Mechanical Engineering: Solid & Structural Mechanics

Sample AB Major in Engineering Sciences

Prerequisites

MATH 3, 8, 13; or MATH 11; PHYS 13, 14; CHEM 5;
ENGS 20 or COSC 1 and 10

Common Core (3 courses)

ENGS 21: Introduction to Engineering*
ENGS 22: Systems
ENGS 23: Distributed Systems and Fields

Distributive Core (2 courses)

ENGS 24: Science of Materials
ENGS 25: Introduction to Thermodynamics

Gateway (2 courses)

ENGS 33: Solid Mechanics*
One from 31-32, 35-37

Electives (2 courses; 1 may be math or natural science)

ENGS 34: Fluid Mechanics
ENGS 72: Applied Mechanics: Dynamics

Culminating Experience: *ENGS 86, 88, 89 or one advanced ENGS course that may also count as 1) one of the above electives and 2) toward the BE ENGS/ENGG requirement.*

Total: *Includes 9 or 10 courses through AB*

LEGEND

Allowable or potentially allowable in the BE concentration
Math or Natural Science course
Introductory course: Not allowable in the BE concentration
* Significant design content

Capstone Design Experience **BE →**

ENGS 89: Engineering Design Methodology and Project Initiation*
ENGS 90: Engineering Design Methodology and Project Completion*

Sample BE Program

Math and Natural Science Requirement
9 course credits (minimum) including any completed for AB major requirements. (Typically 3 additional courses)

CHEM 6: General Chemistry
MATH 22: Linear Algebra
MATH 23: Differential Equations
PHYS 19: Introductory Physics III
PHYS 24: Quantum Physics of Matter: An Introduction

Applied MATH/ENGS Requirement
One of ENGS 91, 92 and 93 must be completed for the BE and may be counted as either a MATH course or an ENGS course in fulfilling BE requirements.

ENGS 91: Numerical Methods in Computation
or ENGS 93: Statistical Methods in Engineering

ENGS/ENGG Requirement
– 13.5 courses minimum (15.5 is typical), including courses completed for the AB major, 6 total with significant design content. ENGS 20 (or CS 1 + 10) counts as 0.5 ENGS credit.*
*– 3-course concentration, 1 with significant design content**
– ENGS 89 and 90

Engineering Electives: 3-course concentration

Choose 3 from:
ENGS 71: Structural Analysis*
ENGS 73: Materials Processing and Selection
ENGS 76: Machine Engineering*
ENGS 130: Mechanical Behavior of Materials*
ENGS 142: Intermediate Solid Mechanics
ENGS 148: Structural Mechanics

Electives (3 courses; 2 may be math or natural science)

ENGG 138: Corrosion and Degradation of Materials
ENGS 146: Computer-Aided Mechanical Engineering Design*