

## BSE: Mechatronics Engineering Concentration Model Program (Starting Fall 2023 or Later)

### First Year

Fall (16)	<input type="checkbox"/>	4	Chemistry 101 + 101L	General Chemistry I (F,S)
	<input type="checkbox"/>	4	Engineering 101 + 101L	Intro to Engineering Design (F)
<input type="checkbox"/>	4	Mathematics 171	Calculus I (F,S)	
<input type="checkbox"/>	2	<i>Core Foundations</i>	<i>CORE 100: Community and Commitments</i>	
<input type="checkbox"/>	2	<i>Interdisciplinary 102</i>	<i>Oral Rhetoric for Engineers</i> (or CS 104)	
Spring(17)	<input type="checkbox"/>	4	Engineering 205	Principles of Materials Science (S)
	<input type="checkbox"/>	4	Mathematics 172	Calculus II (F,S)
	<input type="checkbox"/>	4	Physics 133 + 133L	Introductory Physics: Mechanics and Gravity (S)
	<input type="checkbox"/>	4	<i>Core Comp and Skills</i>	<i>Foundational Writing (ENGL 101)</i>
	<input type="checkbox"/>	1	<i>Core Comp and Skills</i>	<i>Health and Movement (Personal Fitness)</i>

★ ENGR 20X - These courses are required but can be taken in any order (offered fall and spring):  
 ENGR 202\* - Statics and Dynamics  
 ENGR 204 - Intro to Circuit Anal. and Electronics with Laboratory  
 ENGR 209 - Intro to Cons. Laws & Fluid Mechanics  
 \* Course offered as part of the Summer Program in Germany.

\* Possibly insert Summer Program in Germany

### Second Year

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

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### Third Year

Fall (16)	<input type="checkbox"/>	4	Engineering 305	Mechanics of Materials (F)
	<input type="checkbox"/>	4	Engineering 307	Electrical Signals and Systems (F)
	<input type="checkbox"/>	4	Engineering 311 + 311L	Electronic Devices and Circuits (F)
	<input type="checkbox"/>	2	<i>Core Foundations</i>	<i>Foundations of Christianity II</i>
	<input type="checkbox"/>	2	<i>Economics (2 SH min)</i>	<i>ECON 191 (2) or ECON 233 (4, ES tag) - ECON 221, 222, or 232 can be added or substituted</i>
Spring(17)	<input type="checkbox"/>	4	Engineering 304 + 304L	Fundamentals of Digital Systems (S)
	<input type="checkbox"/>	4	Engineering 322	Machine Design with Finite Element Analysis (S)
	<input type="checkbox"/>	4	Engineering 334 + 334L	Dynamics of Machinery and Instrumentation (S)
	<input type="checkbox"/>	4	<i>Core Knowledge and Understanding (see Core Options sheet) - tagged</i>	
	<input type="checkbox"/>	1	<i>Core Comp and Skills</i>	<i>Health and Movement (Leisure, Sport, and Skills)</i>

*Pink listings (Calvin Core) may be taken in any semester. ECON should be taken prior to BUS 357. See Core Options sheet.*

Internship Experience (ENGR 385 Optional)

### Fourth Year

Fall (16)	<input type="checkbox"/>	4	Engineering 315 + 315L	Control Systems (F) (or ENGR 342 + 342L)
	<input type="checkbox"/>	2	Engineering 339	Senior Design Project (F)
	<input type="checkbox"/>	4	Elective: <b>Basic Science</b> or <b>Advanced Math</b> (2 SH minimum)	
	<input type="checkbox"/>	4	<i>Core Knowledge and Understanding (see Core Options sheet) - tagged</i>	
	<input type="checkbox"/>	2	Business 357	Business Aspects for Engineers (F)
		1	Interdisciplinary 384	Sustainability Experience (F,S) (Required for students seeking the Sustainability Designation)
Spring (16)	<input type="checkbox"/>	4	Engineering 340	Senior Design Project (S)
	<input type="checkbox"/>	4	<b>Engineering Elective</b>	<b>ENGR 324 + 324L or ENGR 332 + 332L</b>
	<input type="checkbox"/>	2	<b>Engineering 350</b>	<b>Special Topics in Engineering - Mechatronics</b>
	<input type="checkbox"/>	4	Elective: <b>Basic Science</b> , <b>Advanced Math</b> , <b>Engineering</b> , or <b>Technical</b>	
	<input type="checkbox"/>	2	<i>Core Knowledge and Understanding (see Core Options sheet - 26 SH of total K&amp;U minimum)</i>	
<input type="checkbox"/>	0	Engineering 394	Engineering Seminar (does not require registration in advance)	

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.

### 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 Mar 2024