

WESTERN CAROLINA UNIVERSITY

# B.S. MECHANICAL ENGINEERING

The Mechanical Engineering program focuses on the design, analysis, and manufacturing of mechanical systems. Students study core topics such as mechanics, thermodynamics, fluid dynamics, materials, and machine design, gaining hands-on experience through labs and projects. The curriculum prepares students to solve complex engineering problems and develop innovative technologies in industries such as aerospace, automotive, energy, and healthcare. Graduates are well-prepared for dynamic careers in mechanical design, product innovation, and advanced manufacturing.

## CAREER PATHS

### Industries

- Automotive
- Aerospace/Defense
- Medical
- Commercial Products
- Computers/Gaming Platforms

### Job Titles

- Design Engineer
- Manufacturing Engineer
- Project Engineer
- Quality Engineer
- Applications Engineer
- Engineering Sales

### Income Data for Typical BS ME Graduates

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

- Early Career: \$74,700 to \$89,500
- Mid-career: \$112,800 to \$144,100

### LABS

Engineering Design

Material Science

Heat Transfer

Makerspace

Finite Element Analysis

Dynamics & Controls

### SENIOR CAPSTONE PROJECT

2-semester Project

Faculty & Industry Mentors

Partnership with Industries

Industry Sponsored

### THE RAPID CENTER

Applied Experiences

Research & Development



# B.S. MECHANICAL ENGINEERING

## WCU 8-Semester Plan - Fall 2025

### YEAR 1

Fall		
Course #	Course Name	Hours
MATH 153	Calculus I (C2)	4
CHEM 139	General Chemistry I (C5)	4
ENGR 199	Intro to Eng/Prac/Prin. I	3
Wellness (C4)		3
Perspective		3
	Total Hours	17

Spring		
Course #	Course Name	Hours
MATH 255	Calculus II	4
PHYS 230	General Physics I (C5)	4
ENGR 123	Engineering Programming	3
ENGL 101	Writing and Rhetoric	3
COMM 201	Foundations of Communication (C3)	3
	Total Hours	17

### YEAR 2

Fall		
Course #	Course Name	Hours
MATH 256	Calculus III	4
ENGR 201	Engineering Mechanics: Statics	3
ENGR 200	Eng/Prac/Prin. II	3
PHYS 231	General Physics II	4
ENGR 247	3D CAD Modeling	3
	Total Hours	17

Spring		
Course #	Course Name	Hours
MATH 320	Ordinary Differential Equations	3
ENGR 202	Mechanics of Materials	3
ENGR 211	Material Science	3
ME 211	Material Science Lab	1
ME 301	Engineering Mechanics: Dynamics	3
ENGL 202	Writing and Critical Inquiry	3
	Total Hours	16

### YEAR 3

Fall		
Course #	Course Name	Hours
ME 321	Fluid Dynamics	3
ME 311	Fluid Dynamics Lab	1
ME 332	Heat Transfer	3
ENGR 315	Electrical Engr. Fundamentals	3
ENGR 411	Engineering Numerical Analysis	3
Perspective		3
	Total Hours	16

Spring		
Course #	Course Name	Hours
ENGR 350	Engr Prac & Principles III	3
ME 302	Design of Machine Elements I	3
ME 312	Design of Machine Lab	1
ENGR 353	Thermodynamics	3
ME 333	Heat Transfer Lab	2
Perspective		3
	Total Hours	15

### YEAR 4

Fall		
Course #	Course Name	Hours
ENGR 400	Engineering Capstone I	3
ME 401	Design of Machine Elements II	3
MATH 370	Probability of Statistics	3
Tech. Elective	Advanced Engineering Topic	3
Perspective		3
	Total Hours	15

Spring		
Course #	Course Name	Hours
ENGR 450	Engineering Capstone II	3
ME 403	Control of Dynamic Systems	3
ME 404	Controls Lab	1
Perspective		3
ULP		3
	Total Hours	13

#### 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.