



UNIVERSITY OF MICHIGAN COLLEGE OF ENGINEERING
MECHANICAL ENGINEERING UNDERGRADUATE PROGRAM





U-M ME Undergraduate Program — A Tradition of Educational Innovations

The University of Michigan (U-M) has a top-ranked Mechanical Engineering (ME) Undergraduate Program. Our curriculum is built upon a strong foundation of engineering science-based courses, centered on a spine of progressive team-based classes in design, build and experimental techniques, and complemented by a broad range of electives and special programs. This world-class program is supported by our cutting-edge instructional and state-of-the-art laboratory facilities.

The ME BSE degree has a well-balanced and integrated course series, covering basic engineering sciences such as thermal and fluids, solid mechanics and materials, dynamics, and systems and controls, and a rigorous and unique spine/sequence of project-based courses in design, manufacturing and experimental techniques. Beyond these, students select technical electives and special programs for additional breadth and/or depth.

The U-M ME's instructional space features dedicated facilities for advanced design and manufacturing and other state-of-the-art facilities such as mechatronics workstations, rapid prototyping assembly, experimental test stations, and technical communication equipment. The program also includes a team of technical communication experts who work with faculty to hone students' verbal, visual and written project presentation skills.

This document will give you a quick overview of our world-class undergraduate education program. For more detailed information, please check our website at <http://me.engin.umich.edu/>. Enjoy your reading!

RIGOR AND INNOVATION ANALYSIS DRIVEN ENGINEERING DESIGN

Team-Based Design, Build and Test Spine

ENG 100 Intro to Engineering
ME 250 Design & Manufacturing I
ME 350 Design & Manufacturing II
ME 395 Junior Lab
ME 495 Senior Lab
ME 450 Capstone Design

Engineering Science-Based Series

ME 211 Solid Mechanics
ME 240 Dynamics
ME 235 Thermodynamics
ME 320 Fluid Mechanics
ME 335 Heat Transfer
EECS 314 Electrical Circuits
ME 360 Systems and Controls
ME 382 Engineering Materials
Advanced Mathematics

Broad Technical Electives

Selection from over 60 courses
in both core and emerging new areas

Technical Electives — Core and Emerging Topics

We have a significant number of technical elective courses covering all core ME disciplines as well as new thematic areas such as emerging manufacturing, future transportation, energy and environment, and bio/health systems. Examples of courses beyond traditional technical subjects are

- Advanced Energy Generation and Storage
- Advanced Materials for Design
- Battery Systems and Controls
- Hydrogen and Fuel Cell Systems
- Hybrid Vehicles
- Introduction to Bio-MEMS
- Mechanics of Human Movement
- Nano-Manufacturing
- Nano/Micro Structure Evolution
- Robotics
- Smart Materials and Structures
- Sustainable Design and Manufacturing
- Tissue Mechanics

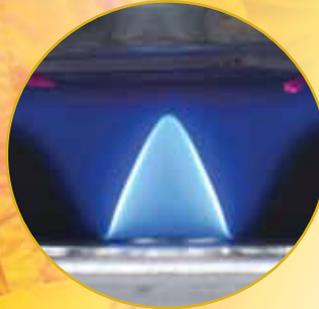
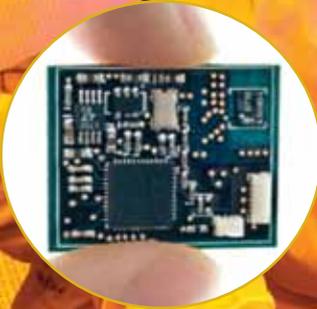


Concentrations in ME

Within the undergraduate degree, the ME department offers **concentrations**, which allow interested students to focus their technical electives in a specific subject area, such as manufacturing systems or energy.

Undergraduate Research Opportunities

As an ME undergraduate student at Michigan, there are many opportunities to gain experience through individual studies with faculty or participation in one of the many research programs offered. Some of the possibilities include the Undergraduate Research Opportunity Program (UROP), the Summer Undergraduate Research in Engineering (SURE) Program and the Summer Research Opportunities Program (SROP). These programs allow students to enrich their educational experience and/or prepare for graduate school. The Sequential Graduate and Undergraduate Studies (SGUS) program allows undergraduate students to use some courses for both their BSE and MSE degrees.





Special Programs

Special programs are tailored to the students' specific interests; they allow students to create unique and individualized options at U-M.

DUAL DEGREE & MINOR

We offer unique opportunities for expansion of the ME education with Dual Degrees and Minors.

The **Multidisciplinary Design Minor (MDM)** in the College of Engineering (CoE) allows students to earn credit for work in many settings, such as the U-M Solar Car Team, Formula SAE, Baja SAE, and BLUELab (Better Living Using Engineering Lab, a student-led organization that designs sustainable technologies to solve real-world problems). The **Global Health Design Specialization** in MDM offers projects with students working in teams conducting observations at clinical field sites. Students work to conceptualize, prototype, field test and refine devices to address problems using resources that are available locally.

The CoE **International Minor** addresses the need for engineers who can combine technical expertise with international understanding. Student must also pursue practical overseas experience through study, work or volunteer abroad.

ENTREPRENEURSHIP PROGRAM

Through this CoE program, students are able to study business methods associated with writing business plans, obtaining venture capital and other funding, intellectual property, etc.

ENGINEERING GLOBAL LEADERSHIP HONORS PROGRAM

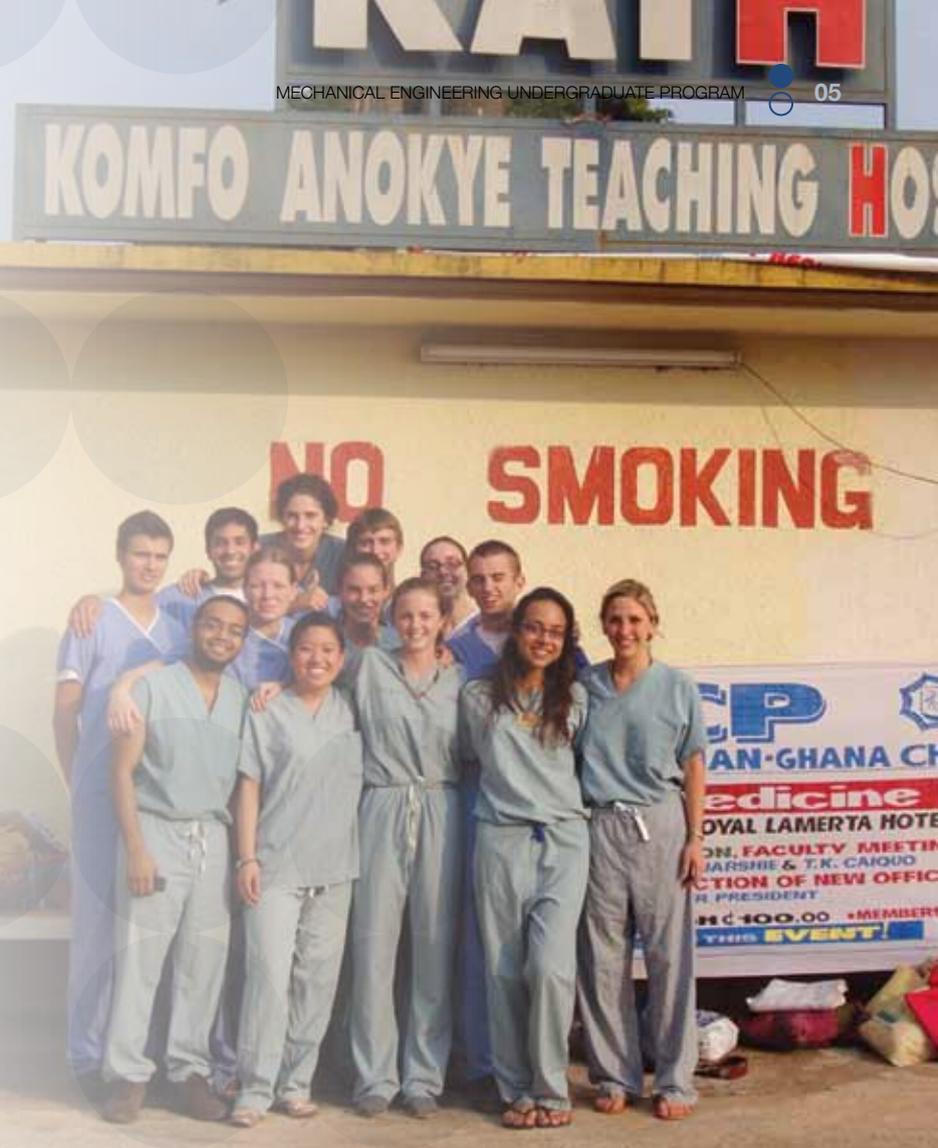
In this honors program, students augment their engineering education with courses in the business school. Students can earn a Bachelor's and a Master's in Engineering and may choose their degree combination from any of the disciplines available in the U-M CoE.

INTERNATIONAL PROGRAMS

We partner with multiple universities around the world to offer our students the possibility of gaining international experience while they study in Europe, Asia or Australia.

UM-SJTU JOINT INSTITUTE

A unique partnership between two world-class universities, U-M and Shanghai Jiao Tong University (SJTU), is the UM - SJTU Joint Institute — creating a strategic global partnership dedicated to world-class engineering education. The Joint Institute's curriculum is the same as that at U-M. A significant number of students are exchanged and top faculty from both parent universities teach courses and lead joint research initiatives.





More Information

We're proud of our undergraduate program in Mechanical Engineering, and we want to tell you more about it. Our website has detailed information on degree programs, financial aid, how to apply, and much more. Or call us at 734-764-0863 or email me-aso@umich.edu.