

SIE Undergraduate Minors

2026-2027

Minors Offered:

- Systems Engineering
- Industrial Engineering
- Engineering Management

Declare an SIE Minor:

- 2.0 GPA
- PreCalc completed with a C or higher (or sufficient AP credit)
- Declared major (cannot be any No Major Selected majors)

*If you are a *Systems* or *Engineering Management* major, please refer to your specific major's minor course guide. This document **does not apply** to you due to the unique unit requirement.

** If you declared an SIE major prior to Fall 2025, please view the older catalog requirements [linked here](#) or check your academic advisement report on UAccess Student Center.

Systems Engineering Minor

*Course offering semesters subject to change frequently. Please consult with your SIE advisor to ensure your plan is always up to date.

Required:

- SIE 258 – Intro to Systems & Industrial Engineering (prerequisite: MATH 129, fall, spring)
- SIE 277 – Object-Oriented Modeling and Design (prerequisite: ECE 101/175 or CSC 110, fall, spring)
- SIE 305 – Engineering Probability & Statistics (prerequisite: MATH 129, fall, spring, summer)
- SIE 454A – Systems Engineering Process (fall, spring)
- *SIE 422 – Engineering Decision Making Under Uncertainty (prerequisite: SIE 305, fall)
OR SIE 458 – Model Based Systems Engineering (prerequisite: SIE 454A, fall only)

Choose 1 course from:

- SIE 408 - Reliability Engineering (prerequisite: SIE 305, pending)
- SIE 410A - Human Factors & Ergonomics in Design (corequisite: SIE 305, fall, spring)
- SIE 432 - Sports Analytics (prerequisite: SIE 305, summer only)
- SIE 431 – Simulation Modeling and Analysis (prerequisite: SIE 305, fall, spring, summer)
- SIE 452 – Space Systems Engineering (spring only)
- SIE 455 – Sensor Systems Engineering (prerequisite: SIE 305, spring only)
- SIE 466 – Life Cycle Analysis for Sustainable Design and Engineering (spring only)
- SIE 471 – Systems Cyber Security Engineering (prerequisite: ECE 101/175 or CSC 110, fall only)
- SIE 477 - Introduction to Biomedical Informatics (prerequisite: ECE 101/175 or CSC 110, fall)
- SIE 492 or 493 – Directed Research or Internship (requires director approval, 3 units max)

*Whichever was not taken towards “required core” (between SIE 422 and SIE 458) can be taken as an elective course.

If you do not have advanced standing in the College of Engineering, please reach out to advisor@sie.arizona.edu for enrollment help.

Industrial Engineering Minor

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Required:

- SIE 305 – Intro to Engineering Probability and Statistics (prerequisite: MATH 129, fall, spring, summer)
- SIE 340 – Deterministic Operations Research (prerequisite: SIE 270 & SIE 265, fall, summer)
- SIE 383 - Integrated Manufacturing Systems (prerequisites: PHYS 141, spring only)
- SIE 431 – Simulation Modeling and Analysis (prerequisite: SIE 305, fall, spring, summer)

Choose 2 courses from:

- SIE 251 – Introduction to Industrial Engineering (prerequisite: MATH 129, fall, spring)
- SIE 321 – Probabilistic Models in Operations Research (prerequisite: SIE 305, spring only)
- SIE 330R – Engineering Experiment Design (prerequisite: SIE 305, spring only)
- SIE 377 – Software for Engineers (prerequisite: ECE 101 /175 or CSC 110, fall only)
- SIE 406 - Quality Engineering (prerequisite: SIE 305, fall only)
- SIE 408 - Reliability Engineering (prerequisite: SIE 305, pending)
- SIE 410A - Human Factors & Ergonomics in Design (prerequisite: SIE 305, fall, spring)
- SIE 432 - Sports Analytics (prerequisite: SIE 305, summer only)
- SIE 433 - Fundamentals of Data Science for Engineers (prerequisite: SIE 305, spring only)
- SIE 440 - Survey of Optimization Methods (prerequisite: SIE 340, spring only)
- SIE 449 - Optimization for Machine Learning (prerequisite: SIE 340 or SIE 270 (SIE 305 encouraged), spring only)
- SIE 462 - Production Systems Analysis (prerequisites: SIE 305 & SIE 340, spring only)
- SIE 465 - Supply Chain Management (prerequisites: SIE 305 & SIE 340, spring only)
- SIE 481 – Design for Additive Manufacturing (prerequisites: SIE 383, spring only)
- SIE 482 – Lean Engineering (prerequisites: SIE 305, spring only)
- SIE 488 – Smart Manufacturing Systems (prerequisites: SIE 305, ECE 101/CSC 110)
- SIE 492 or 493 – Directed Research or Internship (requires director approval, 3 units max)

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Engineering Management Minor

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Required:

- SIE 265 - Engineering Economy (prerequisite: MATH 122B, fall & spring)
- SIE 305 – Intro to Engineering Probability and Statistics (prerequisite: MATH 129, fall, spring, summer)
- SIE 457 – Project Management (prerequisite: SIE 305, fall, spring)
- BNAD 302 – Human Side of Organizations

Choose 2 courses from:

- SIE 406 – Quality Engineering (prerequisite: SIE 305, fall only)
- SIE 410A – Human Factors & Ergonomics in Design (prerequisite: SIE 305, fall, spring)
- SIE 414 – Law for Engineers and Scientists (spring only)
- SIE 415 – Technical Sales and Marketing (fall & spring)
- SIE 422 – Engineering Decision Making Under Uncertainty (prerequisite: SIE 305, fall only)
- SIE 431 – Simulation Modeling and Analysis (prerequisite: SIE 305, fall, spring, summer)
- SIE 433 - Fundamentals of Data Science for Engineers (prerequisite: SIE 305, spring only)
- SIE 465 – Supply Chain Management (prerequisite: SIE 305 & SIE 340, spring only)
- SIE 492 or 493 – Directed Research or Internship (requires director approval, 3 units max)
- BNAD 301 – Global and Financial Economics & Strategies (prereq: ECON 200, fall, spring)
- ECON 200 – Basic Economic Issues (fall, spring, summer)
- ACCT 250 - Information for Business Decisions (fall, spring, summer)

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THE UNIVERSITY OF ARIZONA
COLLEGE OF ENGINEERING

**Systems & Industrial
Engineering**

Questions?

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Faculty Directors:

Systems Engineering – Dr. Alejandro Salado, alejandrosalado@arizona.edu

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Engineering Management – Dr. Mike Kwinn, kwinnm@arizona.edu