

# ENGINEERING, ME (ONLINE)

## Program Overview

The Master of Engineering Program is a graduate degree program that targets engineers currently employed in industry. The objective of this program is to provide engineers in industry with technical as well as business, management, and teamwork skills. The program differs from a traditional Master of Science degree in engineering by combining core courses that focus on the engineering-business environment and technical elective courses that concentrate on contemporary industrial practice rather than on research.

The Master of Engineering Program prepares students to enhance their role as corporate leaders and provides an environment in which practicing engineering professionals can address the increasingly wide range of technical, management, financial and interpersonal skills demanded by an ever-expanding and diverse global industry base.

The program is composed of online and traditional on-campus classes, with core courses aimed at equipping participants with knowledge on how engineering is practiced in contemporary industry, and technical electives that provide depth in a chosen specialty area. All core courses are provided in an exclusively online format. The technical elective sequences for Applied Data Science (ADS), Biomedical Engineering (EBME), Engineering Innovation, Management and Leadership (EIML), Mechanical Engineering (EMAE) and Systems & Control Engineering (SCS) are also in an online format. Other technical elective courses are held on campus in the late afternoon or evening hours, and in an online distance-learning format to minimize disruption at the workplace and home. Because the program makes extensive use of computers, participants need to have access to computer facilities.

For more details about the exclusively online Master of Engineering degree program, visit [online-engineering.case.edu/masters/](http://online-engineering.case.edu/masters/).

For local students wanting to take on-campus technical electives, please contact the Program Director, Sunniva Collins ([skr@case.edu](mailto:skr@case.edu)).

## Graduate Policies

For graduate policies and procedures, please review the School of Graduate Studies section of the General Bulletin.

## Program Requirements

The Master of Engineering Program requires 30 credit hours of coursework that include 18 credit hours of online core courses and 12 credit hours of technical electives, taken either online or on-campus, that are chosen from focus areas (see below). It is possible to complete the Master of Engineering degree program within a two-year (six semester), part-time, program of study, although most students choose to complete the program over a seven to nine semester period.

## Curriculum

The program consists of a set of six core courses and a four-course technical elective sequence (a total of 30 credit hours are required). The core courses provide a common base of study and experience with problems, issues, and challenges in the engineering business environment. The technical elective sequence provides an opportunity to update disciplinary engineering skills and to broaden interdisciplinary

skills. Up to six transfer credits may be approved for graduate-level courses taken at Case Western Reserve or another accredited university.

### Core Courses

Code	Title	Hours
EPOM 400	Leadership and Interpersonal Skills	3
EPOM 401	Introduction to Business for Engineers	3
EPOM 403	Product and Process Design and Implementation	3
EPOM 405	Applied Engineering Statistics	3
EPOM 407	Engineering Economics and Financial Analysis	3
EPOM 409	Master of Engineering Capstone Project	3
<b>Total Hours</b>		<b>18</b>

### Technical Electives

Four courses are chosen from concentration areas.

## Concentration Requirements

### Concentration in Biomedical Engineering

Code	Title	Hours
EBME 401D	Biomedical Instrumentation and Signal Processing	3
EBME 406	Polymers in Medicine	3
EBME 410	Medical Imaging Fundamentals	3
EBME 421	Bioelectric Phenomena	3
EBME 432	Quantitative Analysis of Physiological Systems	3
EBME 440	Translational Research for Biomedical Engineers	3
EBME 451	Molecular and Cellular Physiology	3
EBME 471	Principles of Medical Device Design and Innovation	3

### Concentration in Engineering, Innovation Management & Leadership

Code	Title	Hours
EPOM 410	Intellectual Property Management and Opportunity Assessment	3
EPOM 411	Innovation - the Confluence of Need, Requirements and Creativity	3
EPOM 412	Technology Transfer and Collaboration	3
EPOM 413	Innovation, Strategy & Leadership: Contemporary Approach to Future Growth	3

### Concentration in Mechanical Engineering

Code	Title	Hours
EMAE 450	Advanced Mechanical Engineering Analysis	3
EMAE 456	Micro-Electro-Mechanical Systems in Biology and Medicine (BioMEMS)	3
EMAE 460	Theory and Design of Fluid Power Machinery	3
EMAE 480	Fatigue of Materials	3
EMAE 481	Advanced Dynamics I	3
EMAE 487	Vibration Problems in Engineering	3
EMAE 494	Energy Systems	3

### Concentration in Systems & Control Engineering

Code	Title	Hours
ECSE 401	Digital Signal Processing	3
ECSE 404	Digital Control Systems	3

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ECSE 408	Introduction to Linear Systems	3
ECSE 416	Convex Optimization for Engineering	3
ECSE 468	Power System Analysis I	3