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

#### **Program Coordinator**

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Electrical engineering touches virtually every aspect of life in the twentyfirst 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-V	VC)	3

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

## **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**

Program CoursesEE 101Electrical Engineering Design I1EE 180Digital Circuits3EE 200Electrical Engineering Design II2EE 210Circuits & Networks I3.5EE 211Circuits & Networks II3.5EE 300Electrical Engineering Design III1EE 345Electronics4ENGR 490Senior Project 12ENGR 491Senior Project II3EE 420Signals and Linear Systems3.5EE 431Introduction to Power Systems3.5EE 473Electronicy and Magnetism I3or PHYS 440Electricity and Magnetism I1EE 432Power Systems II2EE 433Electric Machines and Drives2EE 434Microfabrication and MEMS2EE 443Advanced Electronics2EE 443Analog IC Design2EE 445Analog IC Design Laboratory2EE 4451Digital Signal Processing Lab2EE 4451Digital Signal Processing Lab2EE 4451Digital Signal Processing Lab2EE 4451Digital Signal Processing Lab2EE 4451Discrete Control Systems3EE 4451Digital Signal Processing Lab3EE 4451Discrete Control Systems3EE 4451Discrete Control Systems3EE 4451Discrete Control Systems3EE 4451Discrete Control Systems3EE 4451Di	Code	Title	Hours
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EE 451Digital Signal Processing LabEE 461Discrete Control Systems	EE 448	Analog IC Design Laboratory	
EE 461 Discrete Control Systems	EE 450	Digital Signal Processing	
	EE 451	Digital Signal Processing Lab	
EE 470 Communications and Modulation	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	e 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

# 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 L	ab)	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 (E-SB)	1 203	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
EE 473 MATH 307 or MATH 370		3 Tech Elective I 3 Writing in the Disciplines (F-WC)		3
MATH 307 or		3 Writing in the		
MATH 307 or MATH 370		3 Writing in the Disciplines (F-WC)		3
MATH 307 or MATH 370		3 Writing in the Disciplines (F-WC) 3 STAT 301 Arts & Humanities		3
MATH 307 or MATH 370		3 Writing in the Disciplines (F-WC) 3 STAT 301 Arts & Humanities (E-AH)		3 3 3
MATH 307 or MATH 370 Literary Studies (F-AH)	Hours	3 Writing in the Disciplines (F-WC) 3 STAT 301 Arts & Humanities (E-AH)		3 3 3
MATH 307 or MATH 370 Literary Studies (F-AH) Fourth Year	Hours	3 Writing in the Disciplines (F-WC) 3 STAT 301 Arts & Humanities (E-AH) 16	Elec	3 3 3
MATH 307 or MATH 370 Literary Studies (F-AH) Fourth Year Fall	Hours	3 Writing in the Disciplines (F-WC) 3 STAT 301 Arts & Humanities (E-AH) 16 Spring	Elec	3 3 3 16.5
MATH 307 or MATH 370 Literary Studies (F-AH) Fourth Year Fall ENGR 490	Hours	3 Writing in the Disciplines (F-WC) 3 STAT 301 Arts & Humanities (E-AH) 16 Spring 2 ENGR 491	Elec	3 3 16.5 3
MATH 307 or MATH 370 Literary Studies (F-AH) Fourth Year Fall ENGR 490 EE 460	Hours	3 Writing in the Disciplines (F-WC) 3 STAT 301 Arts & Humanities (E-AH) 16 Spring 2 ENGR 491 3.5 Tech Elective I	Elec Hours	3 3 3 16.5 3 3
MATH 307 or MATH 370 Literary Studies (F-AH) Fourth Year Fall ENGR 490 EE 460 Tech Elective I	Hours	3 Writing in the Disciplines (F-WC) 3 STAT 301 Arts & Humanities (E-AH) 16 Spring 2 ENGR 491 3.5 Tech Elective I 3 Tech Elective I	Elec Hours tems	3 3 3 16.5 3 3 3 3
MATH 307 or MATH 370 Literary Studies (F-AH) Fourth Year Fall ENGR 490 EE 460 Tech Elective I Tech Elective II Connections - Local to	Hours	3 Writing in the Disciplines (F-WC) 3 STAT 301 Arts & Humanities (E-AH) 16 Spring 2 ENGR 491 3.5 Tech Elective I 3 Tech Elective I 3 Connections - Syst	Elec Hours tems	3 3 3 16.5 3 3 3 3 3 3

Total Hours 126

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	ng 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

**Additional Courses** 

Western Kentucky University -- Electrical Engineering, Bachelor of Science (537P, 537) Catalog