Request for Authorization to Establish A Bachelor of Science in Computer Engineering at North Carolina Agricultural and Technical State University

Introduction

North Carolina Agricultural and Technical State University notified the Office of the President of its intent to plan a Bachelor of Science degree in Computer Engineering (14.0901) in May 2004.

Program Description

North Carolina A & T State University states in its Strategic Plan that its vision is to become a premier interdisciplinary university that builds on its engineering, technology, and business programs. The establishment of the proposed Bachelor of Science in Computer Engineering is consistent with the university's vision and provides an opportunity for faculty and students to engage in interdisciplinary activities. The B.S. in Computer Engineering program concentrates on two areas: computer system design and computer network and data communication. The proposed computer engineering program will allow interdisciplinary collaborations between the existing Electrical Engineering Ph.D., M.S., and B. S. and the Computer Science M.S. and B. S. programs. The computer engineering degree will focus on the design, implementation, and application of computing systems, system complexity/cost, and service quality. A student majoring in computer engineering will study computer system design or computer network and data communication. Students in the computer system design concentration could specialize in the following areas: embedded systems, high-performance computers/digital systems, and expert systems. Computer Network and Data Communication concentration majors will focus on the layers that are related to interconnected computers or modes in the network design specifications. The computer engineering curriculum will contain two three credit hour capstone project courses. The capstone courses will have both software and hardware elements and will involve faculty in the Electrical Engineering and Computer Science Departments.

Program Need

Computer engineering is one of the fastest growing disciplines in academia and the job market. Nationally, the enrollment in Electrical Engineering programs has been decreasing over the past ten years while enrollment in computer engineering programs has increased. The Bureau of Labor Statistics projects that the demand for computer software engineers, network administrators, and data communications analysts is expected to increase from 80-100 percent during the period 2000-2010. There are three institutions in North Carolina (NCSU, Duke, UNCC) that offer computer engineering programs. These universities are from 52 to 85 miles from North Carolina A & T State University. Further, the two UNC institutions that offer computer engineering do not offer a computer network and data communication option (as the proposed program). Nationally, Howard University is the only HBCU to offer a B.S. in computer engineering. The College of Engineering at North Carolina A & T, for the last decade, has been one of the nation's top producers of African American engineers in the United States. By the 2006-2007 academic year, North Carolina A & T predicts that it will have 75 students enrolled in the computer engineering program.

Resources
North Carolina A & T has been awarded $205,000 over three years from the Office of the President Focused Growth Revolving Fund to help establish laboratory and other space needed for the B.S. in computer engineering. Moreover, the university has a commitment from Motorola for $80,000 per year, for three years, to help support the development of the proposed B.S. in Computer Engineering. The program will also utilize existing facilities, establish and equip new laboratories, and leverage shared resources to support the computer engineering degree program. The resources of the university are adequate, and they will grow as the program evolves in the next decade.

Recommendation
It is recommended that the Board of Governors approve the request to establish the Bachelor of Science in Computer Engineering at North Carolina Agricultural and Technical State University effective September 2004.