

## APPENDIX G

### **Request for Authorization to Establish a Master of Science in Computational Science and Engineering at North Carolina A&T State University**

#### **Introduction**

North Carolina A&T State University notified the UNC Office of the President of its intent to plan a Master of Science in Computational Science and Engineering degree (CIP# 14.9999) in February 2004. The university requests authorization to establish the program in August 2004.

#### **Program Description**

The goal of this program is for students to (a) master high performance computer programming tools as well as data acquisition and processing techniques; (b) acquire computational modeling, simulation and visualization skills; (c) relate acquired knowledge and skills to specific applications of science, engineering, technology, and business; and (d) learn to develop novel and robust computational tools and methods to solve scientific, engineering, technological, or business problems. The interdisciplinary curriculum combines applied mathematics, high performance parallel and scalable computing, scientific modeling and simulation, data visualization, and domain areas such as physical sciences and engineering, life sciences, agricultural and environmental sciences, technology, and business. Graduates of the program will be highly versatile computational scientists, engineers, technologists, or business executives capable of interacting and collaborating effectively with professionals in a variety of fields.

#### **Program Need**

Information and computational technology has been recognized as one of the engines of economic growth, and industry and national laboratories have expressed concern about unmet needs for well-trained computational scientists and engineers. Computational techniques have become an integral part of scientific discovery processing and engineering design. The demand for computational scientists, engineers, and technologists in several critical areas of national interest is steadily increasing. NCA&TSU is a national leader in producing African American engineering baccalaureate degrees, and the pool of students graduating with relevant undergraduate degrees is sufficient to support a master's program. Although Duke University offers a graduate certificate program and NC State offers a graduate minor in Computational Science and Engineering, no other master's degree program exists in the state. The program would be the first in the nation at an HBCU. It is anticipated that 18 full-time and 6 part-time students will be enrolled by the fourth year of the program.

#### **Resources**

No additional state resources are required. Program needs will be addressed through internal reallocations, contract and grant funding, and enrollment increase funds.

#### **Recommendation**

It is recommended that the Board of Governors approve the request to establish a Master of Science in Computational Science and Engineering degree at North Carolina A&T State University effective August 2004.