Guest Editorial
A Vision for ECE Education in 2013 and Beyond

ELECTRICAL and computer engineering (ECE) education is rapidly evolving as the pace of technological innovation in society accelerates. The information revolution has focused considerable attention on educational needs relative to information science and engineering, while blurring traditional engineering subdisciplines. Semiconductors continue to advance rapidly while nanotechnology, and its associated miniaturization of components and systems, is rapidly stretching the boundaries of ECE toward chemistry, physics, and the life sciences. Bioengineering and biomedical applications are rapidly emerging as technology drivers, fields that have flourished because of the remarkable advances provided by electronics and computer technology. Software engineering is the engine that is driving our new range of electronic/semiconductor devices, systems, and products. At the same time, information technology itself is rapidly redefining the nature of engineering pedagogy, which is advancing in unforeseen directions. The challenges for education in ECE disciplines are immense, and a road map is needed to navigate this complex and ever-changing landscape.

This special issue of the IEEE TRANSACTIONS ON EDUCATION is devoted to providing a vision of the undergraduate curriculum for ECE in the year 2013 and beyond, i.e., ten years into the future. Contributions were invited from ECE departments, as well as industry, government, and other interested professionals, to present their vision of what ECE departments should be offering in the year 2013 and beyond in order to prepare students adequately for their future as practicing engineers and graduate students. Both regular full-length manuscripts addressing specific curriculum, as well as short papers framing the discussion of the future of ECE education, are included in this issue. The papers herein range from addressing broad curriculum issues to future pedagogical models, including the influence of technology-enhanced education. There is no one common vision of ECE education. Several authors advocate the broadening of the liberal arts education of engineering students to prepare more well-rounded individuals for future technical careers; others discuss the evolution of technical content of the curriculum in response to ongoing advances in science and technology. Computer engineering and its expected evolution are examined as well. Overall, there are a variety of interesting and provocative visions of future engineering education discussed in this issue, which we hope will provide a framework for its future evolution.

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