The Software Engineering Graduate Program
at the Boston University College of Engineering

John Brackett, Thomas Kincaid and Richard Vidale
Department of Electrical, Computer and Systems Engineering
College of Engineering, Boston University

The College of Engineering has developed a Master's degree program in software engineering to meet the needs of industrial software development and management. The program will educate software engineers by providing courses in the technology, methodology and management of software development. The program incorporates the best features of the Master of Software Engineering curriculum formerly offered at the Wang Institute of Graduate Studies [1,2] and the MS in Systems Engineering, Software Engineering Option, offered at Boston University. A doctoral program leading to the Ph.D. in Engineering, with research specialization in software engineering, is also available in the College of Engineering.

The software engineering Master's program is offered in the Department of Electrical, Computer and Systems Engineering as the Software Engineering Option of Master of Science in Systems Engineering; the program is expected to be renamed the Master of Science in Software Systems Engineering by the fall of 1989. The program emphasizes the understanding of both hardware and software issues in the design and implementation of software systems. Special emphasis is placed on the software engineering of two important classes of computer systems: embedded systems and networked systems. Ada is the language used in a majority of the courses.

Both full- and part-time programs are available, and a majority of the program will be available on television for those corporate locations which are members of the Boston University Corporate Classroom Interactive television system. The program may be completed in twelve months by full-time students.

I. Curriculum

The master's program requires the completion of nine four-credit semester-length courses: six required courses, two technical electives, and a team project. There are two entrance tracks: one for those with a hardware background (Electrical or Computer Engineering) and another for those with a software background (Computer Science or work experience in software development).

The required courses common to both tracks are:

Applications of Formal Methods
Software Project Management
Software System Design
Computer as System Component
Software Engineering Project
Those students with a hardware-oriented background take the sequence:

Advanced Data Structures
Operating Systems

Those students with a software-oriented background take the sequence

Switching Theory and Logic Design
Computer Architecture

The objective of the two sequences is to provide each group of students with material lacking in their background. The computer engineering program in the College of Engineering provides the basis for the hardware-oriented aspects of the program.

The prerequisite structure of the program is shown in Figures 1 and 2; the catalog description of the courses are included in the Appendix. The technical electives may be selected from courses in the areas of software engineering, computer engineering and computer science.