

WESTERN CAROLINA UNIVERSITY

B.S. ELECTRICAL ENGINEERING

ELECTRIC POWER & CLEAN ENERGY CONCENTRATION

The B.S. in Electrical Engineering (EE) with a concentration in Electric Power and Clean Energy focuses on electrical power and clean energy systems. Topics may include power systems, transmission and distribution systems, electromechanical energy conversion, power electronics, and power converters, with an emphasis on clean and sustainable energy resources and systems and their integration into electric power systems. This degree program is ABET accredited.

CAREER PATHS

Industries

- Electric Power Generation (hydroelectric, nuclear, renewable energies)
- Utility Companies
- Solar & Wind Energy Firms
- Railways & Airports
- Electric Vehicle Infrastructure
- Energy Consulting & Auditing
- Chemical & Petrochemical Plants
- Metallurgical & Mining Operations
- Paper & Pulp Mills

Job Titles

- Electrical Engineer
- Power Systems Engineer
- Renewable Energy Engineer
- Electric Power Engineer
- Power Electronics Engineer
- Grid Engineer
- Protection and Controls Engineer
- Energy Analyst
- Nuclear Engineer

Income Data for Typical BSEE-EPCE Graduates

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

- Early Career: \$73,606 to \$92,204
- Mid-career: \$120,504 to \$153,714



LABS

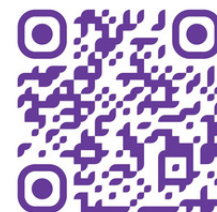
Analog and Digital Circuits
Power Electronics
Power Systems
Motors & Controls

SENIOR CAPSTONE PROJECT

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

THE RAPID CENTER

Applied Experiences
Research & Development



B.S. ELECTRICAL, ELECTRIC POWER & CLEAN ENERGY

WCU 8-Semester Plan - Fall 2025

YEAR 1

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

Spring		
Course #	Course Name	Hours
COMM 201	Communications (C3)	3
ENGR 123	Engineering Programming	3
ENGL 101	Writing & Rhetoric (C1)	3
MATH 255	Calculus II	4
PHYS 230	General Physics I	4
	Total Hours	17

YEAR 2

Fall		
Course #	Course Name	Hours
EE 201	Network Theory I	3
EE 221	Logic Systems Design I	3
EE 211	Logic & Networks Lab	1
ENGR 200	Engr Prac & Principles II	3
MATH 320	Ord. Diff. Equations	3
PHYS 231	General Physics II (lecture only)	3
	Total Hours	16

Spring		
Course #	Course Name	Hours
EE 202	Network Theory II	3
EE 212	Instrumentation & Networks Lab	1
ENGL 202	Writing & Critical Inquiry (C1)	3
MATH 256	Calculus III	4
Perspective		3
	Total Hours	14

YEAR 3

Fall		
Course #	Course Name	Hours
EE 311	Electronic Devices Lab	1
EE 321	Electromagnetic Fields	3
EE 331	Fund. Elect & Semiconductors	3
EE 351	System Analysis I	3
MATH 370	Probability & Statistics I	3
EE 451	Electric Power Systems	3
	Total Hours	16

Spring Course		
#	Course Name	Hours
EE 312	Systems & Electronics Lab	1
ENGR 353	Thermodynamics	3
ENGR 350	Engr Prac & Principles III	3
ENGR 402	System Dynamics and Control	3
ENGR 411	Engineering Numerical Analysis	3
Perspective		3
	Total Hours	16

YEAR 4

Fall		
Course #	Course Name	Hours
ENGR 400	Engineering Capstone I	3
EE 471	Power Electronics: Design & Analysis	3
Tech Elective		3
Perspective		3
Perspective		3
	Total Hours	15

Spring		
Course #	Course Name	Hours
ENGR 450	Engineering Capstone II	3
EE 452	Electric Machines and Drives	3
EE 472	Adv. Pwr Electronics & Drives: Design & Analysis	3
Tech Elective		3
ULP		3
	Total Hours	15

Notes:

- Total for degree: 126 Credit Hours
- Minimum GPA in major: 2.20
- 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.