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**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Math</th>
<th>Science</th>
<th>Engr. Topics</th>
<th>Semester (Fall/Spring Year)</th>
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</thead>
<tbody>
<tr>
<td>Mathematics Required</td>
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<tr>
<td>Math 1a – Intro to Calculus 1</td>
<td>1.00</td>
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<tr>
<td>Math 1b – Intro to Calculus 2</td>
<td>1.00</td>
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<tr>
<td>AM 21a – Mathematical Methods in the Sciences 1</td>
<td>1.00</td>
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<td>(or Math 21a or 23a)</td>
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<tr>
<td>Math 21b – Linear Algebra &amp; Differential Equations</td>
<td>1.00</td>
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<tr>
<td>(or AM 21b or 23b)</td>
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<tr>
<td>Probability &amp; Statistics (if you started in Math 1b or later)</td>
<td>1.00</td>
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<tr>
<td>CIRCLE ONE</td>
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<tr>
<td>AM 101 - Statistical Inference for Scientists &amp; Engineers</td>
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<td>ES 150 – Intro to Probability with Engineering Applications</td>
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<tr>
<td>Statistics 110 - Introduction to Probability</td>
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<tr>
<td>Applied Mathematics (if you started in AM/Math 21a or later) See list on page 3</td>
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<tr>
<td>Physics</td>
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<tr>
<td>PS 12a – Mech from an Analytic, Num &amp; Exp Perspective</td>
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<td>(or Physics 15a or 16, AP 50a)</td>
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<tr>
<td>PS 12b – E &amp; M from an Analytic, Num &amp; Exp Perspective</td>
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<td>(or Physics 15b or AP50b)</td>
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<tr>
<td>Chemistry/Life Science See list on page 3</td>
<td>1.00</td>
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<tr>
<td>Computer Science CIRCLE ONE</td>
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<tr>
<td>CS 50 – Intro to Computer Science 1</td>
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<tr>
<td>CS 51 – Intro to Computer Science 2</td>
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<tr>
<td>CS 61 – System Programming &amp; Machine Organization</td>
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</tbody>
</table>
### REQUIRED COURSES
(Circle course and % for course you are taking or plan to take in each category.)

<table>
<thead>
<tr>
<th>Math</th>
<th>Science</th>
<th>Engr. Topics</th>
<th>Semester (Fall/Spring Year)</th>
</tr>
</thead>
</table>

#### Sophomore Forum

#### Electronics CIRCLE ONE
- ES 54 – Electronics for Engineers
- or ES 153 – Laboratory Electronics
- or ES 152 AND CS 141

#### 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

#### Engineering Elective
See list on page 3

1. __________

#### Engineering Design
- ES 96 – Engineering Problem Solving & Design Project*
- or ES 227 – Medical Device Design*
- ES 100hf – Engineering Design Projects

#### 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: ___________

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*Mechanical Engineering SB*

*Rev. Jul 2018*
**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 11 - Foundations & Frontiers of Modern Chem: A Molecular & Global Perspective
  or PS 1 - Chemical Bonding, Energy, & Reactivity: An Intro to the Physical Sciences
- 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 54 – Electronics for Engineers
- 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