Professional Master of Science in Bioengineering

Medical Product Engineering

In conjunction with the University of Pittsburgh Center for Medical Innovation (CMI), the Department of Bioengineering offers a special Professional Master of Science (MSc) in Bioengineering with an emphasis on Medical Product Engineering.

The program focuses on the application of engineering methods to the identification of and solution to problems in health care delivery.

PROGRAM OBJECTIVES

The professional master’s degree program in Medical Product Engineering provides a thorough grounding in the principles of medical device innovation and development compliant with regulatory requirements through a core sequence that starts with immersion in the medical/hospital environment and ends with a first generation prototype. The program emphasizes preparation for a career in the medical device industry through:

- hands-on, practical experience in medical product design and development.
- close interaction with physicians in clinical settings.
- instruction in professional practices in medical engineering.
- broadened Advanced Graduate Engineering Course electives in area of interest.
- strong curriculum in ethics, analysis, design principles, and principles of entrepreneurship as applied to medical device innovation.

EDUCATIONAL PROGRAM

The distinctive educational core of the program is four courses directed toward developing knowledge and skill sets important to the practicing engineer.

In addition to the Core Classes (12 credits), the Medical Product Engineering program requires an additional 18 credits (Medical Ethics - 3 credits, Graduate Engineering Mathematics or Statistics - 3 credits, Advanced Graduate Engineering - 12 credits) for a total of 30 credits.

ENROLLMENT

Enrollment in the program is by application and acceptance only. The overall form and content of the student’s program of study is the responsibility of the Department of Bioengineering. Each student in the program will have a curricular advisor (CMI Educational Program Director) and a project advisor to guide the student’s individualized educational experience. Students must maintain a minimum 3.0 GPA to remain in good standing in the program. Acceptance and enrollment in the program does not guarantee continuation on to the PhD program. Students interested in pursuing the Doctoral degree must complete the application process for the PhD program.

NOTE: Students accepted in the program must comply with all Swanson School of Engineering (SSoE) requirements for access to clinical sites within the UPMC system.

Students interested in the Medical Product Engineering track for the Professional MSc in Bioengineering should contact the CMI Educational Program Director for further information.

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Details of this program can be found at engineering.pitt.edu/cmi
A new interdisciplinary program within the University of Pittsburgh, whose purpose is to stimulate, guide, and promote the development and commercialization of technological innovations to improve health care. CMI provides an organizational structure that links faculty, students, and clinicians across the University of Pittsburgh through collaboration with the Swanson School of Engineering, Schools of the Health Sciences, the Katz School of Business, the School of Law, the Office of Technology Management, and the Wallace H. Coulter Foundation Translational Research Partnership II.

**CMI MISSION**

The mission of CMI has three essential components:

- **Research:** To provide an organizational structure to link engineering faculty, clinicians, and students at the University of Pittsburgh, and to fund early-stage development of innovative biomedical technologies.

- **Education:** To educate the next generation of innovators in the design, development, and commercialization of medical technologies through classroom and hands-on experiences in cooperation with the schools of Engineering, Health Sciences, Business, and Law.

- **Development:** To facilitate the translation of innovative biomedical technologies into marketable products, services, and business ventures in collaboration with the University of Pittsburgh Office of Technology Management and the Coulter Translational Research Partnership.

**Educational Program**

CMI will offer, through the Swanson School’s Department of Bioengineering, two options for a Professional Master of Science degree (Medical Product Engineering track), and a new Graduate Certificate in Medical Product Innovation. Additionally, engineering graduate students may participate in courses and innovation projects as part of their dissertation work. Medical students will be able to satisfy School of Medicine research requirements through participation in CMI sponsored projects. Courses in innovation and entrepreneurship already offered through the Swanson School of Engineering, the Katz School of Business, and the School of Law will be available to all students interested in medical innovation. Multi-disciplinary student teams (including graduate students in engineering and business, as well as law and medicine) will work with engineering faculty, clinicians, and industry advisors to develop innovative medical technologies through the prototype stage.

“You can never solve a problem with the same kind of thinking that created the problem in the first place.”

– Albert Einstein