



College of Engineering

Wayne State University College of Engineering

Welcomes:
C2 Pipeline Students from
South Lake HS





College of Engineering



Go Cavs!!!!!!





College of Engineering

Welcome to the Wayne State University College of Engineering

With its nationally accredited programs and its industrial ties generating jobs for its graduates, the College of Engineering offers students opportunities for:

- Experiential learning through internships and co-ops
- Hands-on practical experience
- Community Engagement
- International study
- Undergraduate research, alongside world-renowned researchers





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WSU Overview

▣ **WSU Established in 1868**

- Wayne State is among the nation's prestigious 2.3 percent of universities with Carnegie classification of R1 (Research Universities, Highest research activity)
- Total student population of 27,222 (Fall 2015)
- One of the nation's 50 largest public universities
- 370 undergraduate and graduate programs
- Michigan's only urban research university
- University Research Corridor partnership with U of M and MSU

▣ **College of Engineering established in 1933**

- 2208 Undergraduate Students
- 1593 Graduate Students
- Two Engineering Divisions (Engineering, Engineering Technology)
- One of 45 PACE partner universities worldwide
 - ▣ \$400 million grant for software, technology, allows for collaborative partnerships with other PACE institutions



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Engineering Programs

▣ **Division of Engineering**

- Alternative Energy Technology
- Biomedical Engineering
- Chemical Engineering and Materials Science
- Civil and Environmental Engineering
- Computer Science (B.S. Program)
- Electrical and Computer Engineering
- Industrial and Systems Engineering
- Mechanical Engineering

▣ **Division of Engineering Technology**

- Electrical/Electronic Engineering Technology
- Mechanical Engineering Technology
- Manufacturing and Industrial Engineering Technology
- Computer Technology
- Electromechanical Engineering Technology
- Construction Mgmt (w/Macomb Community College)
- Electric-drive Vehicle Engineering



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Engineering Levels

- ▣ **Engineering EOS Program**
 - Designed for students interested in engineering who may not have the math and science background necessary to enter the traditional first-year program. Required for all students who:
 - ▣ Place into MAT 1050
- ▣ **Pre-Professional Programs**
 - First three semesters of the traditional engineering curriculum
 - Completion of core math/science subjects, core engineering courses, and introduction courses required for major (2000 level)
- ▣ **Professional Programs**
 - Last step toward the BS degree in engineering
 - Completion of foundation subjects, core engineering courses, and major requirements (3000 level +)
- ▣ **Graduate Level**
 - MS and PhD programs



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Other Degree Requirements

General Education:

- University requirements
- Engineering has some specific classes that can be selected for general education courses
 - ECO 2010 or ECO 2020 (SS)
 - PHI 1120 – Professional Ethics (PL)
 - ENG 3050 (IC) and ENG 3060-Technical Communications (OC)
 - BIO 1510 (LS)
- No foreign language requirement for engineers





Engineering Staff

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Scholarships and Financial Aid

- ▣ **Federal / State**
 - Based on income, achievement
 - Grants / loans
 - FAFSA New Date
- ▣ **University-wide**
 - Presidential scholarships
 - Transfer scholarships
- ▣ **College of Engineering**
 - Winter Scholarship Period
- ▣ **Departmental**
 - GTA / GRA assistantships
 - Undergraduate research opportunities

Internships / Co-Ops



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Student Organizations



To promote and enhance the technical competency and professional well being of our members, and through quality programs and activities in mechanical engineering.



The Wayne State University SHPE chapter was established in 1997



The Society of Women Engineers supports and encourages women in pursuit of their engineering degree.



The mission of the Michigan Epsilon Chapter of The Tau Beta Pi Association is to honor both students and professionals, in the field of engineering, who demonstrate distinguished scholarship and exemplary character.



The WSU IEEE Student Branch strives to enhance the student's academic goals in the field of electrical and computer engineering



Joining the ASCE student chapter will allow you to meet fellow civil students and faculty members, and to network with those in Industry



Student Design Competitions

College of Engineering



HACKWSU
Design. Create. Innovate.



Formula SAE Team

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Formula SAE is a team effort to build small formula-style racing cars, test, race and compete in the Formula Series with other universities participating from all over the world. The ingenuity lies in keeping costs low while engineering a vehicle with high performance, good maneuverability and comfort handling.

Our mission:

- Design, build, test, and race the WSU Formula SAE car at the competition.
- Compete with other schools and gain exposure for the Wayne State College of Engineering.
- Apply and expand knowledge gained in the classroom.
- Start an annual engineering project, which brings invaluable experience to students.





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Civil and Environmental Engineering Research Interests

- ▣ Transportation safety / Work zone safety
- ▣ Motorcycle safety
- ▣ Gateway Project – bridge crossing
- ▣ Great Lakes freshwater resources
- ▣ River scour and bridge stability
- ▣ Bendable concrete
- ▣ OSHA: Investigation of construction accidents involving heavy equipment
- ▣ Impact of contaminants on Urban Gardens



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Civil Engineering students on site at the MDOT Gateway Project



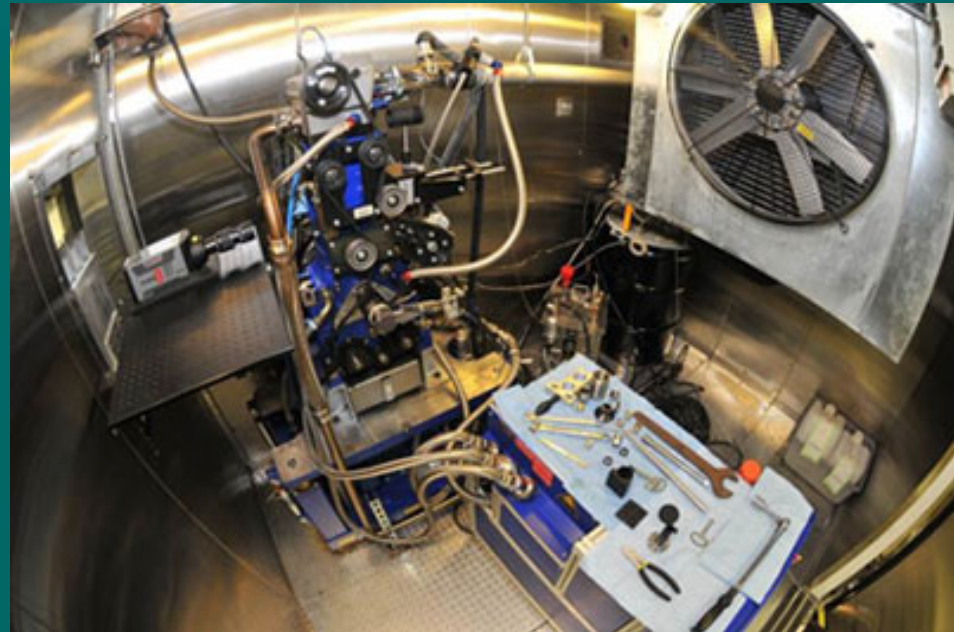


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Mechanical Engineering Automotive Research Center

The Automotive Research Center coordinates research programs in automotive-related areas including:

- Engines
- Combustion
- Friction wear
- Noise and vibration controls
- Hybrid electric cars
- Alternative fuels
- Electronic controls
- Auto bodies
- Exhaust emissions



State-of-the-art facilities feature a walk-in cold room and laser-based instrumentation.



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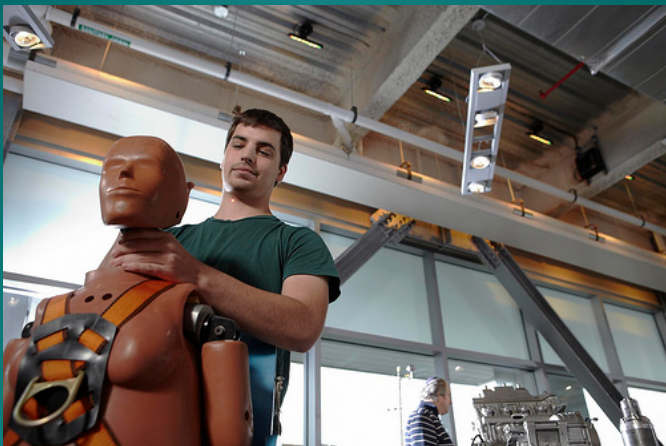
Biomedical Engineering Bioengineering Research Center



Impact dynamics

- Motor vehicle accidents
- Athletics
- Military applications
- Injury prevention

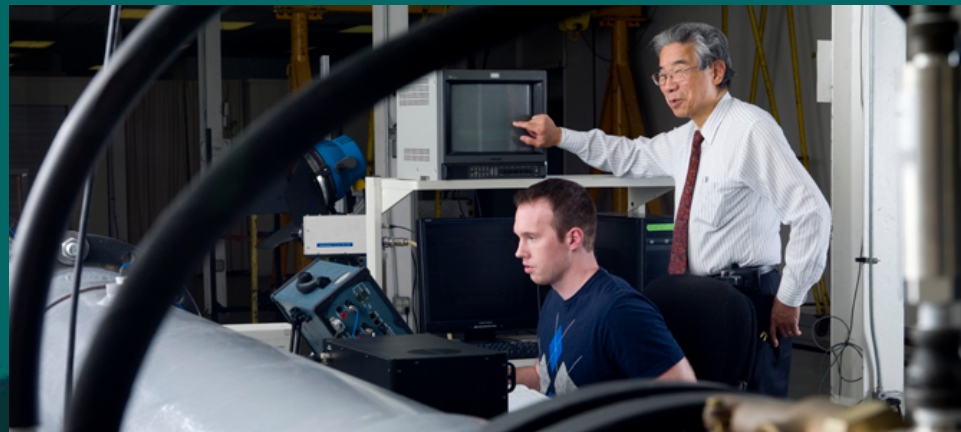
**WSU work has pioneered
advancements in football and
racing helmets and devices**





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Biomedical Engineering





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Electrical and Computer Engineering Smart Sensors and Integrated Microsystems

- Interdisciplinary approach to tackling problems
- Partnerships with various engineering departments, WSU Medical School
- Neural implants
- Robotic surgery
- Biological and chemical sensors





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Chemical Engineering

Dr. Matthew's Tissue Engineering lab:

Howard Matthew, professor of chemical engineering and materials science, and his students are fabricating prototype heart valves out of a substance derived from crab shells. The project is a collaboration with Children's Hospital of Michigan. The goal is to develop living, replacement valves for children born with defective heart valves. This will improve the quality of life for patients by eliminating the current need for several heart surgeries.





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Chemical Engineering and Materials Science Career Paths

- ▣ Agricultural chemicals
- ▣ Catalysts
- ▣ Chemical development
- ▣ Industrial gases
- ▣ Paints, varnishes, lacquers, pigments, and inks
- ▣ Petrochemicals and petroleum products
- ▣ Pollution control, prevention and remediation
- ▣ Plastics, synthetic resins, polymers and composites
- ▣ Pulp and paper
- ▣ Rubber and rubber products
- ▣ Soaps, detergents, perfumes, fats, oils, and cosmetics
- ▣ Synthetic fibers, textiles, and films
- ▣ Biotechnology
- ▣ Expertise applied in law, education, publishing, finance, medicine



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Industrial and Systems Engineering

- ▣ Enabling complex systems to function effectively
- ▣ Focus on bridging the gap between management and operations in a cross-section of organizations and professional fields.
- ▣ Production engineer, quality engineer, management engineer, productivity manager and process engineer
- ▣ Focus on health care



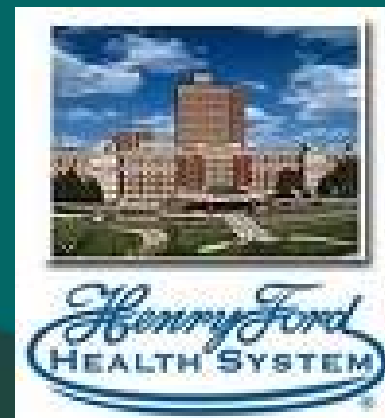


Industrial Engineers: Where do IE's work and lead?

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DAIMLERCHRYSLER





Computer Science

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- Big Data
 - Health Care
 - Automotive applications
 - Mining Twitter data
- Game Design
- Data/Cyber security
- Software Engineering
- App development



HACK!

WAYNE STATE

HACKATHON

More Info & Sign Up: www.hackwsu.com

Break-out Sessions Product Demos Amazing Swag Big Prizes Delicious Food

May 23rd -24th, 2015
@ WSU Engineering Center
5050 Anthony Wayne Dr. Detroit, MI 48202

Create something useful, original, and most of all, cool.

Blackstone LaunchPad
Wayne State University

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BIZDOM
JOIN THE FAMILY OF COMPANIES

GRAND CIRCUS
CITY OF DETROIT

New Horizons
Computer Learning Centers



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College with Casey

- ▣ **Focus on math, science, technical courses**
- ▣ **Finish Strong – NO SENIORITIS!!!**
- ▣ **Take advantage of dual enrollment, AP/IB options**
 - Take the AP Exams!
- ▣ **Key components to college success**
 - Strong grades
 - Participation in student organizations/clubs
 - Solid work experience (research/internships/co-ops)



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Contact information

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Questions?

