

Biomedical Engineering: Electronics, Imaging, Signals

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 26: Control Theory*
ENGS 27: Discrete and Probabilistic Systems

Gateway (2 courses)

ENGS 31: Digital Electronics*
One course from ENGS 33-37

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

ENGS 32: Electronics: Introduction to Linear and
Digital Circuits*
ENGS 56: Introduction to Biomedical Engineering

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 57: Intermediate Biomedical Engineering*

ENGS 61: Intermediate Electrical Circuits*

ENGS 167: Medical Imaging

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

ENGS 93: Statistical Methods in Engineering

ENGS 111: Digital Image Processing

ENGS 126: Analog Integrated Circuit Design*

ENGG 129: Instrumentation and Measurements*

ENGS 170: Neuroengineering

Capstone Design Experience

ENGS 89: Engineering Design Methodology and
Project Initiation*

ENGS 90: Engineering Design Methodology and
Project Completion*