










# B.S. IN ENGINEERING CURRICULUM

|Beginning Fall 2022|








	Math & Science Courses		Engineering Core
	LUC Core/Foreign Language		Engineering Systems
	Engineering Design		Specialty Engineering Courses

## FRESHMAN YEAR

FALL - 16 credit hours







-  ENGR 101 Introduction to Engineering Design (4)
-  MATH 161 Calculus I (4)
-  BIOL 101 General Biology I
-  BIOL 111 General Biology Lab (1)
-  PHYS 121 College Physics I
-  UNIV 101 First Year Seminar (1)

SPRING - 18 credit hours







-  COMP 170 Object-Oriented Programming
-  MATH 162 Calculus II (4)
-  PHYS 122 College Physics II
-  PHYS 112L College Physics Lab (1)
-  UCWR 110 Writing Responsibility
-  LUC Core
-  ENGR 102 Freshman Seminar (1)

## JUNIOR YEAR

FALL - 15 credit hours







-  ENGR 312 Engineering Systems II
-  ENGR 322 Chemical & Thermal Processes
-  ENGR 323 Digital Electronics/Computer Engineering (2)
-  ENGR 324 Mechanics
-  ENGR 324L Core Engineering Lab (1)
-  LUC Core

SPRING - 16 credit hours







-  ENGR 313 Engineering Systems III
-  ENGR 325 Materials Engineering
-  ENGR 3xx Specialty Engineering I
-  ENGR 3xxL Specialty Engineering I Lab (1)
-  STAT 203 Statistics
-  LUC Core

## SOPHOMORE YEAR

FALL - 17 credit hours






-  ENGR 201 Experiential Engineering
-  MATH 263 Multivariate Calculus (4)
-  CHEM 171 General Chemistry for ENGR
-  CHEM 173 General Chemistry Lab for ENGR (1)
-  LUC Core
-  Foreign Language 101

SPRING - 17 credit hours





-  ENGR 311 Engineering Systems I
-  ENGR 321 Electronic Circuits & Devices (2)
-  MATH 266 Differential Equations and Linear Algebra
-  LUC Core
-  LUC Core
-  Foreign Language 102

## SENIOR YEAR

FALL - 16 credit hours

-  ENGR 38x Specialty Capstone Design I (4)
-  ENGR 3xx Specialty Engineering II
-  LUC Core
-  LUC Core
-  LUC Core

SPRING - 12 credit hours

-  ENGR 39x Specialty Capstone Design II
-  ENGR 3xx Specialty Engineering III
-  LUC Core
-  LUC Core

# ENGINEERING STUDENT-CENTERED LEARNING



## A Nationally-Ranked Program

- ABET-accredited since Fall, 2020.
- Once eligible for ranking in Best Undergraduate Engineering Programs (No Doctorate), the 2022 U.S. News & World Report ranked Loyola Engineering 39th (tied) of 239 U.S. programs.
- Once eligible for ranking in the American Society for Engineering Education (ASEE) survey, Loyola Engineering is 6th of 429 in 2020 Percentage Bachelor's Degrees Awarded to Women.
- First U.S. program to fully integrate engineering and social justice.
- Engineering classrooms/labs are badge-access only for our students, to facilitate community.

## A Distinctive Curriculum

- Industry leaders provide input to specialty courses, ensuring that students have relevant skills for summer internships.
- The curriculum focuses on system theory and engineering design--both are key areas that will set students apart when they graduate.
- Senior capstone projects are industry-sponsored over two semesters, with each student group meeting weekly with its Sponsor.
- Each ENGR course section seats at most 24 students, to facilitate Active Learning.

## Active Learning

**Definition:** Any instructional method that engages students in the learning process, including Collaborative and Problem-Based Learning.

**Learning Outcomes:** Increased student performance (Freeman, et al., Proceedings of the National Academy of Sciences, 2014, 111: 8410-8415). Greater frequency of student-centered teaching leads to greater design skills for women (Ro and Knight, Journal of Engineering Education, 2016, 478-507).

**Curriculum Use:** Every ENGR course meeting starts with a mini-lecture, followed by group activities.

