

University of Indianapolis – Shaheen College of Arts & Sciences/R.B. Annis School of Engineering
2025-2026 Curriculum Guide for Industrial and Systems Engineering Majors (ISEN)
 Bachelor of Science

Industrial and Systems Engineering is an engineering discipline that focuses on the design, implementation, and operations of effective and efficient manufacturing and service delivery processes.

Freshman and Sophomore Year

- **CHEM 150** General Chemistry I (3)
- **CHEM 151** General Chemistry Laboratory I (1)
- **CSCI 155** Introduction to Programming (3)
- **ENGR 185** Orientation to Engineering (1)
- **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)
- **ISEN 210** Introduction to Industrial Engineering (3)
- **ISEN 220** Process Modeling and Simulation (3)
- **MATH 190** Calculus and Analytic Geometry I (4)
- **MATH 191** Calculus and Analytic Geometry II (4)
- **MATH 270** Calculus and Analytic Geometry III (4)
- **MATH 280** Linear Algebra (3)
- **MATH 350** Probability and Statistics I (3)
- **MATH 351** Probability and Statistics II (3)
- **MENG 120** Engineering Graphics (1)
- **PHYS 153** General Physics I, Calculus Based (4)
- **PHYS 163** General Physics II, Calculus Based (4)

Junior and Senior Year

- **CIS 351** Predictive Analytics (3)
- **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)
- **ISEN 300** Human Factors Engineering and Ergonomics (3)
- **ISEN 320** Facilities Planning (3)
- **ISEN 335** Operations Research I (3)
- **ISEN 340** Operations Research II (3)
- **ISEN 410** Introduction to Systems Engineering and Design (3)
- **ISEN 420** Statistical Quality Control (3)
- **ISEN 430** Analysis of Networks and Strategies (3)
- **ISEN 440** Logistics and Supply Chain Management (3) **OR**
- **SCM 485** Business Logistics and Materials Management (3)
- **ISEN 450** Lean Methods and Processes (3)
- **ISEN 460** Introduction to System Architecture and Design (3)
- **MATH 330** Differential Equations (3)

The Data Science Concentration requires a minimum of 14 hours

Required Courses (14 credits)

- CSCI 155 Introduction to Programming using (3)
- CSCI 240 Data Structures and Algorithm (4)
- CSCI 424 Big Data Mining (4)
- CIS 351 Predictive Analytics (3)

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 Industrial and Systems 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.
- A typical ISEN major can satisfy degree requirements with 131 credits.
- An average grade of C or higher is required in all required Engineering, Mathematics, Science and Computer Science courses for the Industrial and Systems 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 Industrial and Systems Engineering major requirements, contact a faculty advisor from the R.B. Annis School of Engineering (Associate Dean Kenneth Reid, 317-788-3657, Annis Hall, Room 105) or your academic advisor. Courses and requirements sometimes change, so keep in contact with your advisor.