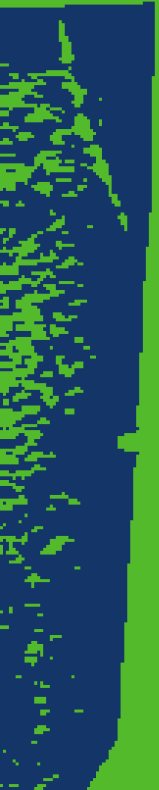




WELLS FARGO
COMMERCIAL BANK
CORPORATION
MEMPHIS
TENNESSEE



A group of approximately ten people, mostly men, are standing in a laboratory or industrial setting. They are wearing white lab coats and are looking towards the camera. In the foreground, there is a large, complex piece of scientific equipment, possibly a spectrometer or a similar analytical instrument, with various components and a control panel. The background shows a large, multi-story building with many windows, suggesting an institutional or university environment. The overall scene is brightly lit, and the people appear to be engaged in a professional or academic activity.

Faculty of Environmental Protection and Engineering

Faculty of Environmental Protection and Engineering



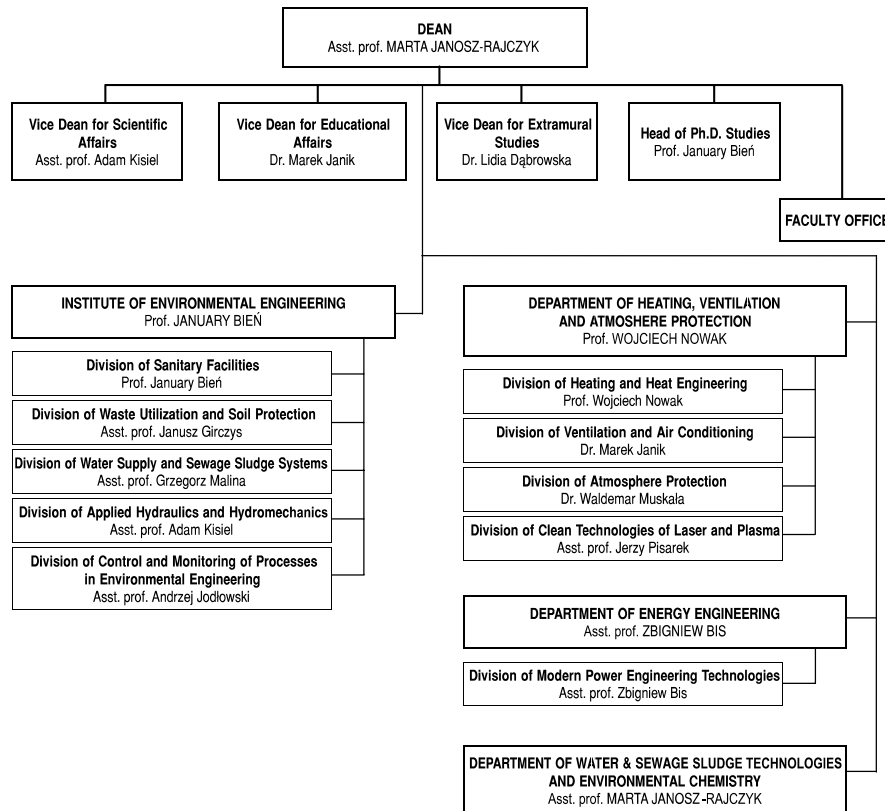
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In 1975 at the Czestochowa University of Technology the Institute of Civil Engineering was established (with the rights equal to faculty rights), with two study profiles: building engineering and environmental engineering. Since then there have been Master studies in the field of environmental engineering carried out at the university. In 1984 the Institute was transformed into the Faculty of Civil Engineering with the Institute of Environmental Engineering in its organizational structure. The Faculty of Civil and Environmental Protection was established in 1992. As a result of actions taken by the legal representatives of the Institute of Environmental Engineering, with a parallel fulfilling of required by law demands in regards to the academic staff and scientific and didactical achievements, the Minister of National Education made in 1997 a decision to create the Faculty of Environmental Protection and Engineering. The new Faculty of Environmental Protection and Engineering consisted of the Institute of Environmental Engineering and the Department of Atmosphere Protection.

At present the faculty includes: the Institute of Environmental Engineering, the Department of Water & Sewage Sludge Technologies and Environmental Chemistry, the Department of Heating, Ventilation and Atmosphere Protection, and the Department of Energy Engineering.

The governing body of the Faculty has the right to confer the scientific titles of the doctor and the assistant professor in technological sciences for environmental engineering disciplines. The academic staff of the Faculty have been playing different functions in national as well as international scientific organizations.

At present there are 57 academic teachers employed at the Faculty (including 18 professors and assistant professors, and 30 doctors).



Dean
Asst. prof. Marta Janosz-Rajczyk

Scientific and research activities are being undertaken in the following disciplines:

- applied hydraulics and hydromechanics
- energy engineering
- air protection
- heating and heat engineering
- processes controlling and monitoring
- laser and plasma technologies
- water technology, sewage sludge and environmental chemistry
- sanitary facilities
- waste utilization and soil protection
- ventilation and air conditioning
- water pipes and sewage sludge systems

The main research domains are as follows:

- optimization of biological purification processes and bio-chemical alterations in organic waste

SCIENTIFIC AND RESEARCH ACTIVITIES



Entrance of the Faculty
of Environmental Engineering

- changes in PAH and PCB contents in sewage sludge, waste, and different elements of natural environment
- properties of fly ashes stored by the method of thick suspended matter
- migration of impurities from waste storages
- ozone and other waste concentration modelling as well as tests on an impact of ozone and waste in the lower troposphere
- use of neutron networks and statistical methods in environmental protection and engineering
- combustion of biomass and low-quality carbons mixtures in a circulating fluidized (CFB) layer
- thermal and flow processes in fluidized boilers
- tests on sorbents used for desulphurisation of combustion gas
- utilization and elimination of CO₂ from boilers combustion gas by the use of zeolites
- gas impurities emissions in the fuel fluidized combustion process
- economic utilization of fluidized ashes
- integration of renewable and classic energy sources in a hybrid building
- loose materials flow in a circulating fluidized (CFB) layer
- tests on CO₂, NO_x and SO₂ emissions during the process of fluidized coal combustion in the atmosphere enriched with oxide
- optical methods of ash testing
- spot metrology method in environmental engineering
- sewage sludge utilization and rendering harmless
- unconventional disinfection and coagulation methods in water conditioning processes
- use of active carbons in water renewal
- utilization and storage of solid waste
- effective strategy for soil and sediment purification for active protection of superficial and underground waters
- planning of integrated economy for municipal waste
- canalisation tanks and co-active elements
- applied hydraulics of equipments used in sewage-treatment plants and water purification plants
- use of computer methods in environmental engineering
- bioventilation of soils impured by oil-derivative substances
- working out alternative technologies of sorbents for combustion gas desulphurisation
 - fluidised boilers aerodynamics
 - working out modern technologies for biomass energy transformation

IN-COUNTRY AND INTERNATIONAL SCIENTIFIC CO-OPERATION

The Faculty has been carried out collaboration with national and foreign scientific centres, and this results in several publications and oral speeches presented at in-country and foreign scientific conferences. The national institutions, with a similar profile of activities, with which the Faculty has been in a long-term contact include: the Institute of Water Supply and Water Building at the Technical University of Warsaw, the Institute of Environmental Engineering at the Technical University of Wrocław, the Institute of Chemistry at the Silesian University, the Faculty of Chemistry at the University of Nicolas Copernicus, the



Building of the Institute of Environmental Protection and Engineering

Faculty of Environmental and Power Engineering at the Technical University of Silesia, the Institute of Industrial Areas Ecology in Katowice, the Institute of Environmental Engineering Basics at the Polish Academy of Science in Zabrze, the Institute of Labour and Environmental Health Medicine in Sosnowiec, the Medical Academy of Silesia in Katowice, the Military Technical Academy in Warsaw, the Main Institute of Mining in Katowice, the State Department of Hygienics in Warsaw. International collaboration has been carried out via personal academic staff and students exchange, participation in symposia and conferences as well as scientific placements in foreign centres.

The Faculty has been carried out scientific works in the fields of joint research topics with the following foreign institutions: the Chalmers University of Technology (Sweden), the Nagoya University (Japan), the Tokyo University of Agriculture and Technology (Japan), the University of Wageningen (the Netherlands), the Foster Wheeler Energia Oy (Finland), the Federal Institute for Geosciences and Natural Resources (Germany), the Münster University of Applied Sciences (Germany), INFA – Institut für Abfall – und Abwasserwirtschaft GmbH Ahlen (Germany). Additionally, the Faculty has been working on two research topics in the framework of the Fifth Framework Programme, and also participates in the Socrates-Erasmus Programme. The activities undertaken within the frameworks of Inco-Copernicus and Tempus-Phare programmes have just been accomplished. Within the Tempus project a new study specialisation (with English as a lecturing language), i.e. Energy Engineering,

has been established. The Faculty has been also taking part in actions undertaken by the Excellence Centre (created from EU funds), and in excellence networks (SUREMA-Global Quality Network).

COMMERCIAL OFFER FOR SCIENTIFIC AND ECONOMIC SUBJECTS

- assessment of investments impacts on natural environment
- water legal normatives
- programmes for municipal and industrial waste management (including the harmful waste)
- environmental and power engineering audits
- concepts for water-sewage and sludge management
- concepts for thermal utilization of waste from sewage sludge plants
- biological technologies of municipal waste utilization and technologies for retrieving energy out of waste and biomass
- expertise and opinions in the field of ecological and power engineering solutions
- projects of effective canalization systems controlled by storage reservoirs
- concepts for complete purification of soil, underground waters and sediments coming from organic and non-organic impurities
- technical condition assessment of water supply and canalization systems as well as sanitary installations in industrial and housing building engineering
- chemical analyses of sewage waste, solid waste, fuel and sorbents
- designing and optimization of systems for diagnostics and monitoring of the environmental and technical objects
- designing and optimization of measurement and measurement-and-controlling systems on the basis of laser technologies
- designing and construction of technological lasers and plasmatrons
- working out power engineering strategies for regions and communities
- concepts for economic utilization of fluidized ashes
- thermal-and-flow calculations for boilers (including fluidized boilers)
- physical modelling of flow systems in energy engineering
- co-combustion of coal and biomass

DIDACTICS

The studies have been carried out at the Faculty in following ways: two-stage day-time studies in a row systems (stage I: B.Sc., engineering studies – 7 semesters, stage II: M.Sc., Master studies – 10 semesters), extramural engineering studies, evening engineering studies and extramural complementary Master studies. The educational process has been in line with actual and predicted demands of the in-country and the European Union labour markets.

The studies have the following modules:

- Environmental Engineering specialization:
 - ▶ energy engineering (day-time studies)
 - ▶ heat, ventilation and air protection
 - ▶ water supply, sewage sludge and waste utilization



Chemical Laboratory

■ Environmental Protection
specialization:

- ▶ environmental protection systems
- ▶ management and computer science in environmental protection

The new specialization, energy engineering, is an answer to the demand of the modern labour market in Poland. Students of this specialization, created in the framework of the Tempus Programme, receive knowledge in the fields of researching, designing and technical management of complex power engineering systems, including environmental protection problems. Lectures (and laboratories) within this specialization are available for students of the Faculty of Environmental Protection and Engineering as well as students of the Faculty of Mechanical Engineering and Computer Science.

The graduate of the Environmental Engineering specialization is prepared for designing, planning and realization of investment tasks in the field of environmental engineering as well as for carrying out scientific research and administrating processes of installa-

**THE GRADUATE'S
PROFILE**



Laboratory of ventilation

tion and exploitation of systems and equipment protecting healthy conditions of human existence at home, in a workplace and during his spare time.

The graduate of the Environmental Protection specialization is prepared for creating and realization of ecological policy in the field of water-sewage and sediment-waste management, and air protection. He is also prepared to the ecological policy programming, eco-development and sustainable development projects creating, waste planning and management, soil surface and water resources administration, air quality management, as well as modelling and working out algorithms for environmental processes, data analyses and processing, taking advantage of spatial information and decision making assistance systems.

There is an active scientific student group at the Faculty – called OUR COMMON EARTH – and it concentrates on developing scientific interests of students and preparing them for research work in the field of environmental protection and engineering.

Doctoral studies – as the stage III of the student education – were created at the Faculty at the beginning of the academic year 2002/2003.

- participation in the 6th Framework Programme and structural programmes of the European Union
- developing bilateral co-operation with leading in-country and foreign institutions
- introducing new directions of research on integrated systems of energy supply from renewable resources as well as new technologies of pure co-combustion of biomass, waste (including the municipal one) and coal
- carrying out research connected with supply analysis and advantages of using biomass for energetic and environmental protection purposes
- developing bio-technological research methods towards retrieving biogas from sewage sludge and municipal waste
- creating postdiploma studies in the field of environmental protection management in the light of the European Union normatives.

DEVELOPMENT

PERSPECTIVES