



DEPARTMENT OF  
HIGHER EDUCATION &  
WORKFORCE DEVELOPMENT

## New Program Report

**Date Submitted:**

10/17/2023

**Institution**

Drury University

**Site Information**

**Implementation Date:**

8/1/2024 12:00:00 AM

**Added Site(s):**

**Selected Site(s):**

Drury University, 900 N. Benton Avenue, Springfield, MO, 65802

**CIP Information**

**CIP Code:**

141001

**CIP Description:**

A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of electrical and electronic systems and their components, including electrical power generation systems; and the analysis of problems such as superconductor, wave propagation, energy storage and retrieval, and reception and amplification.

**CIP Program Title:**

Electrical and Electronics Engineering

**Institution Program Title:**

Electrical Engineering

**Degree Level/Type**

**Degree Level:**

Bachelor's Degree

**Degree Type:**

Bachelor of Science in Electrical Engineering

**Options Added:**

**Collaborative Program:**

N

**Mode of Delivery**

**Current Mode of Delivery**

Classroom

**Student Preparation**

**Special Admissions Procedure or Student Qualifications required:**

none



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Specific Population Characteristics to be served:

Fulltime undergraduate students

Faculty Characteristics

Special Requirements for Assignment of Teaching for this Degree/Certificate:

Electrical engineering faculty will need a terminal degree.

Estimate Percentage of Credit Hours that will be assigned to full time faculty:

The electrical engineering program will have at least 90% of the classes taught by full time faculty.

Expectations for professional activities, special student contact, teaching/learning innovation:

Engineering faculty will be expected to engage in scholarly activities leading to publication or patents.

They will teach the contracted load for a full time faculty member and be expected to meet with students outside class 8-10 hours per week.

Student Enrollment Projections Year One-Five

<b>Year 1</b>	<b>Full Time: 8</b>	<b>Part Time: 0</b>	
<b>Year 2</b>	<b>Full Time: 17</b>	<b>Part Time: 0</b>	
<b>Year 3</b>	<b>Full Time: 25</b>	<b>Part Time: 0</b>	<b>Number of Graduates:</b> 0
<b>Year 4</b>	<b>Full Time: 36</b>	<b>Part Time: 0</b>	
<b>Year 5</b>	<b>Full Time: 41</b>	<b>Part Time: 0</b>	<b>Number of Graduates:</b> 25

**Percentage Statement:**

n/a

Program Accreditation

Institutional Plans for Accreditation:

The university will seek accreditation from the Accreditation Board for Engineering and Technology (ABET) after the first students graduate from the program.

Program Structure

**Total Credits:**

129

**Residency Requirements:**

The university requires students take at least their last 30 hours at Drury.

**General Education Total Credits:**

33

**Major Requirements Total Credits:**

96

**Course(s) Added**

COURSE NUMBER	CREDITS	COURSE TITLE
EGRA 124	2	Engineering Applications of MATLAB II
EGRE	350	Electronics I



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CHEM 121	5	Introduction to Chemistry
EGRA 320	3	Control Systems I
MATH 366	3	Differential Equations
EGRE 415	3	Digital Signal Processing
EGRA 130	2	Introduction to Microcontrollers
EGRE 235	3	Embedded Systems
MATH 231	4	Calculus I
EGRE 410	3	Communication Systems
EGRA 390	3	Business Short Courses
EGRA 200	3	Circuits I
EGRA 460	3	Capstone Design I
EGRE 310	3	Systems and Signals
EGRA 140	2	Graphical Communications and Basic Making
CSCI 251	4	Introduction to Computer Science
EGRE 355	3	Electronics II
EGRA 360	2	Junior Design
EGRE 230	3	Digital Logic and Design with Verilog
PHYS 411	3	Electricity and Magnetism
EGRE 425	3	Kalman Filtering
EGRE 205	3	Circuits II
PHYS 212	5	General Physics II
EGRA 290	3	Engineering Short Courses
EGRA 420	3	Control Systems II
MATH 232	4	Calculus II
EGRA 465	3	Capstone Design II
PHYS 211	5	General Physics I
EGRA 160	2	Introduction to Design
EGRA 123	1	Engineering Applications of MATLAB I
MATH 233	4	Calculus III
MATH 326	3	Probability Theory

**Free Elective Credits:**

0

**Internship or other Capstone Experience:**

Students will engage in two capstone experiences.

**Assurances**



## **New Program Report**

I certify that the program will not unnecessarily duplicate an existing program of another Missouri institution in accordance with 6 CSR 10-4.010, subsection (9)(C) Submission of Academic Information, Data and New Programs.

I certify that the program will build upon existing programs and faculty expertise.

I certify that the institution has conducted research on the feasibility of the proposal and it is likely the program will be successful. Institutions' decision to implement a program shall be based upon demand and/or need for the program in terms of meeting present and future needs of the locale, state, and nation based upon societal needs, and/or student needs.

### Contact Information

First and Last Name: Beth  
Harville

Email: [bharville@drury.edu](mailto:bharville@drury.edu)

Phone: 417-873-4085

## Bachelor of Science in Electrical Engineering

Electrical Engineering deals with the study, design, and application of systems that use electricity, electronics, and electromagnetics. While many people associate electrical engineering with electronics and circuits, electrical engineering encompasses a wide variety of areas including embedded (microprocessor) systems, computer and other types of digital electronic systems, signal processing, control systems, and communication systems. A cell phone demonstrates many different aspects of electrical engineering, such as the antenna used to transmit and receive signals (music, voice, video are all signals), the communication systems used to determine how to transmit and decode received signals, the embedded system (computer) used to connect everything together and process signals, and the battery and powering systems. As the world becomes more electrified, the need for electrical engineers is expected to increase. An undergraduate degree in EE can also open the door to entrepreneurship or graduate school in engineering, law, business, and medicine.

<b>Engineering Classes</b>		<b>44 hrs.</b>
EGRA 140	Graphical Communications and Basic Making	2 hrs.
EGRA 130	Introduction to Microcontrollers	2 hrs.
EGRA 123	Engineering Applications of MATLAB I	1.5 hrs.
EGRA 124	Engineering Applications of MATLAB II	1.5 hrs.
EGRA 160	Introduction to Design	2 hrs.
EGRA 200	Circuits I	3 hrs.
EGRE 230	Digital Logic and Design with Verilog	3 hrs.
EGRE 205	Circuits II	3 hrs.
EGRE 235	Embedded Systems	3 hrs.
EGRE 310	Signals and Systems	3 hrs.
EGRE 350	Electronics I	3 hrs.
EGRE 355	Electronics II	3 hrs.
EGRA 320	Control Systems I	3 hrs.
EGRA 360	Junior Design	2 hrs.
EGRA 460	Capstone Design I	3 hrs.
EGRA 465	Capstone Design II	3 hrs.
EGRE 410	Communication Systems	3 hrs.
<b>Other Required Courses</b>		<b>52 hrs.</b>
EGRA 290	6 Engineering/Science Short (0.5 hrs.) Courses	3 hrs.
EGRA 390	6 Business Short (0.5 hrs.) Courses	3 hrs.
CSCI 251	Introduction to Computer Science	4 hrs.
MATH 231	Calculus I	4 hrs.
MATH 232	Calculus II	4 hrs.
MATH 366	Differential Equations	3 hrs.
MATH 326	Probability Theory	3 hrs.
MATH 233	Calculus III	4 hrs.
PHYS 211	General Physics I	5 hrs.
PHYS 212	General Physics II	5 hrs.
PHYS 411	Electricity and Magnetism	3 hrs.

CHEM 121	Introduction to Chemistry	5 hrs.
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*Choose two of the following:*

EGRA 420	Control Systems	3 hrs.
EGRE 415	Digital Signal Processing	3 hrs.
EGRE 425	Kalman Filtering	3 hrs.