Foothill High School Visit

Engineering Student Council at UCI
Community Outreach
Engineering as a Whole

- Engineering is the application of math and science to solve real world problems
- Separated into 8 concentrations

<table>
<thead>
<tr>
<th>Mechanical/Aerospace</th>
<th>Civil</th>
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<tbody>
<tr>
<td>Electrical</td>
<td>Chemical</td>
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<tr>
<td>Material Science</td>
<td>Biomedical</td>
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<tr>
<td>Environmental</td>
<td>Computer</td>
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Mechanical Engineering is the study of maintaining, analyzing, designing and manufacturing machinery.

Aerospace is similar but has a focus on aircrafts:

- Design spaceship’s aerodynamic body
- Create propulsion system
- Perform structural and thermal analysis
The study and application of electricity, electronics, and electromagnetism

- Design controls system
- Manufacture transmission and power systems
- Work with analog and digital system processing
Civil

The practice of designing and developing infrastructure

- Design and construct Service Tower
- Ensure integrity of concrete foundation
- Construct lightning averter towers
Chemical

Produce, transform and transport materials to become usable and useful end products

- Select most efficient fuel
- Model combustion process
- Create paint textures
The design and discovery of new materials and their properties, primarily solids

- Test/choose materials used that meet required specifications
- Develop machinery and processes to manufacture materials
- Think of new uses for known materials
Biomedical engineering is the application of engineering principles in tandem with medicine and biology for healthcare products:

- Design space suit for astronauts
- Involved in human interface components
- Determine amount of oxygen needed for mission
Environmental

Protects and preserves the environment from human activities

- Perform electromagnetic compatibility tests
- Consider effects of space plasma and electric fields
- Analyze/minimize impact of emissions on environment
Cross between engineering and computer science that designs and develops computer systems and other technological devices.

- Develop control systems software
- Focus on hardware implementation
- Set up communication with ground control
BLAST OFF!
## Tips and Advice

<table>
<thead>
<tr>
<th>Major</th>
<th>Specific AP Classes</th>
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<tbody>
<tr>
<td>Aerospace</td>
<td>Statistics, Computer Science, Environmental Science</td>
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<td>Biomedical</td>
<td>Biology, Chemistry</td>
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What is engineering like?
The workload will be challenging, but very manageable. Learn how to spend your time wisely. Anyone can be an engineer if they put in the effort.
Material

- At first the material you tackle in classes may seem overwhelming.
- Don’t worry! Engineering takes a lot of time to understand and if you put in the time to study and learn it, it’ll be a piece of cake.
Projects

● One of the best parts of engineering is working on projects that you are passionate about.
● The UCI School of Engineering has over 30 different projects that you can join such as HyperXite, and Electric Racecar! You can also start your own if there isn’t one on campus already.
Thanks!

Any questions?

You can find us at:

- outreach.esc.uci@gmail.com