

## Mechanical Engineering Concentration Model Program (Starting Fall 2022)

### First Year

<b>Fall (15)</b>	<input type="checkbox"/> 5 Chemistry 101 <input type="checkbox"/> 3 Engineering 101 <input type="checkbox"/> 1 Engineering 181 <input type="checkbox"/> 4 Mathematics 171 <input type="checkbox"/> 2 <i>Core Foundations</i>	General Chemistry (F,S) Intro to Engineering Design (F) Graphical Communication Lab (F) Calculus I (F,S) <i>CORE 100: Community and Commitments</i>	★ ENGR 20X - These courses are required but can be taken in any order: ENGR 202* - Statics and Dynamics ENGR 204 - Intro to Circuit Analysis and Electronics with Lab ENGR 209 - Intro to Conservation Laws & Fluid Mechanics * Course offered as part of the Summer Program in Germany.
<b>Spring(17)</b>	<input type="checkbox"/> 3 Engineering 205 <input type="checkbox"/> 4 Mathematics 172 <input type="checkbox"/> 4 Physics 133 + 133L <input type="checkbox"/> 3 <i>Core Foundations</i> <input type="checkbox"/> 3 <i>Core Comp and Skills</i>	Material Science (S) Calculus II (F,S) Introductory Physics, Mechanics and Gravity (S) <i>Foundations of Christianity I</i> <i>Foundational Writing</i>	

\* Possibly insert Summer Program in Germany

### Second Year

<b>Fall (16)</b>	<input type="checkbox"/> 4 Engineering 20X ★ <input type="checkbox"/> 4 Mathematics 271 <input type="checkbox"/> 4 Physics 235 + 235L <input type="checkbox"/> 2 Computer Sci 104 + 104L <input type="checkbox"/> 2 <i>Core Foundations</i> <input type="checkbox"/> 0 Engineering 295 <input type="checkbox"/> 2 Interdisciplinary 184	Multivariable Calculus (F,S) Introductory Physics: Electricity and Magnetism (F) Applied Computing (F) (CS 106 or 108 may be substituted but both are 4 SH) <i>Foundations of Christianity II</i> Internship Workshop Intro to Sustainability Challenges (F) (ES Tag, required for Sustainability Designation)
<b>Spring (18)</b>	<input type="checkbox"/> 4 Engineering 20X ★ <input type="checkbox"/> 4 Engineering 20X ★ <input type="checkbox"/> 4 Mathematics 231 <input type="checkbox"/> 2 <i>Core Knowledge and Understanding (see Core Options sheet) - tagged</i> <input type="checkbox"/> 2 <i>Interdisciplinary 102</i> <input type="checkbox"/> 2 <i>Statistics 241</i> <input type="checkbox"/> 0 Engineering 294	Differential Equations with Linear Algebra (F,S) <i>Oral Rhetoric for Engineers</i> <i>Engineering Statistics (S)</i> Engineering Seminar (does not require registration in advance)

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### Third Year

<b>Fall (17)</b>	<input type="checkbox"/> 4 Engineering 305 <input type="checkbox"/> 4 Engineering 319 <input type="checkbox"/> 4 Elective: <i>Basic Science</i> or <i>Advanced Math</i> (2 SH minimum) <input type="checkbox"/> 2 <i>Economics (2 SH min)</i> <input type="checkbox"/> 2 <i>Core Knowledge and Understanding (see Core Options sheet)</i> <input type="checkbox"/> 1 <i>Core Comp and Skills</i>	Mechanics of Materials (F) Intro. To Thermal/Fluid Sciences (F) <i>ECON 191 (2) or 233 (4, ES tag) - ECON 221, 222, or 232 can be added or substituted</i> <i>Health and Movement</i>
<b>Spring(16)</b>	<input type="checkbox"/> 4 Engineering 322 <input type="checkbox"/> 4 Engineering 328 <input type="checkbox"/> 4 Engineering 334 + 334L <input type="checkbox"/> 4 <i>Core Knowledge and Understanding (see Core Options sheet) - tagged</i> <input type="checkbox"/> 1 Engineering 384	Machine Design with Finite Element Analysis (S) Intermediate Thermal/Fluid Sciences & Design (S) Dynamics of Machinery and Instrumentation (S) Sustainability Analysis (S) (Required for students seeking Sustainability Designation)

Internship Experience (ENGR 385 Optional)

### Fourth Year

<b>Fall (17)</b>	<input type="checkbox"/> 4 Engineering 333 <input type="checkbox"/> 2 Engineering 339 <input type="checkbox"/> 4 <i>Engineering Elective</i> <input type="checkbox"/> 4 Elective: <i>Basic Science</i> , <i>Advanced Math</i> , <i>Engineering</i> , or <i>Technical</i> <input type="checkbox"/> 2 Business 357 <input type="checkbox"/> 1 <i>Core Comp and Skills</i>	Thermal Systems Designs (F) Senior Project (F) ENGR 314, 315, or 342 Business Aspects for Engineers (F) <i>Health and Movement</i>	Pink listings (core humanities courses) may be taken in any semester. ECON should be taken prior to BUS 357.  See University Catalog or Elective Options sheet for courses allowed for the green, red, orange, blue and purple categories. Classes shaded in light brown are optional.
<b>Spring (14)</b>	<input type="checkbox"/> 4 Engineering 324 + 324L <input type="checkbox"/> 4 Engineering 340 <input type="checkbox"/> 2 <i>Engineering Elective</i> <input type="checkbox"/> 0 Engineering 394 <input type="checkbox"/> 4 <i>Core Knowledge and Understanding (see Core Options sheet) - tagged</i>	Materials & Processes in Manufacturing (S) Senior Design Project (S) Typically ENGR 350 (2 SH minimum) Engineering Seminar (does not require registration in advance)	

### Other Requirements

- 0-8 *Core Comp and Skills: World Languages I (3 years in HS with B or better)*
- 0-3 *Engaged Citizenship Commitment Tag: Diversity and Difference*
- 0-3 *Engaged Citizenship Commitment Tag: Environmental Sustainability*
- 0-3 *Engaged Citizenship Commitment Tag: Global Regions and Cultures*

Revised Feb 2023