Advanced Industrial Engineering Electives
(Choose 9 hours from the following)

Data Engineering & Operations Research
- EE 3326 – Numerical & Scientific Data Analysis Using Python
- EE 4331* – Introduction to Machine Learning for Engineering Applications
- IE 3305 – Intro to Data Analysis
- IE 4340* – Non-Linear Optimization
- IE 4342* – Advanced Linear & Integer Programming
- IE 4399D – Heuristic Optimization
- IE 4399F – Introduction to Data Intensive Analysis & Simulation
  * - Choose 1 of the starred options if minoring in Data Analytics.
  (Check Prerequisites)

Cooperative Education & Undergraduate Research
(Maximum of 3 hours)
- ENGR 3190 – Cooperative Education
- ENGR 3290 – Advanced Cooperative Education
- ENGR 4299 – Engineering Undergraduate Research
- ENGR 4395 – Independent Studies in Engineering
  (Check Prerequisites)

Manufacturing Engineering
- MFGE 4367 – Polymer Properties & Processing
- MFGE 4318 – Additive Manufacturing
- EE 4392 – Micro Electronics Manufacturing

Professional Certification Electives
- IE 4399G – Special Topics in Project Management
- IE 4335 – Lean Six Sigma Methodologies

Systems Engineering
- IE 4381 – Introduction to Systems Engineering

Human Factors
- IE 4360 – Human Factors Design

Resilient and Sustainable Operations
- IE 4330 – Reliability Engineering

Other
- EE 4357 – Power Systems
  (Check Prerequisites)

To earn a minor in Data Analytics, the following courses must be completed:
- ANLY 2300
- EE 4331 or EE 4340 or IE 4342 must be chosen as an Advanced Industrial Engineering Elective option and to fulfill the algorithms/data mining requirement.
- Required IE major courses will fulfill the remaining minor requirements:
  1. IE 3320 (statistics),
  2. CS 1342 (computer/programming),
  3. IE 3330 & IE 3340 (prescribed electives; IE 4310 & IE 4370 will also meet this requirement).

To earn a minor in Mathematics, students must choose one of the following course options:
- MATH 3330
- HON 3392V

An Applied Mathematics minor can be earned without taking any additional coursework.

Contact a COSE Academic Advisor for more information.