What do Engineers and Computer Scientists do?

Apply mathematics and science

To solve practical problems

For the benefit of society.
<table>
<thead>
<tr>
<th>Field</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical &amp; Biological</td>
<td>Biological Engineering, Chemical Engineering</td>
</tr>
<tr>
<td>Civil</td>
<td>Civil Engineering, Civil Engineering – BioResources Option, Construction Engineering Technology</td>
</tr>
<tr>
<td>Computer Science</td>
<td>Computer Science</td>
</tr>
<tr>
<td>Electrical &amp; Computer</td>
<td>Computer Engineering, Electrical Engineering</td>
</tr>
<tr>
<td>Mechanical &amp; Industrial</td>
<td>Industrial and Management Systems Engineering, Financial Engineering, Mechanical Engineering, Mechanical Engineering Technology</td>
</tr>
</tbody>
</table>
As a Chemical and/or Biological engineer, you would use chemical and/or biological processes to find creative ways to produce goods.

You might:

- Environmentally-friendly cleaning products
- Chemotherapy with fewer side effects
- Turn seawater into drinking water
- Mass produce vaccines to avert epidemics
- Develop Biofuels
- Develop incubators for premature babies
- Many more!
As a civil engineer you will be challenged to fulfill society’s infrastructure needs while preserving the environment and protecting natural resources.

You might:
- Design systems to conserve water
- Remove bacteria & poisons found in well water in developing countries
- Design waste water systems
- Design earthquake-safe buildings
- Build better airport runways
- Design skyscraper structures
- Build shelters for disaster victims
- And so much more!
As an Electrical and/or Computer Engineer, you know the “body” and “mind” of electrical and/or computer systems. You might use this to improve existing equipment or design new and efficient devices.

You might:
• Work with embedded systems
• Develop machine intelligence
• Build networks to transfer data
• Develop ways to make computers faster, smaller, and more capable.
As a **Computer Scientist** you will enter a diverse field of study as a creative problem solver, working with people and computers to help invent the future. The past few decades our world has been transformed and there is more to come!

You might:

- Help design artificial intelligence systems
- Design programs
- Operate computers
- Design video games
- Develop the Web
As a **Mechanical Engineer** you will work in nearly every area of technology. Often referred to as the general practitioners of the engineering profession. 

You might:

- Design “smart” toys for kids
- Develop more fuel efficient cars
- Create prosthetic limbs
- Develop just about anything that involves a mechanical process
As an industrial & management systems engineer, you will make things better and help people.

As an financial engineer, you will work at the intersection of business, economics, and engineering.
International Course Requirements

Choose a country or region of the world as a focus. 15 credits of relevant coursework must be earned.

International Experience Requirement

A study, work or service experience in the relevant country or region.
# Order the following Engineering/Computer Science areas of study from 5-1.

<table>
<thead>
<tr>
<th>Order 5-1</th>
<th>Department</th>
<th>Advising Contacts</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>_______</td>
<td>Chemical &amp; Biological Engineering</td>
<td>Shelley Thomas</td>
<td>Cobleigh 306</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jeff Heys</td>
<td></td>
</tr>
<tr>
<td>_______</td>
<td>Civil Engineering</td>
<td>Reneé Hecox</td>
<td>Cobleigh 205</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jerry Stephens</td>
<td></td>
</tr>
<tr>
<td>_______</td>
<td>Gianforte School of Computing</td>
<td>Sharlyn Izurieta</td>
<td>EPS 357</td>
</tr>
<tr>
<td></td>
<td></td>
<td>John Paxton</td>
<td></td>
</tr>
<tr>
<td>_______</td>
<td>Electrical &amp; Computer Engineering</td>
<td>Liz Welsh</td>
<td>Cobleigh 610</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rob Maher</td>
<td></td>
</tr>
<tr>
<td>_______</td>
<td>Mechanical &amp; Industrial Engineering</td>
<td>Laura Andersen</td>
<td>Roberts 220</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dan Miller</td>
<td></td>
</tr>
</tbody>
</table>
These CORE areas are imbedded:

- **IN** – Inquiry Natural Science
- **CS** – Contemporary Issues in Science
- **Q** – Quantitative Reasoning
- **R** – Research
- **US** – University Seminar
- **W** – Writing

You choose courses in these CORE areas:

- **IA** (or RA) – Inquiry Arts
- **IH** (or RH) – Inquiry Humanities
- **IS** – Inquiry Social Sciences
- **D** – Diversity
Writing Requirements

WRIT 101 requirement

- Exempt ACT 28 or higher, AP, MUS writing assessment

If exempt, some departments will still have a writing requirement that must be met.

- WRIT 101W  College Writing I
- WRIT 201W  College Writing II
- WRIT 221  Intermediate Technical Writing
- UH 202  Text & Critics (if not being used as IH core)
- UH 400-409  Honors Seminar (if not being used for IS or IH core or EGEN 310R)
- Petition free elective course to meet the writing credits
List of Introductory Courses

- CSCI 107 – Joy and Beauty of Computing (Fall Only)
- CSCI 127 – Joy and Beauty of Data
- ECIV 101 – Intro to Civil Engineering (Fall Only)
- EGEN 105 – Intro to General Engineering
- ECHM 100 – Intro to Chemical Engineering (Fall Only)
- EBIO 100 – Intro to Biological Engineering (Fall Only)
- EELE 101 – Intro to Electrical Fundamentals
- EIND 101 – Intro to Industrial & Management Systems (Fall Only)
- EFIN 101 – Intro to Financial Engineering (Spring Only)
- EMEC 100 – Intro to Mechanical Engineering (Fall Only)
Selecting Classes for Fall

- Math course appropriate for your level
- Chemistry course (unless interested in CS)
- Introductory engineering course
- Writing Course or “US Course”

Then Choose a Core Area
- IA/RA Core
- IH/RH Core
- IS/RS Core
- D Core

If considering a Civil Engineering major, hold off on these two Core areas or meet with that department.
Note your Math Level (most require level 4 or 5)

List any AP/IB credits you expect to have by July

Cross off met requirements on selected Flow Sheet.

List any Dual Credit or Transfer credits you have or expect to have by July or August.

The idea is to have options in case one of your choices ends up closed, so have options.

### Math Level 1, 2, 3, 4, 5

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Credits</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 171Q</td>
<td>Calculus I</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>CHMY 147</td>
<td>Chemistry I</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>EGEN 105</td>
<td>Intro to Gen Eng.</td>
<td>2</td>
<td>4</td>
</tr>
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### US Core OR Seminar Course

<table>
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<tr>
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<th>Course Title</th>
<th>Credits</th>
<th>Core Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRT 101 W</td>
<td>College Writing</td>
<td>3</td>
<td>WRIT</td>
</tr>
<tr>
<td>ACT/Writ</td>
<td>Writing Exempt</td>
<td>4</td>
<td>WRIT</td>
</tr>
<tr>
<td>AP American History</td>
<td>AP Government</td>
<td>5</td>
<td>WRIT</td>
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### AP Course

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<tr>
<td>AP American History</td>
<td>AP American History</td>
<td>3</td>
<td>WRIT</td>
</tr>
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</table>

### Core Area

<table>
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<tr>
<td>WRIT 101 W</td>
<td>WRIT</td>
</tr>
<tr>
<td>ACT/Writ</td>
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<td>Calculus I</td>
<td>4</td>
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Choose 2 Core areas that you need (IA/IH, IS/RS, or D) and select a course to satisfy each requirement. If you only wish to focus on 1 Core area, choose a couple classes to choose from. The idea is to have options in case one of your choices ends up closed, so have options.

### FOURTH – 2 classes

Identify Major Courses planned based on selected Flow Sheet.

Math Course, Science Course, and selected Intro to Engineering Course.
60% or Less

Fall
16 Credits

- Intro Course
  See List
  1-3 credits
- M 171Q
  Calculus 1
  4 credits
- WRIT 101W
  College Writing
  3 credits
- CHMY 141
  Chemistry I

Pre or Co-Req w/ M 171Q

Choose Core
I/RA, I/RS, I/RH, or D
3 credits

70% or More

Freshman Year

Spring
17 Credits

- M 172Q
  Calculus 2
  4 credits
- US Core
  CLS 101/Honors
  201/COMX 111
  3 credits
- PHSX 220
  Physics I
  4 credits
- Choose Core
  I/RA, I/RS, I/RH, or D
  3 credits

Use That Flowsheet

Sophomore Year

Choose Core
I/RA, I/RS, I/RH, or D
3 credits

Change Major/Meet With New Department
Access Your Resources

Student Resources Available for YOU!

College of Engineering
- ePALs – Peer Mentoring
- Faculty Advisors
- Student Clubs
- EMPower
- Living Learning Communities
- Engineering Study Center
- Department Study Centers

MSU
- AY Center for Student Success
- Smarty Cats Tutoring
- Math Help Center
- Writing Help Center
- Physics Help Center
- Chemistry Help Center
- Many more

Engage Early ~ Engage Often ~ Be Persistent
What should you remember?

• The 5 subject areas you will be registering for tomorrow. (Math, Science, Writing or Speaking, Engineering Intro, Core Course [IA/RA, IS/RS, IH/RH, or D])

• Use MSU resources (ePALS, Faculty, Intro Course, AYCSS, Google).

• Learn about and use DegreeWorks. It is your online student record/file.

• Learn how major flowsheets work, and how your courses fit in them.

• Engage Early, Engage Often, Be Persistent!
Welcome to YOUR College of Engineering!

Connect!
Engage!
Succeed!