

APPENDIX O

Request for Authorization to Establish a Master of Science Degree in Software Engineering at East Carolina University

Introduction

East Carolina University notified UNC General Administration of its intent to plan an MS degree in Software Engineering (CIP 14.0903) in December 2004. ECU requests authorization to establish the program in July 2006.

Program Description

The MS in Software Engineering is a professional master's degree program that will be offered both on campus and online through a joint effort of the departments of Computer Science and Technology Systems. Software engineering is the study of tools and applications of a systematic approach to the development, operation, and maintenance of software. It is an emerging and interdisciplinary field that combines engineering, engineering management, and computer science. The focus of the program is to prepare students to specify, implement, and manage large software system projects that are on-time, on-budget, and meet functional requirements, including the complete system life cycle from initial concept to the end of product life. It will serve the career development needs of individuals practicing in fields related to software systems with BS degrees in electrical engineering, computer engineering, information systems, computer science, and related fields. The ECU Department of Computer Science has consulted with the NCSU Department of Computer Science as this proposal came forward for review, and the two department chairs will have further discussions about collaborative opportunities in distance education.

Program Need

During this decade employment in science and engineering occupations is expected to increase three times faster than the rate for all occupations, with approximately 86 percent of these jobs in computer-related occupations. A recent *Business Week* article noted that, "Software programmers are the seed corn of the Information Economy, yet America isn't producing enough. The Labor Department forecasts that 'computer/math scientist' jobs, which include programming, will increase by 40%, from 2.5 million in 2002 to 3.5 million in 2012. Colleges aren't keeping up with demand." A 2003 study prepared for UNC-GA on engineering needs in North Carolina identified software engineering as the fastest growing engineering field in the state. It predicted employment growth of over 70 percent during this decade, and it also emphasized a shortage of master's-level programs for engineers in the workplace. It is anticipated that by the fourth year, the ECU program will enroll 9 full-time and 51 part-time students.

Resources

Faculty planners have developed a tightly integrated curriculum with a minimum number of new courses along with an implementation plan that employs current resources to initiate the program. Most students will be taught at a distance, reducing the need for on-campus space. Needed facilities already exist, including a research and teaching lab dedicated to distance education in networking and computer systems.

Recommendation

It is recommended that the Board of Governors approve the request to establish a Master of Science in Software Engineering degree at East Carolina University effective July 2006.