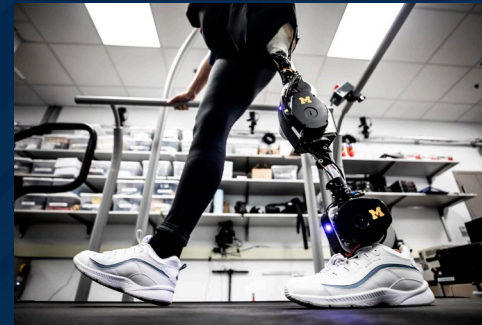
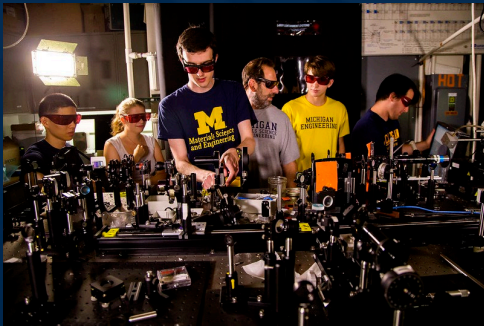


The Michigan Engineering Difference

Michigan Engineers are problem solvers, big thinkers, leaders and most importantly they make a difference in the world.



The Engineering Career Resource Center (ECRC) helps employers engage and recruit exceptional talent from Michigan Engineering. We invite you to learn more about our nationally recognized programs by reviewing the following pages.

Our engineering departments include:

- Aerospace
- Biomedical
- Chemical
- Civil
- Climate & Space Sciences
- Computer Science & Data Science
- Electrical & Computer
- Environmental
- Industrial & Operations
- Integrative Systems & Design
- Materials Science
- Mechanical
- Naval Architecture & Marine
- Nuclear & Radiological Sciences
- Robotics

Contact us at ecrc-info@umich.edu to learn more. We look forward to partnering with you to recruit and engage our students!

Why Hire an Aerospace Graduate?

Our graduates are exposed to a variety of rigorous courses that provide them with a diverse set of skills relevant to many industries. Through group projects, research, and individual assignments, they develop in-depth critical thinking, leadership, teamwork, and practical knowledge. They also partake in experiential learning through participation in industry projects, co-ops, and other immersion opportunities. Our graduates are not only engineers, but leaders.

Sample New Grad Job Titles

- Aerospace Engineer, Flight Dynamics Engineer, Fluids System Engineer, Manufacturing Engineer, Patent Engineer, Propulsion Engineer, Simulation Engineer, Software Engineer, Spacecraft Flight Operations Structural Design Engineer, Systems Engineer, Test Engineer

Technical Skills

- MATLAB
- Model-based system engineering (MBSE)
- Cube Satellite exposure
- The ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- The ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental, and social contexts

80%

Of students have
completed internships,
study abroad, or co-ops

494

Undergraduate
2023-2024
enrollment

#8

Aerospace
Undergrad Program
- US News & World
Report

42

Our students pursue
Credits of 300 level
or higher
coursework



BIOMEDICAL ENGINEERING

UNIVERSITY OF MICHIGAN

bme.umich.edu

Why Hire a Michigan Biomedical Engineering Graduate?

- Biomedical Engineers are trained to solve problems in rigorous, quantitative ways
 - **Core Courses:** CAD & Modeling, Statistics, Data Analysis, Computer Programming, Quantitative Cell Biology & Physiology
 - **Elective Courses:** Biofluids, Biosolids, AI/ML, Entrepreneurship, and more
- Focus on experiential learning and design
 - Courses with labs in Circuits, Biomechanics, Biomaterials, and Tissue Engineering
 - Capstone design course on medical device design
- Multidisciplinary by nature and excel at tackling clinical problems in cross-functional teams including engineers, clinicians, and others
- Master's students can pursue MS, MSE and MEng degrees
- Receive advanced training in Medical Product Development, including project management, human factors engineering, NPD processes, quality and risk, telehealth, and cybersecurity

Sample New Grad Job Titles

- Associate Scientist, Biomedical Engineer, Clinical Specialist, Consulting Analyst, Design Engineer, Product Development Engineer, Project Engineer, Quality Engineer, R&D Engineer, Regulatory Affairs Specialist, Technical Solutions Engineer, Orthopedic Designer, Medical Device Engineer

#6 Biomedical Engineering Undergraduate Program

#9 Biomedical Engineering Graduate Program

- US News and World Report

Impact

- Invested in what they design and build, and the impact it will have on patients.
- Leadership in student teams and organizations dedicated to solving problems in world health and improving lives globally.
- The BME student population has achieved gender equity with continual growth in underrepresented minorities.

Passion

- Demonstrated commitment to improving health through People-First Engineering.
- BME students are motivated leaders with a passion to solve challenges in human health care.
- Comfortable in clinical settings and can see the broader picture of healthcare technology.

Why Hire a Chemical Engineering Graduate?

Chemical Engineers can do just about anything, from large scale production and management to microscopic research. They design and manage processes that involve chemically and physically transforming matter to make products environmentally friendly and economically viable. They innovate biotechnology and engineer microorganisms to synthesize new drugs, novel protein therapeutics, biocompatible materials, and whole cell biocatalysts. They develop more sustainable energy resources, solve challenging global problems, and use supercomputers and computational modeling and data science to redefine the frontiers of chemical engineering.

Sample New Grad Job Titles

- Chemical Engineer, Energy & Utilities Consultant, Implementation Analyst, Manufacturing Process Engineer, Operations Management Development Program, Patent Examiner, Production Engineer, Production Scientist, Quality Engineer, R&D Engineer, Technical Sales Engineer, Food Scientist, Semiconductor Developer, Pharmaceutical Engineer

Technical Skills

- **Aspen** – Software allowing for process and plant design and simulation
- **Safety Analysis** – Safety is essential and applicable in any field
- **Economic/Environmental Analysis** – Knowing the overall impact is crucial for development

#11

Chemical Engineering Undergraduate Program*

#10

Chemical Engineering Graduate Program*

**US News and World Report*

Concentrations

Petroleum and
Gas Exploration

Electrical
Engineering

Energy
Systems
Engineering

Environmental
Engineering

Life Sciences

Materials
Science &
Engineering

Mechanical
Engineering

Nuclear
Engineering

Bio-Pharmaceutical
Engineering

M | CIVIL & ENVIRONMENTAL ENGINEERING

cee.engin.umich.edu

Why Hire a Civil Engineering Graduate?

- Coursework builds an especially strong foundation in math and physics, while exposing students to the breadth of areas covered by Civil Engineering
- Our students gain experience in data analytics, sustainable engineering of civil infrastructure, next generation transportation systems, advanced construction techniques, state-of-the-art geotechnical and structural design and technical communications from faculty not only conducting cutting edge research, but also working directly with industry and code committees
- Balance between technical subjects and practical application
- Hands-on experience with open-ended problems through student teams (steel bridge, concrete canoe, seismic design) and their major design experience

Sample New Grad Job Titles

- Bridge Engineer, Civil Engineer, Construction Coordinator, Energy, Sustainability, & Infrastructure Consultant, Field Engineer, Geotechnical Engineer, Project Engineer, Quality Engineer, Renewable Staff Engineer, Structural Engineer, Transportation Engineer, Water Resources Engineer



Focus Areas

Construction
Engineering &
Management

Structural
Engineering

Geotechnical
Engineering

Materials
Engineering

Hydraulics &
Hydrology
Engineering

Environmental
Engineering

Top 10 Civil Engineering Undergraduate Program*

**US News and World Report*

Why Hire a Climate and Space Sciences and Engineering Graduate?

Climate and Space Sciences and Engineering (CLaSP) graduates provide substantive contributions to the wellbeing of society through their ability to:

- Creatively, and collaboratively, develop solutions to interdisciplinary science and engineering problems in climate and space
- Effectively communicate scientific and technical information
- Continue to grow and learn as leaders, educators, researchers, and communicators within academic, government, private and public sectors
- Foster inclusive and multicultural environments, embracing the diversity of experiences and ideas held by others
- Demonstrate high ethical standards

Sample New Grad Job Titles

- Atmospheric Chemist, Atmospheric Scientist, Climatologist, Meteorologist, Planetary Scientist, Risk Management Specialist, Space Engineer

Technical Skills

- MATLAB and Python – for data analysis and visualization
- Numerical modeling – for Earth, space, and environmental prediction
- Instrumentation – for in-situ and remotely sensed data collection

Academic Programs

Climate &
Meteorology BSE

Space Sciences
& Engineering
BSE

Space Engineering
MEng

Applied Climate
MEng

Climate & Space
Sciences &
Engineering MS

Climate & Space
Sciences &
Engineering PhD

Real-World Experience

- *Delegates attend the U.N. Convention on Climate Change*
 - *Applied Climate students engineer climate solutions*
- *Student research published in EOS magazine by the AGU*
 - *Bioastronautics and Life Support System (BLISS) club selected to engineer NASA spaceflight prototypes*

Why Hire a Computer Science and Engineering Graduate?

Our students use their understanding of algorithms, computers, and programming to solve complex problems. They can adapt to the rapidly changing scientific and technological landscape, recognize the implications of their work, and drive the development of future technologies.

Sample New Grad Job Titles

- Application Analyst, Device Engineer, Embedded Systems Engineer, Firmware Engineer, Integrations Engineer, Machine Learning Engineer, Process Engineer, Semiconductor Test Engineer, Silicon Design Engineer, SoC Engineer, Software Developer, Verification Engineer

Academic Concentrations

- Computer Hardware, Computing Infrastructure, Intelligent Systems, Software Development, Web Technology and Applications, Theory of Computation

#7

Institutional Ranking in
Computer Science from
CSrankings.org

9

Major Design
Experiences cap our
curriculum

3,513

Undergraduate students
enrolled as of Fall 2023

609

Graduate students
enrolled as of Fall 2023

Why Hire an Electrical and Computer Engineering Graduate?

Our students acquire diverse skills relevant to all industries through challenging courses and labs. Critical thinking, leadership, teamwork and continuous learning skills are all nurtured and strengthened throughout our programs. Students are prepared to apply their skills to society's challenges.

Sample New Grad Job Titles

- Applications Engineer, Computer Engineer, Controls Engineer, Electrical Engineer, Embedded Software Engineer, Hardware Engineer, Manufacturing Engineer, Product Engineer, RF Engineer, Signal Processing Engineer, SoC Design Engineer, Systems Engineer, Test Engineer

Top 10

Ranking in all
programs

1,500

Students

\$53.7M

Research
Expenditures

92

World-Class
Faculty

PEOPLE POWERING INNOVATION

Broad Specialty Areas

Microelectronics &
Integrated Circuits

Signal & Image
Processing &
Machine Learning

Solid State Devices
& Quantum
Engineering

Control &
Autonomous
Systems

Electromagnetics

Network,
Communication &
Info. Systems

Optics & Photonics

Power and Energy

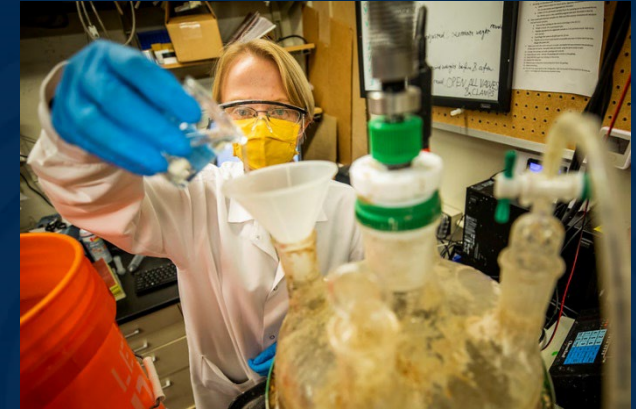
Engineering Education Research

Why Hire an Environmental Engineering Graduate?

- Coursework builds an especially strong foundation in environmental engineering, while exposing students to topics that will allow them to face ongoing challenges associated with global resource limitations and human environmental impacts
- Students gain experience in data analytics, sustainable infrastructure, energy and the environment, health and sustainable water, health and atmospheric environmental processes, environmental design and technical communications from faculty not only conducting cutting edge research, but also working directly with industry
- Balance between technical subjects and practical application
- Case studies supplement traditional materials to provide firsthand knowledge and exposure to the direction of the profession, while engagement with practicing engineers broadens student's experience

Sample New Grad Job Titles

- Students have successfully gone on to careers in engineering consulting, government agencies, and humanitarian organizations
- Energy Analyst, Environmental Designer, Environmental Engineer, Environmental Health & Safety DP Professional, Environmental Scientist, Geotechnical Project Manager, Project Engineer, Staff Engineer, Water Resources Engineer



Focus Areas

Water Quality
and Health

Earth Systems

Environmental
Fluid Dynamics

Environmental
Policy and
Sustainable
Infrastructure

#4 Environmental Engineering Undergraduate Program*

**US News and World Report*

Why Hire an Industrial and Operations Engineering Graduate?

Using data analytics, U-M IOE graduates work to solve operational problems present in nearly all industries including: aerospace, automotive, business consulting, corporate or nonprofit management, finance, healthcare operations, law, and manufacturing.

Their training in BOTH engineering and business fundamentals provides them a large adaptable skill set and equips them with multidisciplinary tools to make a positive societal impact.

Sample New Grad Job Titles

- Consultant, Financial Analyst, Data Analyst, Supply Chain Analyst, Business Analyst, Project Manager, Quality Engineer, Operations Engineer, Industrial Engineer, Ergonomics Engineer, Production Engineer, Manufacturing Engineer

Technical Skills

- **VBA:** Coding language used within MS Excel and other programs
- **SQL:** Standard language for relational database management systems
- **Python:** An interpreted, high-level, general-purpose programming language
- **Promodel:** Modeling software used to plan, design and improve new or existing manufacturing and logistics
- **R:** Programming language for statistical computing and graphics

#2

Industrial Engineering
Graduate Program
U.S. News and World Report

95%

Of our undergraduate
students participated
in an internship or
co-op



Watch our 1-min. video
to see what IOE's do

#5

Industrial Engineering
Undergraduate
Program
U.S. News and World Report

Why Hire an Integrative Systems + Design Graduate?

ISD graduates are masters of integrative thinking; they possess the power to connect things and evaluate problems from multiple viewpoints to find creative solutions through a multidisciplinary and transformative approach. Rather than focusing on a single system or sector, they examine interconnected systems and how these will shift over time, considering the multidirectional interactions of projected changes, responses, and effects. These leaders are poised to transform our world in rapidly evolving industries, such as automotive, manufacturing, and energy systems.

ISD Top-Ranked Degree Programs Overview

Automotive Engineering (MEng)

Within Automotive Engineering, breakthroughs in self-driving cars, hybrid electric vehicles, battery systems, and more will shape transportation, the environment, commerce, and public policy.

Energy Systems Engineering (MEng)

This field focuses in the areas of sustainable energy generation, storage, conversion, alternative and conventional energy technologies, the societal and environmental impact of technology developments, and the economic benefits of those developments.

Manufacturing (MEng and DEng)

The field of Manufacturing is rapidly evolving to shorten the development cycle, reduce the verification testing cost, and increase manufacturing quality and products reliability.

Design Science (MS and PhD)

The field of Design Science integrates the disciplines of engineering, design, psychology, and others to produce a coherent and systematic approach to real-world problem solving.

Global Automotive & Manufacturing Engineering (MEng)

Within the field of GAME, advanced materials and modern lightweight metals and various forms of polymeric composites and their properties and manufacturability are critical to increasing vehicle efficiency and reducing costs.

Systems Engineering + Design (MEng)

The field of Systems Engineering + Design integrates systems thinking and analysis to decrease costs, improve efficiencies, increase flexibility and improve management, quality and controls.

Why Hire a Materials Science Engineering Graduate?

Materials science engineers seek to understand and control the basic structure of materials to make the products of technology stronger, lighter, brighter, safer, faster, and better suited to human needs. They collaborate with other disciplines such as biology, medicine, physics, chemistry and other areas of engineering to carefully design and optimize performance and cost effectiveness of technologies that define modern life.

Advancements in polymers, ceramics, metals and semiconductors have led to innovations in automobiles, satellites, electronics, computers, smartphones, biomedical devices and consumer goods.

Sample New Grad Job Titles

- Associate Material Process Engineer, Materials Engineer, Process Engineer, Product Development Engineer, Project Manager, Quality Supplier Engineer, R&D Engineer, Research Chemist, Rotational Development Program Engineer

Technical Skills

- **Software:** OMSOL, ThermoCalc, MATLAB, C++
- **Lab:** optical microscopy, scanning electron microscopy, Fourier transform infrared spectroscopy, differential scanning calorimetry, X-ray diffraction, texture analysis, tensile testing, hardness testing

Undergrad Focus Areas

- Metallic & Structural Materials
- Polymers & Biomaterials
- Electronic, Nano, and Quantum Materials
- Energy Materials
- Computational Materials

Graduate Research Areas

- Structural Materials
- Organic & Biomaterials
- Electronic Materials
- Inorganic & nanomaterials
- Computational Materials

#4 Materials Engineering Undergraduate Program*
#7 Materials Engineering Graduate Program*

**US News and World Report*

Why Hire a Mechanical Engineering Graduate?

Michigan mechanical engineers don't just react to society's needs. They innovate; they lead. They set the agenda and guide the conversation. Mechanical Engineers make an impact in the world, through an education with a robust curriculum, meaningful research opportunities and rich design experiences. Being in front of leading-edge technologies – including bio- and health systems, emerging manufacturing, energy and environment, and future transportation – has prepared them to shape science and impact society.

Sample New Grad Job Titles

- Applications Engineer, Consultant, Controls Engineer, Design Engineer, Manufacturing Engineer, Mechanical Design Engineer, Mechanical Engineer, Process Engineer, Product Development Engineer, Project Manager, Quality Engineer, Systems Engineer

Technical Skills

- Solidworks, MATLAB, Arduino, Simulink, MSC Adams, Labview, equipment such as mill, lathe, drill press, laser cutter, and 3D printer

Academic Areas

Energy

Manufacturing

Dynamics,
Systems, and
Controls

Design

Materials
and Solid
Mechanics

Thermal and
Fluid sciences

#8 Mechanical Engineering Undergraduate Program
#5 Mechanical Engineering Graduate Program

- US News and World Report

M | NAVAL ARCHITECTURE & MARINE ENGINEERING

name.engin.umich.edu

Why Hire a Naval Architecture & Marine Engineering (NAME) Graduate?

Naval architects and marine engineers are prepared to lead. Michigan NAME sets the global standard for design and research in every endeavor that touches water.

Our system-oriented curriculum and training provide our students with broad engineering and leadership skills, not only making them sought-after by ship design and marine engineering companies, but also preparing them for careers in other industries such as automotive, aerospace, and energy.

Sample New Grad Job Titles

- Analyst, Associate Engineer, Consultant, Design Engineer, Ensign, Entry Level Engineer, Jr. Naval Architect, Marine Engineer, Naval Architect, Project Engineer, Rotational Engineer

Research Areas

- Hydrodynamics; Marine and Offshore Structures; Dynamics, Control and Marine System Integration; Robotics and Autonomy; Yacht Design; Design, Production, and Management; Marine Renewable Energy; and Structural and Hydro-acoustics

#1

NAME Program in
the United States

*According to Universities.com

1879

Program Created

52

Undergraduate
students enrolled as
of Fall 2023

69

Graduate
students enrolled as
of Fall 2023

Why Hire a Nuclear Engineering and Radiological Sciences Graduate?

Our top-ranked program provides students with the technical and communication skills demanded by industrial, medical, security, energy, and environmental applications. Many of our students work closely with faculty on innovative research projects and some have co-authored papers published in scientific journals. Our students work side by side with faculty at the leading edge of their nuclear science and engineering disciplines with active collaborations worldwide.

Sample New Grad Job Titles

- Nuclear Design Engineer, Nuclear Engineer, Nuclear Operations Planner, Quantitative Researcher, Reactor Systems Engineer, Research Scientist, Transient Analysis Engineer, Stability and Radiological Analysis Engineer, Medical Physics Assistant, Health Physicist, Computational Nuclear Engineer

Technical Skills

- Computational Modeling & Simulation, Scientific Programming, Nuclear Safety Analysis, Mathematical & Statistical Modeling, Data Analysis

Optional Focus Areas

Plasma/Fusion

Fission

Materials

Measurements-
Detection

Measurements-
Health/Medical

Policy/Climate

#1 Nuclear Engineering Department*

**US News and World Report*

Why Hire a Robotics Graduate?

Robotics students are experts at systems that sense their environment, reason the best way to accomplish a task, and act safely to do so, while interacting positively with humans around them. Our students have experience in both hardware and software, enabling them to develop comprehensive solutions. Our students are passionate about improving lives through robotics, and realizing a world where robotics is a force-multiplier for good.

Sample New Grad Job Titles

- ADAS Engineer, Algorithm Developer, Application Engineer, AV Mapping & Localization Engineer, Mechatronics Engineer, Motion Controls Engineer, Perception Engineer, Research Engineer, Robotics and AI Engineer, Robotics Engineer, Software Engineer, Systems Engineer

Technical Skills

- Design & build including modeling, additive & subtractive manufacturing
- Programming to train AI, robot perception, training, planning, vision
- Design and print circuits, soldering, testing components & sensors
- Model and implement algorithms that control complex systems
- Define usability and system design that meets human needs

1st Top-10 Department to offer Robotics BSE

Robotics Pathways

Computing & Autonomy

Hardware & Mechanisms

Human-robot Interaction

Perception & Robot learning

2014

Graduate Program Started

2022

Undergraduate Program Started