BIOMEDICAL ENGINEERING

Program Information

The Master's degree (thesis or nonthesis) requires at least 30 semester hours. The Doctoral degree requires at least 90 semester credit hours beyond the bachelor's degree. No more than 30 hours of a master's degree from another institution will be transferred to the Ph.D. degree. If a student holds a master's degree in a discipline different from the doctoral program, the master's work will not be counted toward the doctoral degree unless the BME Department successfully petitions the Dean of the Graduate School. Requirements for these degrees are given in the Graduate Degrees (http://gradcatalog.ufl.edu/graduate/degrees/) section of this catalog.

Complete BME program details and courses available are listed in the Biomedical Engineering Graduate Guidelines, on the BME website (https://www.bme.ufl.edu/) (which also offers information on available research areas).

Combination program: Biomedical Engineering also offers a combination bachelor’s/master’s degree program in collaboration with the other departments in the College of Engineering. This program allows qualified students to earn both a bachelor's degree and a master's degree within 5 years for a net savings of 1 year. Contact the BME academic services office for more information or see https://www.bme.ufl.edu/academics/bme-graduate-program/

Degrees Offered

Degrees Offered with a Major in Biomedical Engineering

• Doctor of Philosophy
  • without a concentration
  • concentration in Clinical and Translational Science
• Master of Engineering
• Master of Science

Requirements for these degrees are given in the Graduate Degrees (http://gradcatalog.ufl.edu/graduate/degrees/) section of this catalog.

Courses

Biomedical Engineering Departmental Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BME 5401</td>
<td>Biomedical Engineering and Physiology I</td>
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<tr>
<td>BME 5500</td>
<td>Biomedical Instrumentation</td>
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<td>BME 5703</td>
<td>Statistical Methods for Biomedical Engineering</td>
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<td>BME 5743</td>
<td>Applied Data Mathematics</td>
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<td>BME 5937</td>
<td>Special Topics</td>
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<tr>
<td>BME 6010</td>
<td>Clinical Immersion</td>
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<td>BME 6018</td>
<td>Clinical Correlations in BME</td>
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<td>BME 6164</td>
<td>Magnetic Biomaterials</td>
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<td>BME 6330</td>
<td>Cell and Tissue Engineering</td>
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<tr>
<td>BME 6360</td>
<td>Neural Engineering</td>
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<td>BME 6522</td>
<td>Biomedical Multivariate Signal Processing</td>
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<td>BME 6535</td>
<td>Radiological Physics, Measurements and Dosimetry</td>
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<td>BME 6592</td>
<td>Therapeutic Radiological Physics II</td>
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<td>BME 6705</td>
<td>Mathematical Modeling of Biological and Physiological Systems</td>
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<td>BME 6905</td>
<td>Individual Work in Biomedical Engineering</td>
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<td>BME 6907</td>
<td>BME Project</td>
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<td>BME 6910</td>
<td>Supervised Research</td>
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<td>BME 6938</td>
<td>Special Topics in Biomedical Engineering</td>
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<td>BME 6940</td>
<td>Supervised Teaching</td>
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<tr>
<td>BME 6971</td>
<td>Research for Master's Thesis</td>
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<td>BME 7979</td>
<td>Advanced Research</td>
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<td>BME 7980</td>
<td>Research for Doctoral Dissertation</td>
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<tr>
<td>EGN 5949</td>
<td>Practicum/Internship/Cooperative Work Experience</td>
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<tr>
<td>EGN 6913</td>
<td>Engineering Graduate Research</td>
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College of Engineering and College of Medicine Courses

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<td>EEE 5354L</td>
<td>Semiconductor Device Fabrication Laboratory</td>
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<td>EEE 5776</td>
<td>Applied Machine Learning</td>
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<td>EEE 6778</td>
<td>Applied Machine Learning II</td>
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<td>EGN 5215</td>
<td>Machine Learning Applications in Civil Engineering</td>
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<td>EGN 5216</td>
<td>Machine Learning for Artificial Intelligence Systems</td>
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<td>EGN 5442</td>
<td>Programming for Applied Data Science</td>
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<td>EGN 6216</td>
<td>Artificial Intelligence Systems</td>
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<td>EGN 6217</td>
<td>Applied Deep Learning</td>
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<td>EGN 6446</td>
<td>Mathematical Foundations for Applied Data Science</td>
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<td>EGN 6640</td>
<td>Entrepreneurship for Engineers</td>
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<td>EGN 6642</td>
<td>Engineering Innovation</td>
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<td>Engineering Fellowship Preparation</td>
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<td>EGS 6012</td>
<td>Research Methods in Engineering Education</td>
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<td>EGS 6020</td>
<td>Research Design in Engineering Education</td>
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<td>EGS 6039</td>
<td>Engineering Leadership</td>
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<td>EGS 6050</td>
<td>Foundations in Engineering Education</td>
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<td>EGS 6051</td>
<td>Instructional Design in Engineering Education</td>
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<td>EGS 6054</td>
<td>Cognition, Learning, and Pedagogy in Engineering Education</td>
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<td>EGS 6056</td>
<td>Learning and Teaching in Engineering</td>
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<td>EGS 6085</td>
<td>Advanced Engineering Educational Technology</td>
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<td>EGS 6101</td>
<td>Divergent Thinking</td>
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<td>EGS 6626</td>
<td>Fundamentals of Engineering Project Management</td>
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<td>EGS 6628</td>
<td>Advanced Practices in Engineering Project Management</td>
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<td>EGS 6629</td>
<td>Agile Project Management for Engineers and Scientists</td>
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<td>EGS 6681</td>
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<td>Preparation for Engineering Education Practicum</td>
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<td>EGS 6949</td>
<td>Research to Practice Experience in Engineering Education</td>
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<td>EGS 6971</td>
<td>Research for Master's Thesis</td>
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<tr>
<td>EGS 7979</td>
<td>Advanced Research</td>
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</tbody>
</table>
Biomedical Engineering (PHD)

SLO 1  Knowledge
An ability to develop a broad-based knowledge of Biomedical Engineering problems

SLO 2  Knowledge
An ability to critically read Biomedical Engineering literature

SLO 3  Skills
An ability to use apply fundamental engineering principles to identify, analyze and solve biomedical engineering problems

SLO 4  Skills
An ability to design and conduct scientific and engineering experiments, and to analyze and interpret the resulting data

SLO 5  Professional Behavior
An understanding of professional and ethical responsibility and the impact of clinically significant engineering solutions

SLO 6  Professional Behavior
An ability to communicate effectively and work collaboratively

Biomedical Engineering (ME & Ms)

SLO 1  Knowledge
An ability to develop a broad-based knowledge of Biomedical Engineering problems

SLO 2  Knowledge
An ability to critically read Biomedical Engineering literature

SLO 3  Skills
An ability to use apply fundamental engineering principles to identify, analyze and solve biomedical engineering problems

SLO 4  Skills
An ability to design and conduct scientific and engineering experiments, and to analyze and interpret the resulting data

SLO 5  Professional Behavior
An understanding of professional and ethical responsibility and the impact of clinically significant engineering solutions

SLO 6  Professional Behavior
An ability to communicate effectively and work collaboratively