

## **APPENDIX J**

### **Request for Authorization for a Joint Master of Science Program in Biomedical Engineering at North Carolina State University and the University of North Carolina at Chapel Hill**

#### **Introduction**

Currently both campuses have degree programs in biomedical engineering. NCSU has a baccalaureate degree in biomedical engineering and degrees at three levels in biological and agricultural engineering. UNC Chapel Hill has masters and doctoral programs in biomedical engineering and mathematics. The two campuses propose to develop a joint program in biomedical engineering at the masters and doctoral levels. As they state in their proposal, "This is a proposal to create joint Masters and PhD degrees in biomedical (BME) at NC State and UNC Chapel Hill. The existing MS and PhD programs in the Biomedical Engineering Department at UNC-CH will be expanded, augmented, and extended to the NC State campus." This request is for approval of the joint masters program in Biomedical Engineering.

#### **Program Description**

Biomedical engineering is the application of engineering principles to medical problems, resulting in advances such as renal analysis, cardiac bypass, artificial heart valves, CAT and MRI imaging, hip replacement devices, implantable pacemakers, fiber optic imaging, and respiratory technology. The strengths of both institutions (the Schools of Medicine and Dentistry at UNC Chapel Hill and the Colleges of Engineering, Agriculture and Life Sciences, and Veterinary Medicine at NC State) will be leveraged into additional technical specialty areas with a richer collection of course offerings available to students. A combined graduate faculty from both institutions will operate the joint graduate program, and uniform requirements and academic standards will be adopted. A joint faculty committee will authorize admissions, and Directors of Graduate Studies on each campus will jointly administer the program. Classes will be jointly conducted using state-of-the-art information technologies and distance learning facilities.

#### **Program Need**

Biomedical engineering (BME) is considered by many to be indispensable in the practice of modern medicine as the medical community increasingly relies upon technology. The worldwide market for medical devices is currently \$120 billion with the US portion being \$58 billion. Graduates of the proposed joint program will be prime candidates for joining new and existing medical device companies in NC as well as pharmaceutical and biotechnology industries in the state. A joint Biomedical Engineering Research Center will be established to promote new research initiatives, which will attract substantial funding and investments from the public and private sectors. Expansion of BME programs provides an opportunity to increase diversity in engineering enrollments because of the high demand for such programs among women. Enrollments in the joint

MS program would grow to 52 students by the fourth year. This joint program has the potential to contribute significantly to economic development in NC.

### **Resources**

No new state resources are requested. Program growth will be funded from enrollment increase funds and federal and private contracts and grants. The joint nature of the program will conserve resources that will be shared between two campuses.

### **Recommendation**

It is recommended that the Board of Governors approve the request for a joint Master of Science program in Biomedical Engineering at North Carolina State University and the University of North Carolina at Chapel Hill effective April 1, 2003.