

Mechanical Engineering: Systems & Controls

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 25: Thermodynamics
ENGS 26: Control Theory*

Gateway (2 courses)

ENGS 31: Digital Electronics*
ENGS 33: Solid Mechanics*

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 Math and Natural Science Requirement or 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

Sample BE Program

Math and Natural Science Requirement

9 course credits (minimum) including any completed for AB major requirements.

MATH 22: Linear Algebra with Applications
MATH 23: Differential Equations

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 92: Fourier Transforms and Complex Variables

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

ENGS 145: Modern Control Theory*
ENGS 147: Mechatronics*
ENGG 149: Introduction to Systems Identification

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

ENGS 27: Discrete and Probabilistic Systems
ENGS 32: Electronics: Introduction to Linear and Digital Circuits*
ENGS 91: Numerical Methods in Computation

Capstone Design Experience

ENGS 89: Engineering Design Methodology and Project Initiation*

ENGS 90: Engineering Design Methodology and Project Completion*