Panel Session: A Report on the Model Curriculum for Computer Engineering

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Abstract - The Computer Society of the Institute for Electrical and Electronic Engineers (IEEE-CS) and the Association for Computing Machinery (ACM) established the Joint Task Force on Computing Curricula 2001 (CC2001) to undertake a major review of curriculum guidelines for undergraduate programs in computing. The effort was to match the latest developments of computing technologies in the past decade and last through the next decade. The “Computing Curriculum 1991” and other previous efforts of the IEEE-CS and ACM did not distinguish computer science from computer engineering programs. The IEEE-CS and ACM established the Computing Curriculum - Computer Engineering (CCCE) Task Force in 2001 to develop a separate volume on computer engineering curricula to complement the CC2001 report. The work of the CCCE Task Force appears as a report available for review on the web. This report has undergone extensive review, including an NSF-sponsored workshop. By the time of this conference, the final report will have been presented to the IEEE-CS and ACM, and made available for distribution. This panel presents an overview of that report.

Index Terms – Computer engineering education, computer engineering curricula, computing curricula, computer engineering body of knowledge.

Panel Summary

In the fall of 1998, the Computer Society of the Institute for Electrical and Electronics Engineers (IEEE-CS) and the Association for Computing Machinery (ACM) established the Joint Task Force on “Model Curricula for Computing” to undertake a major review of curriculum guidelines for undergraduate programs in computing. Computing has changed dramatically over the last decade in ways that have a profound effect on curriculum design and pedagogy. Moreover, the scope of what is called computing has broadened to the point that it is impossible to define it as a single discipline. Past curriculum reports have attempted to merge such disciplines as computer science, computer engineering, and software engineering into a single report about computing education. There is no question that computing in the 21st century encompasses many vital disciplines with their own identity and pedagogical traditions.

Groups were organized to produce model curricula in the various computing disciplines. Each individual group had the freedom to produce a volume that best reflected the needs and requirements of their particular discipline. Each group addressed a certain minimal number of issues in their report. The minimal set is:

- The body of knowledge for the field, i.e., the topics to be covered
- A set of courses that cover the body of knowledge in one or more ways
- The core requirements for the discipline, i.e., the requirements that shall apply to all undergraduates
- The characteristics of graduates of degree programs

The field of computer engineering has emerged as one of the principal areas of study throughout the world, making the subject area critical in the development of new computer systems, devices, and products. This panel will describe the elements constituting computer engineering, review in-depth the body of knowledge including what is considered the core of computer engineering, and present model implementations of computer engineering curricula.

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