MICHIGAN STATE UNIVERSITY
COLLEGE OF ENGINEERING

FUTURE ENGINEERS
PREVIEW DAY 2021
DEAR STUDENTS AND PARENTS:

On behalf of our faculty, staff, and students, we welcome you to the MSU College of Engineering. We hope your visit will find you agreeing that Spartan Engineers are “built better.”

To prepare our students for a global and rapidly changing workplace, we provide degree programs that emphasize qualities sought by employers and graduate schools:

- A solid technical foundation through classroom education
- Experience-based learning through co-ops, internships, and undergraduate research
- A global perspective through study abroad
- Communication, teamwork and hands-on design skills cultivated from the very beginning through the academic programs, professional development, and personal connections of the first-year engineering CoRe Experience.
- A grounding in social understanding through involvement in the CoRe community, that includes service learning and community outreach opportunities.

More than 1,500 first-year engineering students are part of MSU’s CoRe Experience. CoRe immerses you in a living-learning environment where you will work in teams with other engineering students, get exposed to engineering careers, and network with professional engineers and employers.

CoRe classes let you dive into engineering design through hands-on projects developing creative solutions to real-world challenges. You have access to engineering-dedicated computer and design labs, and a whole network of support, including tutors, advisers, peer mentors, faculty and staff members dedicated to your success.

CoRe helps you build life-enriching connections with fellow students, faculty members, advisers, and industry representatives through social programs and activities that help build the whole engineer.

We hope you enjoy your day interacting with our faculty, staff and students. We invite you to return for a family visit to learn even more about opportunities in the MSU College of Engineering.

Go Green!

Leo Kempel
Dean
College of Engineering

Drew Kim
Assistant to the Dean
Recruitment, Scholarships, & K-12 Outreach

WELCOME FUTURE ENGINEERS TO PREVIEW DAY 2021

We are excited to host you in the College of Engineering to show you what Michigan State University has to offer. Preview Day is designed to help you explore your engineering degree options and learn about the programs available at MSU.

Today’s event will be conference style. Most sessions will be offered twice, so you have an opportunity to visit the programs in which you are most interested. Please read through the descriptions on the following pages and choose the sessions you would like to attend. If the session you choose first is full, move to your next choice, then come back for the second session. Each session will last 50 minutes.

A resource fair will follow the sessions, providing information on admissions, financial aid, and a number of other campus resources. You will also have opportunities to speak with representatives from each academic unit within the College of Engineering.

Tours of the MSU CoRe Experience, the Mechanical Engineering Manufacturing Teaching Lab, CAD/CAM, and Design Project Labs will also be offered. Check the program for meeting locations.

SCHEDULE OVERVIEW

October 9, 2021 • 8:30 AM - 1:00 PM

8:30 AM .................................................................................................................. Arrival

9:00 - 9:20 AM ................................................................................ Welcome Session 1281 Anthony Hall

CHOOSE ONE PROGRAM TO ATTEND IN EACH SESSION

9:30 - 10:20 AM ................................................................. Session 1

10:30 - 11:20 AM ........................................................................ Session 2

11:30 AM - 1:00 PM ....................................................... Mechanical Engineering Tour ME Manufacturing Teaching Lab CAD/CAM & Design Projects Labs

11:30 AM - 1:00 PM ....................................................... Resource Fair
The Resource Fair will take place in the Courtyard, following the morning sessions. Representatives from campus resources will be available to answer your questions and discuss their programs and services. Be sure to stop by and visit with them!

**Representatives will be available from:**
- Engineering Academic Advisers
- Admissions
  - Incoming Freshmen
  - Transfer Students
- Campus Living Services/Residence Life (On-Campus Housing)
- CANVAS (Connected and Autonomous Networked Vehicles for Active Safety)
- Corporate Partner (Employers)
- Borg Warner
- Diversity Programs Office (DPO)
- Division of Engineering Computing Services (DECS)
- First Year Engineering CoRe Experience
- Honors College
- Office of Financial Aid
- Student Organizations
- VEX & VEX IQ Robotics
- Women in Engineering (WIE) Program
- AFROTC
- RCAH

**MECHANICAL ENGINEERING LAB TOURS**

Tours of the Mechanical Engineering Manufacturing Teaching Lab, CAD/CAM and Design Project Labs will be available after the second session. Presentations will begin every half hour (11:30 a.m., noon and 12:30 p.m.)

**ME Design & Explore Computer Aided Design Technology (CAD)**

1307 Engineering Building

As a future engineer, you will learn how to design, model and build complex mechanical components and structures using CAD software. Stop in to see the latest technology in advanced manufacturing and 3D printing, and learn how to you can be part of the excitement!

**Manufacturing Teaching Lab & Computer Aided Manufacturing (CAM)**

1240 & 1252 Engineering (Please note: closed-toe shoes are required.)

Design, Build, and Test are at the heart of mechanical engineering. Check out our state-of-the-art teaching lab and tools available for the use of students, faculty, and staff. You may also watch a live presentation of the Computer Numerical Control (CNC) machine, operated through a computer interface.

**WALKING TOURS- FIRST-YEAR ENGINEERING CORNERSTONE/RESIDENTIAL EXPERIENCE (CORE)**

Walking tours of the CoRe Experience in South Neighborhood start every 15 minutes beginning at 11:30 a.m. Meet in the Engineering Courtyard exit near Wilson Rd.

Take a tour of the South Neighborhood, home of the CoRe Experience! You will visit engineering spaces, neighborhood resources, and a residential room all while you learn the history of MSU.

CoRe will also be represented at the Resource Fair with information on the learning objectives and activities associated with academic and co-curricular programs taking place in South Neighborhood.

Due to Covid19 restrictions, you will be required to wear a mask throughout the tour.
**SESSION DESCRIPTIONS**

**APPLIED ENGINEERING SCIENCES (AES)**
1230 Engineering - Session 1 & 2 (9:30 & 10:30 a.m.)

The Applied Engineering Sciences major is a unique interdisciplinary major that combines three academic components: 1) the foundation of traditional engineering programs (calculus, physics, chemistry, computing, and engineering science courses such as statics, thermodynamics and circuits), 2) systems-based coursework in the major, and 3) coursework in a concentration area outside the College of Engineering. Available concentrations are Supply Chain Management, Technical Sales, Packaging, Business Law, Computer Science, and Business Analytics with a Data Science minor. In this session, you have the opportunity to meet our faculty and students, and learn about opportunities in AES.

**BIOSYSTEMS ENGINEERING (BAE)**
116 Farrall Hall - Session 1 & 2 (9:30 & 10:30 a.m.)

Biosystems engineers integrate engineering and biology to improve our world. Biosystems engineers protect our natural environment as ecosystem engineers, protect human health as food engineers and biomedical engineers, and promote sustainable energy as bioenergy engineers. In this three-part session, you will: (1) visit with current students about undergraduate research; (2) participate in a panel of biosystems engineering faculty and students, learn about the curriculum, internships, design projects, and careers; and (3) tour laboratories in the areas of biosensors, food safety, ecosystems engineering, and bioenergy.

**CHEMICAL ENGINEERING & MATERIALS SCIENCE (CHEMS)**
1145 Engineering - Session 1 & 2 (9:30 & 10:30 a.m.)

The Department of Chemical Engineering and Materials Science (CHEMS) combines two exciting engineering disciplines in one department! Chemical Engineering explores the processing of materials and the production or utilization of energy through chemical reactions. Materials Science and Engineering studies material properties, and applies fundamental knowledge of physics and chemistry to developing new materials for applications ranging from energy and transportation to communications and medicine. Chemical engineers and materials scientists are employed in wide areas of industry, government, and academia. Come get introduced to CHEMS, and ask faculty members and current undergraduate students about our two programs. Presentations will focus on the curricula and opportunities for our students and graduates. Remember, everything is made of something!

**CIVIL AND ENVIRONMENTAL ENGINEERING (CEE)**
2243 Engineering - Session 1 & 2 (9:30 & 10:30 a.m.)

Civil and environmental engineers are responsible for designing, constructing, and maintaining the infrastructure that support our lives. This infrastructure includes roads and bridges on which we drive, buildings in which we live and work, water treatment plants that ensure we have safe drinking water, and wastewater treatment plants that protect our streams, lakes, and rivers. In this session you will learn about the undergraduate curriculum along with research, extracurricular activities, and internship opportunities supported by the department. The Department of Civil and Environmental Engineering invites you to visit with students and faculty from the department.

Steel bridge and concrete canoe displays will be set up in the 1200 Engineering Hall wing.

**COMPUTER SCIENCE & ENGINEERING (CSE)**
1279 Anthony Hall - Session 1 & 2 (9:30 & 10:30 a.m.)

Computers and computing touch nearly every aspect of our lives, and their impact will only continue to grow. Computer scientists face diverse challenges to create technological advances and solutions to society’s critical problems. Computer Science graduates are employed in essentially all areas of industry, government, and education. The Department of Computer Science and Engineering invites you to visit with students and faculty from the department. Come hear about the exciting opportunities in computer science and engineering! You will also tour the state-of-the-art labs within the department.

**ELECTRICAL AND COMPUTER ENGINEERING (ECE)**
2250 Engineering - Session 1 & 2 (9:30 & 10:30 a.m.)

Electrical and computer engineers are game changers at the core of the rapidly evolving technologies that save lives, preserve our environment, increase our safety, provide wireless connectivity, and entertain. Electrical engineers apply the physics of electric and magnetic phenomena to develop innovative solutions for medical, transportation, defense, mobility, electronics, and communications industries. Computer engineers develop new computer technologies - both hardware and software - that are vital to the success of many industries. In addition, ECEs have revolutionized society via the creation of companies such as Amazon, Uber, and Bose. Come learn about the undergraduate curriculum, cutting-edge research activities, capstone design projects, entrepreneurship, and other opportunities in the ECE department.

**MECHANICAL ENGINEERING (ME)**
1345 Engineering Auditorium - Session 1 & 2 (9:30 & 10:30 a.m.)

Mechanical engineers design, build, analyze, and test devices ranging from the largest power plants to the micro-electronic accelerometers in video-game controllers. Graduates are employed in fields such as aerospace, automotive, biomedical, electronics, energy generation, manufacturing, naval architecture, refrigeration, and robotics. ME at MSU emphasizes development of an outstanding technical foundation, an understanding of the global impact of engineering, and the tools for lifelong learning. The senior year culminates with an industry-sponsored, team-oriented design project synthesizing much of what has been learned throughout the undergraduate experience. Come hear about ME at MSU from professors and students, and learn how you can tailor your program with options in biomedical engineering, engineering mechanics, manufacturing, and global engineering.

**EXPLORATORY ENGINEERING**
2400 Engineering - Session 1 & 2 (9:30 & 10:30 a.m.)

This information session is designed for students interested in learning about the engineering profession who have not yet decided upon a major. It will provide an overview of the 11 engineering degree programs offered at MSU and how MSU prepares its graduates to be competitive in the global marketplace. Learn how Spartan Engineers are built better!

**FIRST-YEAR ENGINEERING CoRe EXPERIENCE (CoRe)**
1202 Engineering - Session 1 & 2 (9:30 & 10:20 a.m.)

Join us for an introduction of CoRe. In this session you will meet with CoRe staff, the MSU Police Department, Residence Education and Housing Service staff, the South Neighborhood Student Success Collaborative Team and undergraduate engineering CoRe students who will demonstrate the importance of community and the impact of CoRe on your academic, social and professional success.

Along with community and corporate partners, we bring real-world expertise and challenges into the classroom and residential environment, reinforcing the relevance of studies in engineering to solving global challenges. The mission of CoRe is to provide early-engineering students with unmatched learning opportunities within a supportive community that encourages academic, professional, and personal achievement; foster life-enriching connections between students and their peers, faculty members, advisors and corporate representatives; cultivate students’ skills that encourage lifelong learning and demonstrate to students the critical roles of engineers in contributing to society.

**TRANSFER STUDENTS**
1234 Engineering - ONLY AVAILABLE FOR SESSION 2 (10:30 a.m.)

Learn what it takes to transfer from another institution into Michigan State University and the College of Engineering.
OVERVIEW:
Engineering Building • Anthony Hall • Farrall Hall

ANTHONY HALL:
WELCOME SESSION: 9 a.m. Room 1281
COMPUTER SCIENCE & ENGINEERING SESSIONS: 9:30 & 10:30 a.m. Room 1279

FARRALL HALL:
BIOSYSTEMS ENGINEERING SESSIONS:
9:30 & 10:30 a.m. Room 116

Welcome Session
1281 Anthony Hall

Room 116: Biosystems Engineering
Session 1 - 9:30 a.m.
Session 2 - 10:30 a.m.
= BAE Session

Room 1279: Computer Science and Engineering
Session 1 - 9:30 a.m.
Session 2 - 10:30 a.m.

Room 1281: Welcome Session 9 a.m.

= Welcome Session
= Resource Fair
= CSE Sessions
ENGINEERING BUILDING - FIRST FLOOR:

VARIOUS DEPARTMENT SESSIONS: 9:30 & 10:30 a.m.
RESOURCE FAIR: 11:30 a.m. - 1:00 p.m.
LAB TOURS: 11:30 a.m., noon & 12:30 p.m.
CoRe EXPERIENCE TOURS: 11:30 a.m. - 1:00 p.m.

EGR Lobby- CoRe tour starts at Tent #15 beginning at 11:30 a.m. every 15 minutes

Resource Fair (Courtyard - key below)
ENGINEERING BUILDING - SECOND FLOOR:

VARIOUS DEPARTMENT SESSIONS: 9:30 & 10:30 a.m.

- CEE: Civil and Environmental Engineering (2243 Engineering)
- ECE: Electrical and Computer Engineering (2250 Engineering)
- Exploratory Engineering (2400 Engineering)
SUMMER CAMPS 2022

HIGH SCHOOL ENGINEERING INSTITUTE
Explore different engineering fields

WHO
High school women and men grade 10 - recent graduates in Fall 2022

WHEN
Residential program. Session 1: June 26-30; Session 2: July 10-14, 2022

MAKING A GAME OF IT
Learn programming skills, including building video games

WHO
High school women and men grade 11 - recent graduates in Fall 2022

WHEN
Residential program. July 10-15, 2022

SPARTAN LEGO® ROBOTICS
Build robots and compete in robot competitions

WHO
Girls and boys entering grades 3-6 in fall 2022

WHEN
Commuter program. Session 1: June 20-24; Session 2: June 27-July 1, 2022

FALL 2021 & SPRING 2022 EVENTS

SPARTAN ENGINEERING PREVIEW DAY

WHO
High school juniors, seniors, transfer/prospective students, and their families; school groups and teachers

WHEN
Fall 2021
Visit www.egr.msu.edu/future-engineer for updates

DESIGN DAY TEACHERS WORKSHOP

WHO
Teachers of middle and high school science, technology, engineering and math (STEM) courses.

WHEN
April 29, 2022

VEX ROBOTICS STATE CHAMPIONSHIP AT MSU

WHO
High School VEX Robotics Teams

WHEN
February 2022

SPARTAN INNOVATION & CREATIVITY DAY @ DESIGN DAY

WHO
Middle & high school students and special sessions for teachers (see Design Day Teachers’ Workshop information)

WHEN
April 29, 2022

CHECK OUR WEBSITE FOR UPDATES & FUTURE CAMPS!
LEARN MORE AND REGISTER AT: www.egr.msu.edu/future-engineer