

ENGINEERING WITH AN ENVIRONMENTAL ENGINEERING SPECIALIZATION (BS)

Environmental engineers identify, analyze and design solutions to environmental problems, which disproportionately impact historically disadvantaged communities. Addressing environmental issues, such as water and air quality, requires taking into account the underlying impacts of climate change that threaten the global community. Our students learn environmental analysis and management for the water and wastewater treatment industries.

Curriculum

Code	Title	Hours
Engineering Design		
ENGR 101	Introduction to Engineering Design	4
ENGR 201	Experiential Engineering	3
Engineering Core		
ENGR 102	Engineering Science Freshman Seminar	1
ENGR 321	Electronic Circuits & Devices	2
ENGR 322	Chemical & Thermal Processes	3
ENGR 323	Digital Electronic & Computer Engineering	2
ENGR 324	Mechanics	3
ENGR 324L	Core Engineering Lab	1
ENGR 325	Materials Engineering	3
Engineering Systems		
ENGR 311	Engineering Systems I	3
ENGR 312	Engineering Systems II	3
ENGR 313	Engineering Systems III	3
Specialty Engineering Courses		
ENGR 361	Fundamentals of Environmental Engineering	3
ENGR 361L	Fundamentals of Environmental Engineering Lab	1
ENGR 362	Water & Wastewater Engineering	3
ENGR 363	Contemporary Environmental Engineering Challenges	3
ENGR 383	Environmental Engineering Capstone Design I	4
ENGR 393	Environmental Engineering Capstone Design II	3
Math & Science Courses		
BIOL 101 & BIOL 111	General Biology I and General Biology I Lab	4
CHEM 171	General Chemistry for Engineering Science Majors	3
CHEM 173	General Chemistry Lab for Engineering Science Majors	1
COMP 170	Introduction to Object-Oriented Programming	3
MATH 161	Calculus I	4
MATH 162	Calculus II	4
MATH 263	Multivariable Calculus	4
MATH 266	Differential Equations and Linear Algebra	3
PHYS 121	College Physics I Lec/Dis	3

PHYS 122 & PHYS 112L	College Physics II Lec/Dis and College Physics Lab II	4
STAT 203	Introduction to Probability & Statistics	3
Total Hours		84

Suggested Sequence of Courses

Course	Title	Hours
Freshman		
Fall		
ENGR 101	Introduction to Engineering Design ¹	4
MATH 161	Calculus I ²	4
BIOL 101	General Biology I ²	3
BIOL 111	General Biology I Lab ²	1
PHYS 121	College Physics I Lec/Dis ²	3
UNIV 101	First Year Seminar ³	1
Hours		16
Spring		
COMP 170	Introduction to Object-Oriented Programming ²	3
MATH 162	Calculus II ²	4
PHYS 122	College Physics II Lec/Dis ²	3
PHYS 112L	College Physics Lab II ²	1
UCWR 110	Writing Responsibly ³	3
LUC Core ³		3
ENGR 102	Engineering Science Freshman Seminar ⁴	1
Hours		18
Sophomore		
Fall		
ENGR 201	Experiential Engineering ¹	3
MATH 263	Multivariable Calculus ²	4
CHEM 171	General Chemistry for Engineering Science Majors ²	3
CHEM 173	General Chemistry Lab for Engineering Science Majors ²	1
LUC Core ³		3
Foreign Language 101 ³		3
Hours		17
Spring		
ENGR 311	Engineering Systems I ⁵	3
ENGR 321	Electronic Circuits & Devices ⁴	2
MATH 266	Differential Equations and Linear Algebra ²	3
LUC Core ³		3
LUC Core ³		3
Foreign Language 102 ³		3
Hours		17
Junior		
Fall		
ENGR 312	Engineering Systems II ⁵	3
ENGR 322	Chemical & Thermal Processes ⁴	3
ENGR 323	Digital Electronic & Computer Engineering ⁴	2
ENGR 324	Mechanics ⁴	3
ENGR 324L	Core Engineering Lab ⁴	1

LUC Core ³		3
Hours		15
Spring		
ENGR 313	Engineering Systems III ⁵	3
ENGR 325	Materials Engineering ⁴	3
ENGR 361	Fundamentals of Environmental Engineering ⁶	3
ENGR 361L	Fundamentals of Environmental Engineering Lab ⁶	1
STAT 203	Introduction to Probability & Statistics ²	3
LUC Core ³		3
Hours		16
Senior		
Fall		
ENGR 362	Water & Wastewater Engineering ⁶	3
ENGR 383	Environmental Engineering Capstone Design I ⁶	4
LUC Core ³		3
LUC Core ³		3
LUC Core ³		3
Hours		16
Spring		
ENGR 363	Contemporary Environmental Engineering Challenges ⁶	3
ENGR 393	Environmental Engineering Capstone Design II ⁶	3
LUC Core ³		3
LUC Core ³		3
Hours		12
Total Hours		127

¹ Engineering Design

² Math & Science Courses

³ LUC Core/Foreign Language

⁴ Engineering Core

⁵ Engineering Systems

⁶ Specialty Engineering Courses

Learn more at [LUC.edu/engineering](https://www.luc.edu/engineering/) (<https://www.luc.edu/engineering/>)

College of Arts and Sciences Graduation Requirements

All Undergraduate students in the College of Arts and Sciences are required to take two Writing Intensive courses (6 credit hours) as well as complete a foreign language requirement at 102-level or higher (3 credit hours) or a language competency test. More information can be found here (<https://www.luc.edu/cas/college-requirements/>).

Additional Undergraduate Graduation Requirements

All Undergraduate students are required to complete the University Core, at least one Engaged Learning course, and UNIV 101. SPCS students are not required to take UNIV 101. Nursing students in the Accelerated BSN program are not required to take core or UNIV 101. You can find more

information in the University Requirements (<https://catalog.luc.edu/undergraduate/university-requirements/>) area.

Learning Outcomes

Engineering - Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. Our students will possess:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering and mathematics.
2. An ability to apply engineering process to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.