

Master of Engineering

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The Master of Engineering Program is administered by faculty of the Henry Samueli School of Engineering. The program offers the Master of Engineering degree in multiple concentrations.

The curriculum includes foundational courses that vary by concentration as well as an entrepreneurial/intrapreneurial sequence of courses that is common to all the concentrations. The degree has a strong experiential learning component embodied in a capstone project supervised by faculty members. The M.Eng. program was developed, in part, to serve the needs of domestic and international students, and working professionals among whom the leaders of their respective specializations are especially likely to come.

Potential graduate students for the M.Eng. Program can apply via the Graduate Division's online application and indicate on their applications their interest in the program. Students apply directly to the concentration of their choice. Applicants are expected to hold a Bachelor's degree in an Engineering or Computer Science discipline. Students from other disciplines may be considered for admission if they have sufficient background in the basics of their target specialization. Applicants will be evaluated on the basis of their prior academic record and their potential for carrying out graduate-level work as demonstrated in submitted application materials. These materials include official university transcripts, letters of recommendation, and a Statement of Purpose where students can explain their relevant experience (academic or industry). Students with industry experience will be considered favorably, especially if their experience is relevant to the areas emphasized by their target specialization.

An admissions committee composed of senate faculty members will evaluate the applicant files and make admissions decisions based on the overall file presented by the student.

Overall, students will be admitted using criteria similar to those used in traditional M.S. degree from relevant departments.

Master of Engineering Program Requirements

The Master of Engineering (M.Eng) consists of six electives specific to each concentration, three quarters of Proseminar for professional development, plus 8 units of project courses leading to a final capstone project. In addition, a sequence of three courses in Leadership and Entrepreneurship is required for all students.

A. Select three Engineering Leadership/Entrepreneurship core courses from the following:	
ENGR 201P	Engineering Leadership and Entrepreneurship: Innovation
ENGR 202P	Engineering Leadership and Entrepreneurship: Build
ENGR 203P	Engineering Leadership and Entrepreneurship: Launch
ENGR 205P	Technical Project Management
ENGR 206P	Innovation and Entrepreneurial Thinking
ENGR 207P	People Management and Communication
B. Complete six technical courses. Acceptable courses for each concentration/specialization are listed below:	
Master of Engineering Concentration	
Students in this concentration will be admitted based on a focused specialization that has been vetted and approved by the appropriate faculty. The specific list of courses will be determined prior to admissions and provided to the students in the specialization upon admission. Since courses may be developed for any given specialization, the following courses may be approved to count toward the degree requirements:	
BME 295P	Special Topics in Biomedical Engineering
EECS 295P	Special Topics in Electrical Engineering and Computer Science
ENGR 230P	Introduction to Machine Learning
ENGR 235P	Engineering Design and Simulation: Tools and Process
ENGR 295P	Special Topics in Master of Engineering
ENGRCEE 295P	Special Topics in Civil and Environmental Engineering
ENGRMAE 295P	Special Topics in Mechanical and Aerospace Engineering
Advanced Manufacturing Concentration	
Students in the Advanced Manufacturing Concentration select six courses from the following:	
ENGR 230P	Introduction to Machine Learning
ENGR 231P	Robotics and Controls
ENGR 233P	Additive Manufacturing
ENGR 234P	Advanced Manufacturing and Design

ENGR 235P	Engineering Design and Simulation: Tools and Process
ENGR 252P	Fundamentals of Microfabrication
ENGR 295P	Special Topics in Master of Engineering
Biomedical Engineering Concentration	
Students in the BME Concentration select six courses from the following:	
BME 201P	Biomedical Big Data
BME 202P	Biomedical Imaging and Biophotonics
BME 203P	Digital Health
BME 210	Molecular and Cellular Engineering
or BME 210P	Molecular and Cellular Engineering
BME 211	Microscale Tissue Engineering
or BME 211P	Microscale Tissue Engineering
BME 212	Cardiovascular Mechanobiology
or BME 212P	Cardiovascular Mechanobiology
BME 220	Sensory Motor Systems
or BME 220P	Sensory Motor Systems
BME 233	Dynamic Systems in Biology and Medicine
or BME 233P	Dynamic Systems in Biology and Medicine
BME 234	Neuroimaging Data Analysis
or BME 234P	Neuroimaging Data Analysis
BME 238	Spectroscopy and Imaging of Biological Systems
or BME 238P	Spectroscopy and Imaging of Biological Systems
BME 240	Introduction to Clinical Medicine for Biomedical Engineering
or BME 240P	Introduction to Clinical Medicine for Biomedical Engineering
BME 251	Engineering Medical Optics
or BME 251P	Engineering Medical Optics
BME 260P	Microfluids and Lab-on-a-Chip
BME 262	Microimplants
or BME 262P	Microimplants
BME 295P	Special Topics in Biomedical Engineering
Civil and Environmental Engineering Concentration	
Students in the Civil and Environmental Engineering Concentration select six courses from the following:	
ENGRCEE 201P	Life Cycle Assessment Methods
ENGRCEE 202P	Green Building Design
ENGRCEE 203P	Organizational Pollutant Emissions Accounting
ENGRCEE 204P	Fundamentals of Sustainable Engineering
ENGRCEE 205P	Wastewater Treatment Process Design
ENGRCEE 206P	Biological Processes for Bioremediation
ENGRCEE 210P	Smart City Transport Systems
ENGRCEE 211P	Sustainable Transportation
ENGRCEE 212P	Transportation Policy and Technology
ENGRCEE 230P	Introduction to Machine Learning
ENGRCEE 231	Foundation Engineering
or ENGRCEE 231P	Foundation Engineering
ENGRCEE 247	Structural Dynamics
or ENGRCEE 247P	Structural Dynamics
ENGRCEE 250	Finite Element Method in Structural Engineering
or ENGRCEE 250P	Finite Element Method in Structural Engineering
ENGRCEE 254	Advanced Reinforced Concrete Behavior and Design
or ENGRCEE 254P	Advanced Reinforced Concrete Behavior and Design

ENGRCEE 255	Advanced Behavior and Design of Steel Structures
or ENGRCEE 255P	Advanced Structural Steel Design
ENGRCEE 264	Carbon and Energy Footprint Analysis
or ENGRCEE 264P	Carbon and Energy Footprint Analysis
ENGRCEE 266P	Biological Process Design
ENGRCEE 269	Beach Dynamics
or ENGRCEE 269P	Beach Dynamics
ENGRCEE 270	Flood Risk and Modeling
or ENGRCEE 270P	Flood Risk and Modeling
ENGRCEE 295P	Special Topics in Civil and Environmental Engineering

Electrical Engineering and Computer Science Concentration

Students in the EECS Concentration select six courses from the following:

EECS 202P	Techniques in Medical Imaging: X-ray, Nuclear, and NMR Imaging
EECS 203P	Digital Image Processing
EECS 204P	Personalized Medical Devices
EECS 211P	Advanced System Software
EECS 213P	Computer Architecture
EECS 215P	Design and Analysis of Algorithms
EECS 217P	VLSI System Design
EECS 220P	Advanced Digital Signal Processing Architecture
EECS 223P	Real-Time Computer Systems
EECS 230P	Introduction to Machine Learning
EECS 240P	Random Processes
EECS 241AP	Digital Communications I
EECS 241BP	Digital Communications II
EECS 244P	Wireless Communications
EECS 250P	Digital Signal Processing I
EECS 270AP	Advanced Analog Integrated Circuit Design I
EECS 270BP	Advanced Analog Integrated Circuit Design II
EECS 272P	Radio-Frequency Integrated Circuit Design
EECS 280P	Advanced Engineering Electromagnetics I
EECS 284P	RF Antenna Design
EECS 285P	Optical Communications
EECS 295P	Special Topics in Electrical Engineering and Computer Science

Mechanical and Aerospace Engineering Concentration

Students in the MAE Concentration select six courses from the following:

ENGRMAE 202P	Professional Engineering Fundamentals
ENGRMAE 204P	Personalized Medical Devices
ENGRMAE 205P	Model-Based Engineering: Systems and Design
ENGRMAE 209P	Energy Efficiency in the Built Environment
ENGRMAE 211P	Energy Storage Systems and Technology
ENGRMAE 212P	Engineering Electrochemistry: Fundamentals and Applications
ENGRMAE 214P	Fuel Cell Fundamentals and Technology
ENGRMAE 218P	Sustainable Energy Systems
ENGRMAE 219P	Solar and Renewable Energy Systems
ENGRMAE 230P	Introduction to Machine Learning
ENGRMAE 231P	Robotics and Controls
ENGRMAE 235P	Engineering Design and Simulation: Tools and Process
ENGRMAE 247	Micro-System Design
or ENGRMAE 247P	Micro-System Design

ENGRMAE 249	Micro-Sensors and Actuators
or ENGRMAE 249P	Micro-Sensors and Actuators
ENGRMAE 252P	Fundamentals of Microfabrication
ENGRMAE 254P	Mechanics of Solids and Structures
ENGRMAE 257P	Fabrication and Characterization of Nanomaterials
ENGRMAE 259P	Mechanical Behavior of Solids - Atomistic Theories
ENGRMAE 295P	Special Topics in Mechanical and Aerospace Engineering
C. Complete:	
ENGR 210P	Capstone Project (8 units) ¹
ENGR 211P	M.Eng Proseminar (3 quarters)

¹ Students are required to complete a project that deals with a specific emphasis of their concentration/specialization. The project will be mentored by a faculty member and approved by a Graduate Advisor.