

**Plan of Study for the Mechanical and Materials Science and Engineering
Track of AB Engineering Sciences Concentration**

Effective for Students Declaring the Concentration after July 1, 2018

DATE: _____

NAME: _____

CLASS: _____

EMAIL: _____

This Plan of Study Form is for a (*Circle One*): DECLARATION REVISION

| REQUIRED COURSES (Circle course and % for course you are taking or plan to take in each category.) | Semester (Fall/Spring Year) |
|---|---|
| Mathematics Required 4 courses Math 1a – Intro to Calculus 1 Math 1b – Calculus, Series, and Differential Equations AM 21a – Mathematical Methods in the Sciences 1 (or Math 21a or 23a) Math 21b – Linear Algebra & Differential Equations (or AM 21b or 23b) | _____ _____ _____ _____ |
| Physics 2 courses PS 12a – Mech from an Analytic, Num & Exp Perspective (or Physics 15a or 16, AP 50a) PS 12b – E & M from an Analytic, Num & Exp Perspective (or Physics 15b or AP50b) | _____ _____ |
| Computer Science CIRCLE ONE CS 50 – Intro to Computer Science 1 CS 51 – Intro to Computer Science 2 CS 61 – Systems Programming & Machine Organization | _____ _____ |
| Sophomore Forum | _____ |
| Applied Mathematics See list on page 3 1. | _____ |
| Mechanical Engineering Core ES 120 – Intro to the Mechanics of Solids ES 123 – Intro to Fluid Mechanics & Transport Processes ES 125 – Mechanical Systems ES 181 – Engineering Thermodynamics ES 190 – Intro to Materials Science & Engineering | _____ _____ _____ _____ _____ |

| REQUIRED COURSES (Circle course and % for course you are taking or plan to take in each category.) | Semester (Fall/Spring Year) |
|--|--|
| Electronics* See list on page 3 1. _____ | _____ |
| Mechanical Engineering Electives* See list on page 3 1. _____ 2. _____ | _____ _____ |

* For courses co-listed in another department, students must enroll in the Engineering Sciences offering. No more than two of Engineering Sciences 6, 50, 51, and 53 can count toward concentration credit.

Student Signature

Date: _____

Associate Director of Undergraduate Studies

Date: _____

Adviser indicate if a petition is needed: Yes ____ No ____

Director of Undergraduate Studies

Date: _____

Applied Mathematics

- AM 104 – Series Expansions & Complex Analysis
- AM 105 – Ordinary & Partial Differential Equations
- AM 108 – Nonlinear Dynamical Systems
- AM 111 – Intro to Scientific Computing
- AM 120 – Applied Linear Algebra and Big Data

Electronics

- ES 50 – Introduction to Electrical Engineering
- ES 54 – Electronics for Engineers
- ES 151 – Applied Electromagnetism
- ES 153 – Laboratory Electronics
- ES 152 AND CS 141

Mechanical Engineering Electives

Only if taken during Freshman or Sophomore years:

- *ES 6 – Introduction to Environmental Science & Engineering*
- *ES 50 – Introduction to Electrical Engineering*
- *ES 53 – Quantitative Physiology as a Basis for Bioengineering*
- AP 195 – Intro to Solid State Physics
- BE 110 - Physiological Systems Analysis
- Chemistry 160 – Quantum Chemistry
- ES 109 – Earth Resources and the Environment
- ES 51 – Computer Aided Machine Design
- ES 91r – Supervised Reading and Research (one semester only)
- ES 96 – Engineering Problem Solving & Design Project
- ES 128 - Computational Solid and Structural Mechanics
- ES 131 – Introduction to Physical Oceanography and Climate
- ES 132 - Introduction to Meteorology and Climate
- ES 151 – Applied Electromagnetism
- ES 156 - Signals and Systems
- ES 159 – Intro to Robotics
- ES 162 - Hydrology and Environmental Geomechanics
- ES 173 – Intro to Electronic & Photonic Devices
- ES 177 – Photonic & Electronic Device Laboratory
- Physics 143a – Quantum Mechanics 1