University of Indianapolis – Shaheen College of Arts & Sciences
2025-2026 Curriculum Guide for General Engineering Majors (GENE)
Bachelor of Science in Engineering

General Engineering (GENE) is a broad term that covers many engineering disciplines. The general engineering curriculum allows for a curriculum tailored to student's interests in collaboration with a faculty advisor. In selecting engineering courses for the GENE program, students must work with a faculty advisor to choose classes that ensure sufficient breadth and depth within some discipline. In particular, the GENE program can include only engineering, math, and science courses that are sufficiently rigorous to count toward a major in a given discipline (e.g., math, science, or engineering; see the list below of appropriate science [Table 1] and math courses [Table 2].) This degree requires 120 hours for completion. To meet accreditation requirements, a minimum of 30 hours of math and science courses appropriate for the program, including MATH-190, MATH-191, and laboratory experience, are required. In addition, at least 16 hours of engineering courses must be taken at the 300-400 level. Of these 16 hours, at least three credits must be taken at the 400 level in a specific disciplinary area (e.g., MENG, ISEN, EENG, CSCI/SWEN), not ENGR. Also, a minimum of 45 hours in courses inside the R.B. School of Engineering (including CSCI) must be obtained.

Total Required Hours: 120
Total Required Math and Science: 30
Total Required Engineering: 45

Freshman and Sophomore Year

- **CSCI 155** Introduction to Programming using C++ (3)
- **ENGR 196** Introduction to Engineering (Design Lab I) (3)
- **ENGR 198** Engineering Design Lab II (1)
- **ENGR 210** Engineering Economics (3)
- **ENGR 296** Engineering Design Lab III (1)
- **ENGR 298** Engineering Design Lab IV (1)
- **MATH 190** Calculus and Analytic Geometry I (4)
- **MATH 191** Calculus and Analytic Geometry II (4)
- Additional Required Math, Science, and Engineering Courses

Junior and Senior Year

- **ENGR 396** Engineering Design Lab V (1)
- **ENGR 398** Engineering Design Lab VI (1)
- **ENGR 496** Engineering Design Lab VII (1)
- **ENGR 498** Engineering Design Lab VIII (2) (capstone)
- Additional Required Math, Science, and Engineering Courses

NOTES:

- A grade of C- (1.7 on a 4.0 scale) or higher is required in all courses in the Bachelor of Science in General Engineering Degree at the University of Indianapolis.
- A minimum of 120 hours is required to earn a Bachelor of Science Degree from the University of Indianapolis.
- An average grade of C or higher is required in all required Engineering, Mathematics, and Science courses for the General Engineering Program.
- A student may complete more than one major as long as each major has at least 24 discrete hours. Please see the Academic Catalog for additional details.

REMEMBER: If you have any questions about the General Engineering major requirements, contact a faculty advisor from the R. B. Annis School of Engineering (Kenneth Reid, 788-3657; Annis Hall, Room 105) or your academic advisor.

Table 1. Science Courses that count for GENE

SUBJECT	NUMBER	TITLE	LAB	Counts towards Gen Ed Natural Science
BIOL	159	Introduction to Ecology and Evolution	x	
BIOL	165	Introduction to Cell Biology	x	x
BIOL	225	Introduction to Genetics	x	
BIOL	260	Biodiversity	x	
BIOL	265	Ecology	x	
BIOL	280	Evolutionary Biology	x	
BIOL	335	Cell Biology	x	
BIOL	2XX	Approved BIOL course 200 level or higher		
CHEM	150/151	General Chemistry I	x	
CHEM	160/161	General Chemistry II	x	
CHEM	250/251	Organic Chemistry I	x	
CHEM	260/261	Organic Chemistry II	x	
CHEM	230	Environmental Chemistry	x	
CHEM	310	Analytical Chemistry	x	
CHEM	320	Biochemistry	x	
CHEM	370/375	Physical Chemistry	x	
CHEM	2XX	Approved CHEM course 200 level or higher		
PHYS	153	General Physics I/Calc Based	x	x
PHYS	163	General Physics II/Calc Based	x	
PHYS	250	Modern Physics	x	
PHYS	390	Electricity and Magnetism		
PHYS	415	Physical Measurements	x	
PHYS	2XX	Approved PHYS course 200 level or higher		x (e.g., 207)
ESCI	100	Elements of Earth Space Science	x	x
ESCI	101	Geohazards & Natural Disasters	x	x
ESCI	150	Physical Geology	x	x
ESCI	151	Physical Geology B		
ESCI	202	Physical Geography	x	x
ESCI	206	Time, Trilobites, and T-Rex	x	x
ESCI	207	Astronomy	x	x
ESCI	230	Intro to GIS		
ESCI	211	Meteorology	x	x
ESCI	360	Earth Systems		
ESCI	2XX	Approved ESCI course 200 level or higher		

Table 2. Math courses for GENE

SUBJECT	NUMBER	TITLE	Credits
MATH	190	Calculus I	4
MATH	191	Calculus II	4
MATH	270	Calculus III	4
MATH	280	Linear Algebra	4
MATH	230	Calculus Sequence Seminar	1
MATH	300	Foundations of Abstract Mathematics	4
MATH	330	Differential Equations	3
MATH	345	Applied Statistical Methods	4
MATH	350	Prob and Stats I	3
MATH	351	Prob and Stats II	3
MATH	360	Proof & Linear Algebra Seminar	1
MATH	2XX	Approved MATH course 200 level or higher	1