

(For students admitted in 2025-26 under the 4-year degree)

## BEng in Energy and Environmental Engineering

In addition to the requirements of their major programs, students are required to complete the University requirements for graduation. For details please refer to the respective section on this website.

Students may use no more than 9 credits earned from courses offered in self-paced online delivery mode to satisfy the graduation requirements of a degree program. This 9-credit limit does not apply to credits obtained through the credit transfer procedures of the University.

For students graduating with an additional major, they must take all the requirements specified for that major, within which they must complete at least 20 single-counted credits. These 20 credits cannot be used to fulfill any other requirements for graduation except for the 120-credit degree requirement.

Under the new 30-credit Common Core Program which is applicable to students admitted to the University in 2022-23 and thereafter, courses that have been counted towards Major Requirements are not allowed to be reused for fulfilment of the University Common Core Requirements. Students should look up the details of the Common Core Program including the general and School-/program-specific distributional requirements posted on the Common Core website where the link to it is available on this website.

### Major Requirements

#### Engineering Fundamental Course(s)

			Credit(s) attained
COMP		Note: COMP 1023 <u>OR</u> [(COMP 1022P <u>OR</u> COMP 2011 <u>OR</u> COMP 2012H) <u>AND</u> COMP 1029P]	3-6
COMP	1022P**	Introduction to Computing with Java	3
COMP	1023	Introduction to Python Programming	3
COMP	1029P	Python Programming Bridging Course	1
COMP	2011	Programming with C++	4
COMP	2012H	Honors Object-Oriented Programming and Data Structures	5
CHEM	1012	General Chemistry B: Atomic Structure, Molecules, and Bonding Theories	3
CHEM	1052	Laboratory for General Chemistry B	1
MATH		Note: MATH 1013 <u>OR</u> MATH 1020 <u>OR</u> MATH 1023	3-4
MATH	1013	Calculus I	3
MATH	1020	Accelerated Calculus	4
MATH	1023	Honors Calculus I	3
PHYS		Note: PHYS 1112 <u>OR</u> PHYS 1312	3
PHYS	1112	General Physics I with Calculus	3
PHYS	1312	Honors General Physics I	3

## Required Course(s)

			<b>Credit(s) attained</b>
ENEG	1700	Introduction to Energy and Environmental Engineering	3
ENEG	3110	Materials for Energy Technologies	3
ENEG	3910	Sustainable Energy Laboratory**	3**
ENEG		Note: ENEG 4920 <u>OR</u> ENEG 4930 <u>OR</u> ENEG 4940	6
ENEG	4920	Final Year Design Project	6
ENEG	4930	Energy and Environmental Engineering Thesis Research	6
ENEG	4940	Energy and Environmental Engineering Industrial Project	6
CENG	1000	Foundations of Chemical and Biological Engineering	3
CENG	1010	Academic and Professional Development I	0
CENG	2210	Chemical and Biological Engineering Thermodynamics	3
CENG	2220	Transport Phenomena I	3
CENG	2310	Modeling for Chemical and Biological Engineering**	3
CENG	2320	Modeling for Chemical and Biological Engineering II	3
CENG	3150	Integrated Chemical Process and Product Design	5
CENG	3220	Transport Phenomena II	3
CENG	3230	Chemical and Biological Reaction Engineering	3
CENG	4020	Academic and Professional Development II	0
CENG	4140	Energy Resources, Conversions and Technologies	3
CENG	4710	Environmental Control	3
CENG/CIVL		Note: CENG 4720 <u>OR</u> CIVL 4430	3
CENG	4720	Environmental Impact Assessment and Management Systems	3
CIVL	4430	Environmental Impact Assessment	3
ELEC	2420	Basic Electronics	3
PPOL	3210	Energy Policy	3

## Elective(s)

			<b>Minimum credit(s) required</b>
SENG/CHEM/ ENVR		Area Electives (5 courses from the specified elective list, of which at least 1 course should be taken from Area 1, and at least 1 course should be taken from Area 2)	15
Area 1: Energy Engineering Electives			
ENEG	4130	Photovoltaic Materials and Devices	3
ENEG	4320	Energy Storage Technology	3
CENG	5930	Electrochemical Energy Technologies	3
CIVL	4310	Energy System Modeling for Buildings and Cities	3

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ELEC	4530	Fundamentals of Photovoltaic and Renewable Energy	3
MECH	3630	Electrical Technology	3
MECH	4360	Introduction to Intelligent Building Systems	3
MECH	4902**	Solar Energy Conversion Technology	3
MECH	4912	Green Technologies for Buildings, Energy and Water	3
ENVR	3220	Energy Sources and Usage	3

**Area 2: Environmental Engineering Electives**

CIVL	3420	Water and Wastewater Engineering	3
CIVL	4450	Carbon Footprint Analysis and Reduction	3
CIVL	4470	Air Quality Control and Management	3
CHEM	2311	Analytical Chemistry	3
ENVR	3005	Environmental Risks: Principles and Practices	3
ENVR	3110	Life Cycle Assessment for Sustainable Development	3
ENVR	3210	Environmental Technology for Impact Assessment	3
ENVR	3410	Economics for Environmental Policy and Management	3
ENVR	4320	ESG Management and Reporting	3

**Area 3: Other Electives**

ENEG	4000	Special Topics in Energy and Environmental Engineering	1-4
ENEG	4980	Investigation Project	3
CENG	3110	Process Dynamics and Control	3
CENG	3210	Separation Processes	3
CENG	3300	Data Science for Molecular Engineering	3
CENG	4130	Plant Design and Economics	3
CENG	4160	Prototype Development for Chemical Processes and Products	3
COMP	2211	Introduction to Artificial Intelligence	3
MECH	3610	Control Principles	3
CHEM	2111	Fundamentals of Organic Chemistry	3

**\*\*Remarks on course(s):**

- CENG 2310: The course title will be changed to "Modeling for Chemical and Biological Engineering I" starting from Fall, 2026-27.
- COMP 1022P: The course was last offered in 2024-25 and was deleted subsequently.
- ENEG 3910: The course title will be changed to "Energy and Environmental Engineering Laboratory" starting from Fall, 2027-28.
- ENEG 3910: The credit value will be changed to 4 starting from Fall, 2027-28.
- MECH 4902: The course was last offered in 2021-22 and was deleted subsequently.