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## 2021 BSEE Electrical Engineering

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### **Major-AP-ELEG-Electrical Engineering (BSEE) 2021**

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# Major-AP-ELEG-Electrical Engineering (BSEE)

2021

Not Started

1 GOALS 7 OUTCOMES 1 MEASURES 3 TARGETS 3 FINDINGS 0 ATTACHMENTS

## Institutional Mission

Arkansas Tech University is dedicated to student success, access, and excellence as a responsive campus community providing opportunities for progressive intellectual development and civic engagement. Embracing and expanding upon its technological traditions, Tech inspires and empowers members of the community to achieve their goals while striving for the betterment of Arkansas, the nation, and the world.

## Program Mission

The mission of the Department of Electrical Engineering at Arkansas Tech University is to develop and educate students to become electrical or computer engineers exhibiting professional competency and ethics, with a desire for life-long learning.

Program Learning Outcomes		Expectations/Target for this Outcome	Findings/Results
<p><b>1 Calendar Year Assessment Information</b>                      2021 Calendar Year                      ***** 2021 ANNUAL REVIEW ***** Persons contributing to this year's assessment: 1) Carl Greco 2) Matthew Young                      APPROVALS _____ Department Head Approval:                      _____ Date: _____ Dean Approval: _____ Date: _____ Office of Assessment                      Review: Amanda Gardner Date: 7/29/22 _____ Program Level                      Context: Student Learning Outcomes Assessed during 2020 (Add more as necessary): Outcome 1: an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics Curriculum Committee Proposals or Changes (erase choice not used): Y / N Assessment Data Used as Support for Change: (give Outcome #) Is Status of Project Noted in Title Bar Current? (erase choice not used): Y / N Change status in title bar above Are All Attachments Noted in Assessment Plan Added Below? (erase choice not used): Y / N</p>			

Program Learning Outcomes		Expectations/Target for this Outcome	Findings/Results
<p style="text-align: center;">Outcome has action plan</p> <p>1.1</p> <p>1. Complex Engineering Problems (ABET Student Outcome 1)            An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics Complete list of ABET Student Outcomes: 1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics 2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors 3. an ability to communicate effectively with a range of audiences 4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts 5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives 6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions 7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.</p> <p><b>ACTION PLAN</b></p>	<p>1.1.1</p> <p>Academic Performance in Selected Courses</p> <p>Performance on selected tests and quiz problems and projects.</p>	<p>1.1.1.1</p> <p><b>Not Reported this Period</b></p> <p>At the Introductory level, student must be able to identify complex engineering problems</p> <p>Seventy percent of the students are expected to meet this outcome.</p>	<p>2020:Assessment was performed in ELEG 2103: Electric Circuits I. Student achieved a 82% success at the Introduce level. The cumulative median pass rate for all the required electrical engineering courses was 91.3% in Spring and 86.9% in the Fall. See</p> <p><b>REFLECTION ON FINDINGS AND RECOMMENDATIONS FOR NEXT STEPS</b></p> <p>2020: Students met the expectation. No action is recommended.</p>

Program Learning Outcomes		Expectations/Target for this Outcome	Findings/Results
<p>Students were successful at the Introduce and Master level but unsuccessful at the Reinforce level. Modify the course delivery in ELEG 3103 used to assess the Reinforce level. The following remedial actions will be taken in ELEG 3103: • Devote more lecture classes to diodes, mosfets, and bjt theory and application. (This will be accomplished by taking a device-first approach to teaching electronics). • Devise a scheme to require students to complete more problem-solving with diodes, BJTs, and transistors. • Implement more hands-on activities with the Analog Discovery II platform involving diodes, BJTs, and MOSFETs.</p> <p>DUE no due date set</p>		<p>1.1.1.2 Not Reported this Period</p> <p>At the Reinforce level students must be able to formulate complex engineering problems</p> <p>Seventy percent of the students are expected to meet this outcome.</p>	<p>2020: Assessment was performed in ELEG 3103: Electronics I. At the Reinforce level students achieved a 58% success. 2021:</p> <p><b>REFLECTION ON FINDINGS AND RECOMMENDATIONS FOR NEXT STEPS</b></p> <p>2020: The following remedial actions will be taken:</p> <ul style="list-style-type: none"> <li>• Devote more lecture classes to diodes, mosfets, and bjt theory and application. (This will be accomplished by taking a device-first approach to teaching electronics).</li> <li>• Devise a scheme to require students to complete more problem-solving with diodes, BJTs, and transistors.</li> </ul>

Program Learning Outcomes		Expectations/Target for this Outcome	Findings/Results
			<ul style="list-style-type: none"> <li>Implement more hands-on activities with the Analog Discovery II platform involving diodes, BJTs, and MOSFETs.</li> </ul> 2021:
		1.1.1.3 <b>Not Reported this Period</b> At the Master level they must be able to solve complex engineering problems. Assessment was performed in ELEG 4113: Digital Signal Processing. Seventy percent of the students are expected to meet this outcome.	2020: Student achieve 97% success at the Master level. 2021: <b>REFLECTION ON FINDINGS AND RECOMMENDATIONS FOR NEXT STEPS</b> 2020: Students met the expectation. No action is recommended. 2021:
1.2			
2. Apply engineering design to produce solutions			
1.3			
3. Effective communications			

Program Learning Outcomes		Expectations/Target for this Outcome	Findings/Results
<p>1.4</p> <p>4. Recognize ethical and professional responsibilities</p>			
<p>1.5</p> <p>5. Effective Teamwork</p>			
<p>1.6</p> <p>6. Experimentation - develop, conduct, analyze, interpret</p>			
<p>1.7</p> <p>7. Acquire and apply new knowledge</p>			