The process of curriculum design in the computing sciences has changed little in the last three decades, while the content of computing curricula has changed continuously because of the technology upon which it is based and the explosive growth of knowledge in the field. However, recent developments in computing have changed the process that is being used by a number of groups in curriculum development, specifically, curricula are being developed by groups of individuals representing both academia and industry. This change is evidenced in several projects funded by the National Science Foundation. This involvement of industry may enliven the learning environment and increase student motivation to learn.

The Association for Computing Machinery (ACM), IEEE Computer Society (IEEE/CS), and Data Processing Management Association (DPMA, recently renamed Association for Information Technology Professionals (AITP)) have all named committees, largely composed of academics, to develop curricula. ACM and IEEE/CS jointly developed the most recent curriculum for Computer Science and ACM, DPMA and AIS (Association for Information Systems) developed the new Information Systems curriculum [IS 97]. These society developed and endorsed curricula have been promulgated from the mid-1960s until the present. The influence of these curricula is clear in the catalogs describing computing programs at most institutions in this country and for many programs abroad. They have been so influential that textbooks often refer to the abbreviated course number for which the text is designed.

In recent years industry has developed a greater involvement in colleges and universities. The trend toward outcomes based assessment has frequently resulted in an active Industry Advisory Board or a survey of industry to evaluate the recent graduates they have hired. The recent shortage of IT workers has forced industry to recruit regularly on college campuses and to take a greater interest in the preparation of students in the computing sciences. For several reasons more industry people are being asked to teach courses at local colleges. These relationships have been largely positive and now with support from the National Science Foundation, several groups from industry and academia are working together to improve education in the computing sciences. Two examples are the NorthWest Center for Emerging Technologies (NWCET) [NSF grant DUE 9553727] and “Educating the Next Generation of Information Specialists in Collaboration with Industry.” NWCET published “Building a Foundation for Tomorrow: Skill Standards for Information Technology.” [1997] in which they detail the set of skills needed for the eight clusters of IT careers. This work involved about 200 IT professionals to identify and validate the skill standards. These standards are now the basis for the development and implementation of curricula.

Industry members in the other project, “Educating the Next Generation of Information Specialists in Collaboration with Industry,” developed a “Profile of the Graduate,” which details the knowledge and attributes they desire in a new hire. The “Profile” then became the specification for the development of the curriculum. The student enters, goes through the process of learning in the courses and becomes the desired graduate. Though industry members seemed relatively pleased with the current technical preparation of graduates, they want some additional current topics and an emphasis on enterprise computing. They were quite explicit about the personal and interpersonal skills they wanted. They emphasized the need for personal skills in systemic thinking, problem solving, critical thinking, risk taking, personal discipline, persistence, and curiosity. Particular emphasis was placed on the importance of communication and collaborative skills. The industry members of the group want students who are work ready and who are prepared for life-long learning.

These collaborative projects have resulted in curricula that include experiential and collaborative learning and are being evaluated to determine their efficacy. Initial results are positive.