

# PROFESSIONAL MASTER OF ENGINEERING PROGRAM

## Biomedical Engineering Concentration



**bi**  **engine**

BIOENGINEERING INNOVATION & ENTREPRENEURSHIP

“California is No. 1 in Medical Device Industry.”

*Medical Design & Outsourcing (2019)*

“Southern California Life Science industry directly employed 237,042 individuals in 2018. The average earnings for these jobs > \$90,000/year.”

*BIOCOM California Economic Impact Report (2019)*

“Distributed over sectors such as Biotech, Pharmaceuticals, and Medical Device Manufacturing, Orange County’s Life Sciences industry is responsible for more than \$35.3 billion in annual economic activity.”

*Orange County Businesses (2017)*

For more information and to apply online:

<http://engineering.uci.edu/MEng>

### Program Overview:

The Professional Master of Engineering (M.Eng) program’s Biomedical Engineering Concentration, also known as BioENGINE (BioEngineering, Innovation, & Entrepreneurship), is designed to provide rigorous and practical hands-on team-based training in biomedical innovation, entrepreneurship / intrapreneurship and commercialization. BioENGINE will train students through experiential learning to become experts and leaders in developing biomedical devices and technologies.

### Program Features:

- 3-course sequence focused on the innovation, building, and launching of a medical technology business.
- Program staff available to facilitate job searches, industrial networking, career development.
- Student choose 6 technical electives on timely, relevant biomedical engineering topics, taught by experts in the field
- Comprehensive Capstone design sequence where students design-build-test new medical technology, with faculty and industry mentors.
- Regularly interact and network with industry through symposiums, lectures, design projects, and company site visits.
- Graduates receive Master of Engineering degree in 9- 12 months



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## Biomedical Engineering Concentration -- Curriculum



### Entrepreneurship/Leadership (3 quarters/12 units):

Topics include: product ideation, customer discovery, product design and manufacturing, writing proposals and business plans, successful team building, marketing, revenue generation, intellectual property, and regulatory issues.

### Technical Electives (select 6 courses):

BME 210P Molecular and Cellular Engineering  
BME 212P Cardiovascular Tissue Engineering  
BME 220P Sensory Motor Systems  
BME 234P Neuroimaging Data Analysis  
BME 262P Microimplants  
BME 295P Nanotechnology for Biomedicine  
BME 295P Bio-spectroscopy  
BME 295P Neural Time Series  
BME 295P Coding in the Brain

BME 211P Microscale Tissue Engineering  
BME 221P Quantitative Physiology: Organ Transport Systems  
BME 233P Dynamic Systems in Biology and Medicine  
BME 238P Spectroscopy and Imaging of Biological Systems  
BME 240P Intro Clinical Medicine for Biomedical Engineering  
BME 251P Engineering Medical Optics  
BME 260P Microfluidics and Lab-on-a-Chip  
BME 295P Cardiovascular Device Technologies  
BME 295P Ophthalmology Biomedical Engineering

### Design Project (8 units required, 12 units highly recommended):

Capstone Design sequence where teams of students, mentored by faculty and industry representatives, will:

- Survey unmet needs in the medical technology business space
- Define FDA design control requirements and product specifications
- Explore market entry strategies and commercialization
- Determine optimal technical solution
- Fabricate and test a prototype in UC Irvine's world class facilities and laboratories
- Present project development results at the Device Design Symposium at UCI Beall Applied Innovation
- Option to extend project into 4<sup>th</sup> quarter (summer or fall)

Apply online: <http://engineering.uci.edu/MEng>

Contact us: [gradengr@uci.edu](mailto:gradengr@uci.edu), (949) 824-8090

