

## Plan of Study for the Mechanical Engineering SB Concentration

Effective for Students Declaring the Concentration after July 1, 2017

DATE: \_\_\_\_\_

NAME: \_\_\_\_\_

CLASS: \_\_\_\_\_

EMAIL: \_\_\_\_\_

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

*The S.B. Program in Mechanical Engineering must contain at least 20 half courses: 4 half-courses in mathematics, 4 half-courses in basic sciences, and 12 half-courses in engineering topics. Plans of Study will not be considered final until this form has been signed. The signature of this form ensures that the proposed plan meets the ABET distribution requirements.*

REQUIRED COURSES (Circle course and % for course you are taking or plan to take in each category.)	Math	Science	Engr. Topics	Semester (Fall/Spring Year)
<b>Mathematics Required</b> Math 1a – Intro to Calculus 1 Math 1b – Intro to Calculus 2 AM 21a – Mathematical Methods in the Sciences 1 (or Math 21a or 23a) AM 21b – Mathematical Methods in the Sciences 2 (or Math 21b or 23b)	1.00 1.00 1.00 1.00			_____ _____ _____ _____
<b>Probability &amp; Statistics</b> (if you started in Math 1b or later) <b>CIRCLE ONE</b> AM 101 - Statistical Inference for Scientists & Engineers ES 150 – Intro to Probability with Engineering Applications Statistics 110 - Introduction to Probability	1.00			_____
<b>Applied Mathematics</b> (if you started in AM/Math 21a or later) See list on page 3  1.	1.00			_____
<b>Physics</b> AP 50a – Physics as a Foundation for Sci & Eng 1 (or PS 12a, Physics 15a or 16) AP 50b - Physics as a Foundation for Sci & Eng 2 (or PS 12b or Physics 15b)		1.00 1.00		_____ _____
<b>Chemistry/Life Science</b> See list on page 3  1.  2.		1.00 1.00		_____ _____
<b>Computer Science</b> <b>CIRCLE ONE</b> CS 50 – Intro to Computer Science 1 CS 51 – Intro to Computer Science 2 CS 61 – System Programming & Machine Organization			1.00	_____

<b>REQUIRED COURSES</b> (Circle course and % for course you are taking or plan to take in each category.)	<b>Math</b>	<b>Science</b>	<b>Engr. Topics</b>	<b>Semester</b> (Fall/Spring Year)
<b>Sophomore Forum</b>				_____
<b>Electronics CIRCLE ONE</b> ES 52 – The Joy of Electronics – Part 1 or ES 153 – Laboratory Electronics ES 154 - Electronic Devices and Circuits CS 141 – Computing Hardware			1.00	_____
<b>Mechanical Engineering Core</b> ES 51 - Computer Aided Machine Design ES 120 - Intro to the Mechanics of Solids ES 123 – Intro to Fluid Mechanics & Transport Processes ES 125 – Mechanical Systems or ES 158 – Feedback Systems: Analysis & Design ES 181 – Engineering Thermodynamics ES 183 – Intro to Heat Transfer ES 190 – Intro to Materials Science & Engineering			1.00 1.00 1.00 1.00 1.00 1.00 1.00	_____ _____ _____ _____ _____ _____ _____
<b>Engineering Elective</b> See list on page 3  1.			1.00	_____
<b>Engineering Design</b> ES 96 – Engineering Problem Solving & Design Project* or ES 227 – Medical Device Design* ES 100hf – Engineering Design Projects			1.00 1.00	_____ _____
<b>TOTALS</b>	<b>/4</b>	<b>/4</b>	<b>/12</b>	

*\*ES 96 or ES 227 must be taken in the junior year, prior to taking ES 100hf*

Student signature

\_\_\_\_\_

Date: \_\_\_\_\_

Associate/Director of Undergraduate Studies Signature

\_\_\_\_\_

Date: \_\_\_\_\_

This plan does/does not meet the ABET distribution requirements

\_\_\_\_\_  
Assistant Dean for Education/Student Affairs Office

Date: \_\_\_\_\_

## Applied Mathematics

- AM 104 – Series Expansions & Complex Analysis
- AM 105 – Ordinary & Partial Differential Equations
- AM 106 – Applied Algebra
- AM 107 – Graph Theory & Combinatorics
- AM 108 – Nonlinear Dynamical Systems
- AM 120 - Applicable Linear Algebra & Big Data

## Chemistry

- LS 1a - Intro to the Life Sciences: Chemistry, Molecular Biology, & Cell Biology  
*or* LPS A – Foundational Chemistry & Biology
- PS 1 - Chemical Bonding, Energy, & Reactivity: An Intro to the Physical Sciences  
*or* PS 11 - Foundations & Frontiers of Modern Chem: A Molecular & Global Perspective
- PS 10 - Chemistry: A Microscopic Perspective on Molecules, Materials, & Life

## Engineering Electives (*Incomplete List*)

*For courses that are co-listed in another department, students must enroll in the Engineering Sciences offering  
Only if taken during Freshman or Sophomore years*

- ES 6 – Environmental Science & Technology
- 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
- BE 128 – Intro to Biomedical Imaging & Systems
- CS 51 – Intro to Computer Science 2
- CS 61 – System Programming & Machine Organization
- CS 141 – Computing Hardware
- ES 52 – The Joy of Electronics – Part 1
- ES 111 – Intro to Scientific Computing
- ES 115 – Mathematical Modeling
- ES 121 – Intro to Optimization: Models & Methods
- ES 125 – Mechanical Systems
- ES 128 - Computational Solid and Structural Mechanics
- ES 135 – Physics & Chemistry: In the Context of Energy & Climate at the Global & Molecular Level
- ES 151 – Applied Electromagnetism
- ES 153 – Laboratory Electronics
- ES 156 - Signals and Systems
- ES 158 - Feedback Systems: Analysis & Design
- ES 159 – Introduction to Robotics
- ES 162 - Hydrology and Environmental Geomechanics
- ES 165 - Water Engineering
- ES 173 - Introduction to Electronic and Photonic Devices
- ES 175 – Photovoltaic Devices
- ES 176 - Introduction to MicroElectroMechanical System
- ES 177 – Microfabrication Laboratory
- ES 231 – Energy Technology