

BSE: Energy, Environment, and Sustainability 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 IDIS 184)

★ 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.

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>

* Possibly insert Summer Program in Germany

Second Year

Fall (18)	<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"/>	4	<i>Core Foundations</i>	<i>Foundations of Christianity I</i>
	<input type="checkbox"/>	0	Engineering 295	Internship Workshop (F, S)

Spring (16)	<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	<i>Statistics 241</i>	<i>Engineering Statistics (S)</i>
	<input type="checkbox"/>	2	<i>Core Foundations</i>	<i>Foundations of Christianity II</i>
	<input type="checkbox"/>	0	Engineering 294	Engineering Seminar (does not require registration in advance)

* Possibly insert Summer Program in Germany

Third Year

Fall (18)	<input type="checkbox"/>	4	Engineering 305	Mechanics of Materials (F)
	<input type="checkbox"/>	4	Engineering 306	Environmental Engineering (F)
	<input type="checkbox"/>	4	Engineering 319	Introduction to Thermal/Fluid Sciences (F)
	<input type="checkbox"/>		or Engineering 303	Chemical Engineering Principles and Thermodynamics (F)
	<input type="checkbox"/>	2	Interdisciplinary 184	Sustainability Challenges
	<input type="checkbox"/>	4	<i>Economics 233</i>	<i>The Economics of Energy and Sustainability (F) (ES tag)</i>

Spring(17)	<input type="checkbox"/>	4	Engineering 308	Environmental Engineering Design (S)
	<input type="checkbox"/>	4	Engineering 328	Intermediate Thermal/Fluid Sciences & Design (S)
	<input type="checkbox"/>		or Engineering 312	Chemical Engineering Thermodynamics (S)
	<input type="checkbox"/>	4	<i>Engineering Elective</i>	<i>One of ENGR 315 (F), ENGR 318 (S), ENGR 321 (S), or ENGR 342 (S)</i>
	<input type="checkbox"/>		or Engineering 330	Fluid Dynamics and Heat Transfer (S)
	<input type="checkbox"/>	4	<i>Core Knowledge and Understanding (see Core Options sheet) - D&D or GR&C tag</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.

Sustainability-related Internship Experience (optional for Sustainability Designation, ENGR 385 optional)

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.

Fourth Year

Fall (16)	<input type="checkbox"/>	4	Engineering 320	Hydraulic Engineering (F)
	<input type="checkbox"/>	4	Engineering 333	Thermal Systems Design (F)
	<input type="checkbox"/>	4	Elective: <i>Basic Science</i> or <i>Advanced Math</i> (2 SH minimum)	
	<input type="checkbox"/>	2	Engineering 339	Senior Design Project (F)
	<input type="checkbox"/>	2	Business 357	Business Aspects for Engineers (F)
	<input type="checkbox"/>	1	Interdisciplinary 384	Sustainability Experience (F,S) (Required for students seeking Sustainability Designation)

Spring (16)	<input type="checkbox"/>	4	Engineering 340	Senior Design Project (S)
	<input type="checkbox"/>	4	Engineering 354	Sustainability Engineering (S)
	<input type="checkbox"/>	2	Elective: <i>Basic Science</i> , <i>Advanced Math</i> , <i>Engineering</i> , or <i>Technical</i> (2 SH minimum)	
	<input type="checkbox"/>	4	<i>Core Knowledge and Understanding (see Core Options sheet) - D&D or GR&C tag</i>	
	<input type="checkbox"/>	2	<i>Core Knowledge and Understanding (see Core Options sheet) - 26 SH of total K&U minimum</i>	
	<input type="checkbox"/>	0	Engineering 394	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 Mar 2024