

ELECTRICAL ENGINEERING, BACHELOR OF SCIENCE (537P, 537)

Program Coordinator

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Electrical engineering touches virtually every aspect of life in the twenty-first century. Electrical engineers are experts in dealing with electricity, electromagnetism, and electronics. Electrical engineers are employed in a variety of industries including:

- Circuits and Electronics
- Communication and Signal Processing
- Electrical Power Systems
- Computer Hardware and Embedded Systems
- Robotics, Control Systems and Automation
- Biomedical Applications
- Automotive and Aerospace Systems
- Manufacturing plants

The mission of our Electrical Engineering Program at WKU is to build a foundation of knowledge in electrical engineering by integrating a variety of project experiences at every level throughout the curriculum. Our program is to be relevant to our region and to produce graduates who can immediately contribute to the profitability of their employer. Our electrical engineering curriculum exposes students to a variety of topics to prepare them for careers as engineers.

The WKU Electrical Engineering program is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

Electrical Engineering Program Educational Objectives

The program achieves its mission by focusing on specific educational objectives. A few years after graduation, WKU EE graduates are expected to be:

- Objective 1:** Pursuing successful and productive careers;
Objective 2: Applying their engineering education to address real-world problems;
Objective 3: Continuing their professional development and engaging in lifelong learning; and
Objective 4: Emerging as leaders in their companies, professions, and communities.

For detailed information on the electrical engineering program, please see <http://wku.edu/seas> (<http://wku.edu/seas/>) and/or contact your advisor.

Academic Standards for the Electrical Engineering Program

Students are admitted as a pre-major in Electrical Engineering. In order to transition from the pre-major to major and to graduate with a degree in Electrical Engineering, students must complete the following courses earning a grade of "C" or better in each course.

Code	Title	Hours
EE 210	Circuits & Networks I	3.5
MATH 136	Calculus I (F-QR)	4
MATH 137	Calculus II	4
PHYS 255	University Physics I (E-NS)	4
PHYS 265	University Physics II (E-NS Lab)	4
Human Communication (F-OC)		3
College Composition (F-WC)		3

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Program Requirements (55 hours)

A baccalaureate degree requires a minimum of 120 unduplicated semester hours. More information can be found at www.wku.edu/registrar/degree_certification.php. (https://www.wku.edu/registrar/degree_certification.php)

Students who began WKU in the Fall 2014 and thereafter should review the Colonnade requirements located at: <https://www.wku.edu/colonnade/colonnaderequirements.php>. (<https://www.wku.edu/colonnade/colonnaderequirements.php>)

Courses Required for Major

Code	Title	Hours
Program Courses		
EE 101	Electrical Engineering Design I	1
EE 180	Digital Circuits	3
EE 200	Electrical Engineering Design II	2
EE 210	Circuits & Networks I	3.5
EE 211	Circuits & Networks II	3.5
EE 300	Electrical Engineering Design III	1
EE 345	Electronics	4
EE 380	Microprocessors	4
ENGR 490	Senior Project I	2
ENGR 491	Senior Project II	3
EE 420	Signals and Linear Systems	3
EE 431	Introduction to Power Systems	3.5
EE 460	Continuous Control Systems	3.5
EE 473	Electromagnetics I	3
or PHYS 440	Electricity and Magnetism I	
Select 12 hours of the following Tech Electives I:		12
EE 410	Computer Design	
EE 411	Computer Design Lab	
EE 432	Power Systems II	
EE 436	Electric Machines and Drives	
EE 443	Microfabrication and MEMS	
EE 445	Advanced Electronics	
EE 447	Analog IC Design	
EE 448	Analog IC Design Laboratory	
EE 450	Digital Signal Processing	
EE 451	Digital Signal Processing Lab	
EE 461	Discrete Control Systems	
EE 470	Communications and Modulation	

EE 475	Communication Systems Lab	
EE 477	Numerical Techniques in Electromagnetics	
EE 479	Optoelectronics	
EE 480	Embedded Systems	
EE 490	Introduction to Robotics	
EE 499	EE Special Topics	
CS 315	Introduction to Unix	
CS 360	Software Engineering I	
ENGR 360	System Dynamics and Modeling	
PHYS 318	Data Acquisition Using Labview	
PHYS 445	Electromagnetism II	
Select three hours of the following Tech Electives II:		3
CS 339	Discrete Structures	
EM 222	Statics	
or PHYS 350	Classical Mechanics I	
EM 303	Mechanics of Deformable Solids	
ENGR 400	Principles of Systems Engineering	
MATH 305	Introduction to Mathematical Modeling	
MATH 310	Introduction to Discrete Mathematics	
ME 220	Engineering Thermodynamics I	
or PHYS 330	Thermodynamics	
ME 240	Materials and Methods of Manufacturing	
ME 330	Fluid Mechanics	
or CE 342	Fluid Thermal Science	
MFGE 343	Automated Systems	
PHYS 316	Computational Physics	
PHYS 450	Classical Mechanics II	

Total Hours **55**

Additional Courses

Code	Title	Hours
CS 180	Computer Science I	4
CS 290	Computer Science II	4
ECON 202	Principles of Economics (Micro)	3
or ECON 203	Principles of Economics (Macro)	
MATH 237	Multivariable Calculus	4
MATH 331	Differential Equations	3
PHYS 256	University Physics I Lab	1
STAT 301	Introductory Probability and Applied Statistics	3
Select one of the following 3-hour math electives:		3
MATH 307	Introduction to Linear Algebra	
MATH 370	Applied Techniques in Mathematics	
Select one of the following Chemistry Courses		3
CHEM 116	Introduction to College Chemistry	
CHEM 120	College Chemistry I	

Total Hours **28**

Finish in Four Plan

First Year			
Fall	Hours	Spring	Hours
EE 180		3 EE 101	1
MATH 136 (F-QR)		4 MATH 137	4
CS 180		4 PHYS 255 (E-NS)	4
College Composition (F-WC)		3 PHYS 256 (E-NS Lab)	1
		CS 290	4
		14	14

Second Year			
Fall	Hours	Spring	Hours
EE 200		2 EE 211	3.5
EE 210		3.5 EE 380	4
MATH 237		4 MATH 331	3
PHYS 265		4 CHEM 116 or CHEM 120 (E-NS)	3
Human Comm (F-OC)		3 ECON 202 or ECON 203 (E-SB)	3
		16.5	16.5

Third Year			
Fall	Hours	Spring	Hours
EE 345		4 EE 300	1
EE 420		3 EE 431	3.5
EE 473		3 Tech Elective I	3
MATH 307 or MATH 370		3 Writing in the Disciplines (F-WC)	3
Literary Studies (F-AH)		3 STAT 301	3
		Arts & Humanities Elec (E-AH)	3
		16	16.5

Fourth Year			
Fall	Hours	Spring	Hours
ENGR 490		2 ENGR 491	3
EE 460		3.5 Tech Elective I	3
Tech Elective I		3 Tech Elective I	3
Tech Elective II		3 Connections - Systems	3
Connections - Local to Global		3 World History (F-SB)	3
Connections - Systems		3	
		17.5	15

Total Hours 126