

## **Master of Science in Biomedical Engineering**

### **Objectives**

The program, consistent with the mission and priorities of the University, is designed to achieve the following academic objectives:

- To provide high quality education in the field of biomedical engineering and to prepare the graduates for successful and rewarding employment as engineers or for continuing their education through the doctoral level.
- To provide the students with the training necessary to successfully apply the fundamental concepts and methods of biomedical engineering to selected areas of employment or research and development.
- To enhance the research environment and productivity of the Department for the benefit of the students

### **Admission**

Individuals holding a Bachelor's degree or equivalent in engineering, science, or related field may apply. Qualified applicants with Bachelor's degree in other areas may be able to enroll in the program with additional preparation (approved by the Director on a case-by-case basis). Admission to the M.S. program is based on the following factors: grade point average of 3.0 or higher on a scale of 4.0 on approximately the last 60 semester hours of undergraduate coursework, class ranking, and faculty recommendation letters.

GRE scores are not required for admission. However, out-of-state or international students whose GRE Verbal score or Quantitative score percentile is 80% or higher will have the advantage of paying in-state graduate tuition rate. Also, GRE scores, especially Quantitative, may be considered for fellowships/assistantships/scholarships. The minimum TOEFL score requirement for international applicants is 550 (paper based) or 80 (computer based). The application fee for all applicants, and any other documentation specifically required for international students will be in accordance to the requirements of the Graduate School.

### **Curriculum**

The Master of Science (M.S.) program has two tracks: i) The non-thesis track is coursework-oriented; ii) The thesis track is research oriented and is designed for students who want to pursue research or a Ph.D. degree. The degree (non-thesis/thesis) can be completed in 3-4 semesters.

Non-thesis option: total of 30 semester hours of graduate level credit. At least 6 courses must be selected from the core BME courses. ECE 592 and ECE 580 (seminar) will not count towards the degree. The remaining courses can be selected from the ECE 500-level courses.

Thesis option: total of 30 semester hours of graduate level credit. At least 6 courses must be selected from the BME courses in the core. Six hours of thesis (ECE 599) are required. ECE 580 (seminar) will not count towards the degree.

For both non-thesis and thesis tracks, with the approval of the department, a maximum of 3 online/distance education hours offered by the ECE department, and a maximum of 6 hours from academic units outside the ECE could be applied towards the degree. For cross-listed courses, students must register for the 500-level equivalent.

## Biomedical Engineering Core

BME 417-3 Neuroengineering  
BME 418-3 Biomedical Electronics and Biosensors  
BME 435-3 Computational Methods in Biomedical Engineering  
BME 485-3 Cellular and Molecular Biomechanics  
BME 521-3 Neuromodulation  
BME 531-3 Biophotonics  
BME 532-3 Modern Biomedical Imaging  
BME 536-3 Biomedical Signal Analysis  
BME 538-3 Introduction to Medical Instrumentation  
BME 539-3 Tissue Mechanics  
BME 541-3 Diagnostic Ultrasound  
BME 592-1 to 3 Special Investigations in Electrical Engineering (thesis option only;  
requires approval from the unit)

**Retention.** Any student whose cumulative grade point average falls below 3.00 on courses that count towards the degree will be placed on departmental academic probation. Any graduate student on academic probation whose grade point average remains below 3.0 on courses that count towards the degree for two consecutive semesters in which she or he is enrolled, excluding summer sessions, will be permanently suspended from the program, unless the department grants an exception.