



The Masters of Science in Biomedical engineering (MSBE) is a research oriented degree program that is administered by the Department of Engineering in the College of Engineering and Technology. ECU MSBE is a two-year program with a minimum of 32 semester hours of coursework and thesis. At least fourteen (14) semester hours of the coursework will come from the Department of Engineering, with an additional 6 semester hours of thesis credit and additional courses from the Departments of Mathematics, Physics, Biology, Biostatistics and other disciplines as required to support the interests and research of individual students and faculty. In addition to the course work each student must complete a research-based thesis, a comprehensive defense of thesis proposal, a seminar based on thesis research, and a thesis defense.

Building on the research strengths of the affiliated ECU schools and colleges students may opt to focus their studies in one of the following areas:

- **Cardiovascular Biomedical Engineering** (Cardiovascular Biomechanics, Cardiovascular Electrophysiology, Biomedical Instrumentation or Biomedical Signal Processing)
- **Biomolecular and Tissue Engineering** (Introduction to Tissue Engineering, Biomolecular Engineering, Biomaterials, Biomedical Instrumentation)
- **Biosensors and Biosignals** (Biomedical Instrumentation, Biomedical Signal Processing, Cardiovascular Electrophysiology)

Core Courses	Elective Courses
Introduction to Biomedical Engineering Research Life Science Biostatistics Mathematics Thesis project	Biomedical Instrumentation and Measurement Biomedical Signal Processing Cardiac Electrophysiology Cardiovascular Biomechanics Biomaterials in Medicine Biomolecular Engineering Introduction to Tissue Engineering Selected Topics in Biomedical Engineering

### ADMISSION STANDARDS

Applicants for study in biomedical engineering are expected to have a bachelor's degree in engineering with a minimum 3.0/4.0 grade point average in the last two years of undergraduate study. The following preparatory courses are recommended:

<ul style="list-style-type: none"> <li>▪ Engineering - one course in basic electrical engineering</li> <li>▪ Engineering – an introductory course in three of the following five areas: materials science or biomaterials, mechanics or fluid mechanics, transport or heat and/or mass transfer, instrumentation, systems physiology</li> <li>▪ Engineering research or design experience</li> </ul>	<ul style="list-style-type: none"> <li>▪ Physics - two semester</li> <li>▪ Chemistry - one semester</li> <li>▪ Biology- one semester</li> <li>▪ Mathematics- calculus through differential equations, probability and statistics</li> </ul>
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### ADMISSION PROCEDURE

1. Complete and submit a graduate application from the ECU Office of Graduate Studies website at [www.ecu.edu/gradschool](http://www.ecu.edu/gradschool).
2. Submit any required forms such as the Statement of Legal Residence, Statement of Purpose, resume, official copies of all transcripts, and three letters of reference to the ECU Office of Graduate Studies.

### CONDITIONAL ADMISSION

Applicants may be granted conditional admission if they do not qualify for regular admission. Students entering from disciplines other than engineering may find it necessary to take preparatory undergraduate and/or graduate level courses that serve as prerequisites. Preparatory courses that are for undergraduate credit only may not be applied toward credit hours required for a graduate degree.

*All information provided in this flyer is subject to change without notification. Students and applicants are required to review the Graduate Catalog ([www.ecu.edu/catalog](http://www.ecu.edu/catalog)) to learn about the current requirements, regulations, and policies.*

**For more information contact:** Department of Engineering | [www.ecu.edu/engineering](http://www.ecu.edu/engineering)

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