Mechanical Engineering is a broad discipline that applies physics and materials science concepts to the study, invention, innovation, manufacturing, and maintenance of machines, tools, and structures.

Michael Jacobs
B.S. Mechanical Engineering, 2011
University of Southern California
Overview of Mechanical Engineering

- Product Design
- Research and Development
- Manufacturing
- Systems management
- Energy
- Marketing
2009 Statistics of US Engineers

- 239,000 of 1.6 million engineers are mechanical (14.9%, second largest behind civil engineering with 278,000)
- Projected 6% growth
- Starting salary (bachelor’s degree): $58,800
- **Median Annual Income**: $74,900
  (highest=government at $86,250, lowest=education at $63,050)
# Mechanical Engineering (128 units)

**Mathematics (16 units)**
- MATH 125 Calculus I
- MATH 126 Calculus II
- MATH 226 Calculus III
- MATH 245 Mathematics of Phys. and Engr.

**Physics (12 units)**
- PHYS 151L Mechanics and Thermodynamics
- PHYS 152L Electricity and Magnetism
- PHYS 153L Optics and Modern Physics

**Chemistry / Material Science (4 units)**
- CHEM 105a General Chemistry
  or MASCL 110 Materials Science

**General Education (27 units)**
- WRIT 130 Analytical Writing
- WRIT 340 Advanced Writing
- GE Cat I, II, V, VI
- GE Cat IV* (May take Category I, II, IV, or VI GE class)

**Engineering (71 units)**
- AME 101L Intro. to Mech. Engr. & Graphics
- AME 150L Computational Methods in ME
- AME 201 Statics
- AME 204 Strength of Materials
- AME 301 Dynamics
- AME 308 Comp.-Aided Analysis for Design
- AME 309 Fluid Dynamics
- AME 310 Engineering Thermodynamics I
- AME 331 Heat Transfer
- AME 341aL Mechoptronics Laboratory I
- AME 341bL Mechoptronics Laboratory II
- AME 404 Comp. Solutions to Engr. Problems
- AME 409 Senior Design Project
- AME 441aL Senior Projects Laboratory
- AME 443L Control Systems Laboratory
- AME 451 Linear Control Systems
- AME Core (2x)
- AME Design Elective
- ENGR 102 Engineering Freshman Academy
- MASC 310 Mechanical Behavior of Materials
- Technical Elective (2x)
Similar to Aerospace and Astronautical

- Very similar to Aerospace and Astronautical Engineering course plans. Mechanical is just broader but similar job opportunities.
Classes

Get Ahead
- MASC 110/CHEM 105a, MATH 125, and MATH 126 can be skipped with appropriate AP scores. PHYS classes can not be skipped!

Taking Advantage
- Try the honors classes PHYS 161, 162, 163 [Prof. Bickers]
- Pick electives and core classes carefully

Challenging Classes
- AME 150 [Matlab]
- PHYS 152 & 162 [Electricity and Magnetism]
- MATH 226 [Calc. 3]
- MASC 310 [Materials]
- AME 341a & 341b [Mechoptronics]

Programs
- Matlab, Multisim, LabView, Solidworks, Excel, Powerpoint
Opportunities

**Jobs & Internships**
- Boeing, Lockheed Martin, Chevron, CIA, JPL, LADWP

**Popular Professors**
- Bickers, Blackwelder, Egofoopoulos, Ronney Redekopp, Safadi

**Other Ideas**
- Pi Tau Sigma Honor Society
- RPL, Aero Design Team, Robotics Club, EWB
- Work with a professor