“Scientists discover the world that exists; engineers create the world that never was.”

Theodore von Karman

"Engineering is a great profession. There is the fascination of watching a figment of the imagination emerge through the aid of science to a plan on paper. Then it moves to realization in stone or metal or energy. Then it brings homes to men or women. Then it elevates the standard of living and adds to the comforts of life. This is the engineer's high privilege."

Herbert Clark Hoover
Mechanical Engineering at WPI

John M. Sullivan, Jr.
Interim Department Head
Mechanical Engineering
Director, Center for Comparative NeuroImaging

http://www.wpi.edu/~sullivan  http://www.me.wpi.edu/
Outline

■ What is Mechanical Engineering?
■ Mechanical Engineering at WPI.
■ Sample Course Schedules.
■ Question and Answer Session.
Mechanical Engineering is the broadest and largest engineering discipline.
Mechanical Engineering deals with:

- Power, engines, material processing, manufacturing
- Design and analysis of structures and mechanical systems, flow of fluids, heat transfer
- Machine design, product design, systems design
- Lots of interaction with other disciplines:
  - Mechatronics involves electrical and mechanical
  - Robotics involves mechanical, electronic, computers
  - Biomechanical engineering melds engineering and biology
You cannot get through the day without interacting with things that were designed, analyzed, or manufactured by, or under the supervision of, mechanical engineers.
Mechanical Engineering at WPI
Mechanical Engineering at WPI
Statistics

WPI was established in 1868.

31 Full-time faculty plus several adjunct faculty in ME
692 Undergraduate students in Mechanical Engineering (in 4 yrs)
175 Graduate students (full and part-time)

Undergraduate Degrees awarded in
  Mechanical Engineering
  Aerospace Engineering
  Robotics Engineering

Within Mechanical Engineering Degree can Concentrate in:
  Aerospace, Biomechanical, Design, Manufacturing, Material Science, Mechanics, Thermo-fluids
Need 45 courses minimum to graduate from WPI. What does this entail?

- (6) – Humanities Component (All majors)
- (2) – Social Science Courses (All majors)
- (3) – Interactive Qualifying Project (IQP) (All majors)
- (3) – Major Qualifying Project (MQP) (All majors)
- (1) – Physical Education (All majors)
- (12) – Math and Science Component (Required)
- (9) – Required ME Core Component (Required)
- (6) – Your Choice of ME Courses (Elective)
- (3) – Free Electives (Elective)
(6) – Humanities Component (All majors)

- **http://www.wpi.edu/academics/Depts/HUA/Requirements/index.html**

- Breadth = select one course from 2 of the 3 intellectual clusters:
  - art/art history, drama/theatre, and music (AR, MU, TH);
  - languages, literature, and writing/rhetoric (EN, WR, RH, SP, GN);
  - history, philosophy and religion (HI, HU, PY, RE).

- Depth = three courses in an area of focus that includes an inquiry seminar.

- Inquiry Seminar = culmination of the H&A Requirement.
  - The Seminar explores a particular topic or theme in the humanities in greater depth. The Seminar has two primary goals: A) Foster independence of student thought, and B) Encourage a cooperative, dialogic approach to inquiry.
  - Setting is a small, intensive classroom setting (12 students or less).

- **http://www.wpi.edu/Images/CMS/HUA/Humanities_and_Arts_Requirement_Worksheet_revised_8-23-2010.pdf**
(6) – Humanities Component  

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(2) – Social Science Courses  

- Social science is the scientific study of human thought and behavior, interpersonal relationships, and the institutional structure and functioning of human society.
- System Dynamics, Economics, Sociology, Psychology, and Political Science
- IQPs abroad requires ID/SS 2050. Social Science Research for the IQP.
## Mechanical Engineering at WPI

### Flexible Curriculum

- **(6) – Humanities Component** (All majors)
- **(2) – Social Science Courses** (All majors)
- **(3) – Interactive Qualifying Project (IQP)** (All majors)

### Humanities Component

More than 60% of students do an IQP off campus (term abroad). Excellent opportunity to experience a different culture. It requires a course to expose you to the culture and/or social norms expected of the site. This also satisfies a SS requirement.

### Social Science Courses

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**Flexible Curriculum**

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- **(12)** – Math and Science Component  
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Five-year BS/MS program

- A MS in Mechanical Engineering requires 30 credits
- The BS/MS allows 12 credits to count in both degrees
- The WPI undergraduate degree requires 45 courses or 135 credits, yet 144 credits are within the 4 years
- Using only the 12 credits double counted, a MS degree can be completed in the 5th year.
- Alternately, using the additional 9 credits within the 4 year UG schedule, a MS can be completed in 1 subsequent semester.
Questions?