

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)
Sophomore Forum				_____
Electronics CIRCLE ONE ES 54 – Electronics for Engineers or ES 153 – Laboratory Electronics or ES 152 AND CS 141			1.00	_____
Mechanical Engineering Core 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 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	_____ _____ _____ _____ _____ _____ _____
Engineering Elective See list on page 3 1.			1.00	_____
Engineering Design ES 96 – Engineering Problem Solving & Design Project* or ES 227 – Medical Device Design* ES 100hf – Engineering Design Projects			1.00 1.00	_____ _____
TOTALS	/4	/4	/12	

**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/Advanced Science

Introductory Courses

- LS 1a - Intro to the Life Sciences:
or LPS A – Foundational Chem & Bio
- PS 11 - Found & Frontiers of Modern Chem
or PS 1 - Chem Bonding, Energy, & Reactivity
- PS 10 - Quantum & Stat Found of Chem
- Physics 15c – Wave Phenomena

Upper Level Courses

- Chemistry 160 - Quantum Chemistry
- Physics 143a - Quantum Mechanics I
- Physics 151 – Mechanics
- Physics 153 – Electrodynamics

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

- ESE 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 91hfr – Humanitarian Design Projects (*must be taken twice*)
- ES 111 – Intro to Scientific Computing
- ES 115 – Mathematical Modeling
- ES 121 – Intro to Optimization: Models & Methods
- ES 128 - Computational Solid and Structural Mechanics
- ES 151 – Applied Electromagnetism
- ES 155 – System and Control
- ES 156 - Signals and Communications
- ES 159 – Introduction to Robotics
- ESE 160 - Space Science and Engineering
- ESE 166 – State of the Art Instrumentation in Environmental Sciences
- ES 170 – Engineering Quantum Mechanics
- ES 173 - Introduction to Electronic and Photonic Devices
- ES 175 – Photovoltaic Devices
- ES 177 – Microfabrication Laboratory
- ES 231 – Energy Technology

Prerequisite Planning Table for the Mechanical Engineering SB

	Typically Offered	Math	Physics	Other
<i>Required Courses</i>				
ES 51	Fall & Spring			
ES 120	Spring	21a, Co: 21b	A	
ES 123	Spring	21a,b	A	
ES 125	Fall	21a,b	A	
ES 181	Fall		A	
ES 183	Spring	<i>21a,21b</i>	A	<i>ES 181</i>
ES 190	Fall	21a,b	A,B	
ES 96	Fall & Spring			Junior Year
ES 100HF	Fall-Spring			ES 96 or 227
<i>Selected Electives</i>				
ES 54	Spring			
ES 152	Fall	1a,b	Co: B	
ES 153	Fall & Spring			
ES 227	Spring			<i>ES 51</i>
CS 141	Spring			<i>CS 50</i>

¹Courses listed as Recommended Preparation, and not an enforced prerequisite, are shown in italics

²Courses marked with a "Co:" may be taken as a co-requisite

³Equivalent courses are accepted for prerequisites (e.g., Phys 15a, PS 12a, or AP50a all count for Physics A)