

WESTERN CAROLINA UNIVERSITY

B.S. ENGINEERING

INDUSTRIAL CONCENTRATION

Industrial engineering focuses on optimizing complex systems, processes, and organizations by integrating people, materials, information, equipment, and energy. As an industrial engineer, you'll blend engineering principles with business practices to make organizations more efficient, productive, and cost-effective. Industrial engineers are in demand across a wide range of industries—from optimizing production lines in automotive and aerospace manufacturing to improving patient care in healthcare, streamlining logistics in supply chains, and enhancing user experiences in tech and software. This degree program is ABET accredited.

CAREER PATHS

Industries

- Manufacturing (Automotive, Electronics, Aerospace)
- Healthcare (Hospital Operations, Medical Device Production)
- Logistics & Supply Chain
- Technology & Software
- Energy & Utilities
- Retail & E-commerce
- Consulting (Business Process Improvement, Lean Systems)

Job Titles

- Industrial Engineer
- Manufacturing Engineer
- Process Improvement Analyst
- Quality Engineer
- Operations Manager
- Supply Chain Analyst
- Logistics Engineer
- Systems Engineer
- Lean Six Sigma Consultant
- Data Analyst

Income Data for Typical BSE-IE Graduates

U.S. salary data collected from O*NET OnLine (2024)

- Early Career: \$70,000 to \$81,900
- Mid-career: \$101,100 to \$127,500

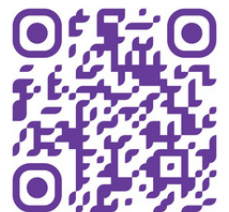


SENIOR CAPSTONE PROJECT

2-semester Project
Faculty & Industry Mentors
Partnership with Industries
Industry Sponsored

THE RAPID CENTER

Applied Experiences
Research & Development



B.S. ENGINEERING, INDUSTRIAL

WCU 8-Semester Plan - Fall 2025

YEAR 1

Fall		
Course #	Course Name	Hours
MATH 153	Calculus I	4
CHEM 139	General Chemistry I	4
ENGR 199	Engineering Principles I	3
Wellness		3
Perspective		3
	Total Hours	17

Spring		
Course #	Course Name	Hours
MATH 255	Calculus II	4
PHYS 230	General Physics I	4
ENGR 123	Engineering Programming	3
ENGL 101	Writing and Rhetoric	3
COMM 201	Foundations of Communication	3
	Total Hours	17

YEAR 2

Fall		
Course #	Course Name	Hours
ENGR 200	Engineering Principles II	3
MATH 256	Calculus III	4
ENGR 201	Statics	3
PHYS 231	General Physics II	4
ENGR 247	3D CAD Modeling	3
	Total Hours	17

Spring		
Course #	Course Name	Hours
ENGL 202	Writing and Critical Inquiry	3
MATH 320	Ordinary Differential Equations	3
IE 222	Intro to Industrial Engineering	2
ENGR 211	Materials Science	3
ENGR 251	Engineering Process Control	3
IE 215	Human Factors Lab	1
	Total Hours	15

YEAR 3

Course #	Course Name	Hours
ENGR 350	Course Name	
IE 324	Engineering Principles III	3
ENGR 411	Det. Operations Research	3
MATH 370	Engineering Numerical Analysis	3
	Probability & Statistics	3
	Perspective	3
	Total Hours	15

Spring		
Course #	Course Name	Hours
IE 365	Facilities Planning & Design	3
IE 378	Design of Experiments	3
ME 301	Dynamics	3
MGT 367	Intro to Project Management	3
	Perspective	3
	Total Hours	15

YEAR 4

Fall		
Course #	Course Name	Hours
ENGR 400	Capstone I	3
ENGR 436	Engineering Economic Analysis	3
MGT 408	Supply Chain Management	3
IE 410	Quality Control	3
	Perspective	3
	Total Hours	15

Spring		
Course #	Course Name	Hours
ENGR 450	Capstone II	3
IE 452	Reliability and Maintainability	3
	Tech Elective	3
	Perspective	3
	UL Perspective	3
	Total Hours	15

Notes:

- Total for degree: 126 Credit Hours
- Minimum GPA in major: 2.30
- Upper Level Perspective (ULP): An approved ULP course is required at the 300-400 level in one of Liberal Studies Perspectives categories.
- This 8-semester plan should be used FOR REFERENCE ONLY. Students can find degree requirements via Degree Audit.