

## Chapter 1

# Introduction

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” (or CC for short) to undertake a major review of curriculum guidelines for undergraduate programs in computing. The charter of the task force is as follows:

To review the Joint ACM and IEEE/CS Computing Curricula 1991 and develop a revised and enhanced version that addresses developments in computing technologies in the past decade and will sustain through the next decade.

As indicated in the charter, the goal of the CC effort is to revise *Computing Curricula 1991* [ACM/IEEECS, 1991] so that it incorporates the developments of the past decade. Computing has changed dramatically over that time in ways that have a profound effect on curriculum design and pedagogy. Moreover, the scope of what one calls *computing* has broadened to the point that it is difficult to define it as a single discipline. Previous curricula reports have attempted to merge such disciplines as computer science, computer engineering, and software engineering into a single report about computing education. While such an approach may have seemed reasonable in the past, there is no question that computing in the twenty-first century encompasses many vital disciplines with their own identities and pedagogical traditions.

Another part of the charter of this group includes supporting the community of professionals responsible for developing and teaching a range of courses throughout the global community. Providing an international perspective presents different challenges, but is an important ingredient given the global nature of computing related developments.

### 1.1 Overall Structure of the Computing Curricula Project

Due to the broadening scope of computing—and the feedback received on the initial draft — the CC initiative contains several reports. This report focuses specifically on computer engineering, referred to as “Computing Curricula: Computer Engineering 2004” or simply CE2004. To encompass the different disciplines that are part of the overall scope of computing, professional organizations have created additional committees to undertake similar efforts in other areas. These areas include computer science (“Computing Curricula: Computer Science” or the CCCS report [ACM/IEEECS, 2001] published in December 2001), information systems (“Computing Curricula: Information Systems” or the IS2002 report [ACM/AIS, 2002] published in 2002), software engineering (“Computing Curricula: Software Engineering” or the SE2004 report [ACM/IEEECS, 2004] published in 2004), and information technology (“Computing Curricula: Information Technology” or the CCIT report currently under development).

As the individual reports unfold to completion, representatives from the five computing disciplines have produced an overview report that links them together. That overview report contains descriptions of the various computing disciplines along with an assessment of the commonalities and differences that exist among them. It also suggests the possibility of future curricular areas in computing. The structure of the series appears in Figure 1-1 as taken from the overview report. The area of information technology is the newest component of the computing curricula project.