TRANSLATIONAL BIOMEDICAL ENGINEERING (GR. CERT.) (15 CREDITS)

Offered by: Biomedical Engineering (Faculty of Engineering)
Program credit weight: 15

Program Description

This program comprises mandatory courses dealing with topics that are unique to the translational process in the biomedical engineering environment. Topics covered will include: managing intellectual property; patents and the patenting process; regulatory affairs; medical standards; quality management systems; and clinical trials. Complementary courses will provide students with advanced training in a specialized area of biomedical engineering selected from the areas where Departmental staff have significant expertise.

In cases where students have taken one or more of the core courses as part of another program, these core courses will be replaced with the equivalent number of credits, at the 500 level or higher, by other appropriate courses selected in consultation with the program director.

Note: For information about Fall 2025 and Winter 2026 course offerings, please check back on May 8, 2025. Until then, the "Terms offered" field will appear blank for most courses while the class schedule is being finalized.

Required Courses (9 credits)

Three courses dealing with issues related specifically to the translation of biomedical engineering advances to clinical and commercial environments:

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Course	Title	Credits
BMDE 653	Patents in Biomedical Engineering.	3
BMDE 654	Biomedical Regulatory Affairs - Medical Devices.	3
BMDE 655	Biomedical Clinical Trials - Medical Devices.	3

Complementary Courses (6 credits)

Students must complete 6 credits of biomedical engineering course work selected from one or more of the following domains or other appropriate courses at the 500 level or higher approved by the Program Director:

General Biomedical Engineering

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Course	Title	Credits
BMDE 501	Selected Topics in Biomedical Engineering.	3

Biomedical Signals and Systems

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Course	Title	Credits
BMDE 502	BME Modelling and Identification.	3
BMDE 503	Biomedical Instrumentation.	3
BMDE 512	Finite-Element Modelling in Biomedical Engineering.	3
BMDE 519	Biomedical Signals and Systems.	3

Medical Imaging

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Course	Title	Credits
BIEN 530	Imaging and Bioanalytical Instrumentation.	3
BMDE 610	Functional Neuroimaging Fusion.	3
BMDE 650	Advanced Medical Imaging.	3
MDPH 607	Medical Imaging.	3

Biomaterials and Tissue Engineering

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Course	Title	Credits
BIEN 510	Engineered Nanomaterials for Biomedical Applications.	3
BMDE 504	Biomaterials and Bioperformance.	3
BMDE 505	Cell and Tissue Engineering.	3

Biosensors and Devices

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Course	Title	Credits
BIEN 550	Biomolecular Devices.	3
BIEN 560	Design of Biosensors.	3
BMDE 503	Biomedical Instrumentation.	3
BMDE 508	Introduction to Micro and Nano-Bioengineering.	3

Translational Biomedical Engineering

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Course	Title	Credits
BMDE 656	Medical Device Development Process.	3