



#### UNIVERSITY VISION

A leading University in advancing scholarly innovation, multi-cultural convergence, and responsive public service in a borderless Region.

#### UNIVERSITY MISSION

The University shall primarily provide advance instruction and professional training in science and technology, agriculture, fisheries, education and other related field of study. It shall undertake research and extension services, and provide progressive leadership in its area of specialization.

#### UNIVERSITY GOAL

To produce graduates with excellence and dignity in arts, science and technology.

#### UNIVERSITY OBJECTIVES

- a. Enhance competency development, commitment, professionalism, unity, and true spirit of service for public accountability, transparency, and delivery of quality services;
- b. Provide relevant programs and professional trainings that will respond to the development needs of the region;
- c. Strengthen local and international collaborations and partnerships for borderless programs;
- d. Develop a research culture among faculty and students;
- e. Develop and promote environmentally-sound and market-driven knowledge and technologies at par with international standards;
- f. Promote research-based information and technologies for sustainable development;
- g. Enhance resource generation and mobilization to sustain financial viability of the university.

## Program Objectives and its relationship to University Goals:

PROGRAM OBJECTIVES (PO)	OBJECTIVES						
	a	b	c	d	e	f	g
In harmony with the vision and mission of the University and guided by the goals of the College, the Bachelor in Industrial Technology (BSIT) and Bachelor in Technology Teacher Education (BTVTED) Program major in automotive technology aims to produce highly committed, innovative and globally competitive technician and teachers who are:							
a. Assume professional, technical, managerial and leadership roles in industrial organizations with the desired competence in the fields of practiced such as Automotive, Architectural drafting, Civil, Electrical, Electronics, Food and allied discipline.	/	/					
b. Innovative explicit and modern technologies in the advancement of economy, society, technology and environmental sustainability.	/	/	/		/	/	/
c. Generate research-based information and technologies at par from international standard; and	/	/	/	/	/	/	
d. Promote and transfer knowledge and technologies for effective and efficient school - industry partnership.	/	/	/		/	/	/

- 1. Course Code** : ET124  
**2. Course Title** : Shop Processes, Tools and Equipment  
**3. Prerequisite** :  
**4. Credits** : 2 units

### 5. Course Description:

This course is your gateway to the world of electrical shops, offering a practical introduction to the fundamental processes, tools, and equipment used in this essential field. Students will gain hands-on experience with common electrical tools, mastering basic wiring and troubleshooting techniques. They will also develop a strong understanding of safety protocols and best practices for working safely and efficiently in an electrical environment. Through a combination of demonstrations, guided practice, and project-based learning, students will build a solid foundation in electrical shop skills, preparing them for a range of applications, from residential wiring to industrial installations. Whether you're interested in pursuing a career in electrical trades, tackling home improvement projects, or simply expanding your practical knowledge, this course provides a valuable introduction to the world of electrical work.

## 6. Course Learning Outcomes and Relationships to Program Educational Objectives

Course Learning Outcomes	a	b	c	d	e
At the end of the semester, the students can:					
Identify and understand the functions of common electrical tools.	/			/	
Apply basic electrical wiring and troubleshooting techniques.	/	/	/	/	/
Develop a strong foundation in electrical safety.	/		/	/	/
Read and interpret electrical diagrams and schematics	/	/		/	
Plan and execute simple electrical projects	/	/		/	/

## 7. Course Content

Course Objectives, Topics, Time Allotment	Desired Student Learning Outcomes	Outcomes-Based Assessment (OBA) Activities	Evidence of Outcomes	Course Objectives	Program Outcomes	Values Integration
<b>Topic: SKSU VMGO, Classroom Policies, Course Overview, Course Requirements, Grading System (1 hour)</b>						
1. Discuss the VMGO of the university, classroom policies, scope of the course, course requirements and grading system	1.1 Student can be aware of and appreciate of the university's VMGO, classroom policies, course overview, requirements and grading system.	Individual participation in class discussion and group presentation	Group and individual discussions			Value of appreciation
<b>Topic: Introduction to Electrical Shop Processes and Equipment (13 hours)</b>						
2.1 Introduce the Electrical Safety	2.1 The students can understand General safety rules, personal protective equipment (PPE), electrical isolation, arc flash hazards, emergency procedures, and hazard identification.	Students' participation in the discussion activity and presentation of proof established facilitated by the professor  Demonstration	Student and class participation accomplished by professor.  Rubrics Score Grade Class Exercises results	a, b, d	a, c, d	Unity and teamwork  Value of participation

2.2. Identify and Discuss the Electrical Tools and Equipment	2.2. Students can understand the Overview of hand tools.	Students participation in the discussion activity and presentation of proof established facilitated by the professor					Unity and teamwork
2.3. Discuss the Electrical Materials	2.3. Students can understand different types of wire, conduit, and other electrical materials used in wiring installations.						
2.4. Explain the Shop Organization and Housekeeping	2.3. The students can Maintain a clean, organized, and safe electrical shop environment.						

**Topic: Basic Electrical Wiring Techniques (15 hours)**

3.1. Discuss the Wire Stripping and Termination	3.1. The students can understand how Proper techniques for stripping wire insulation and terminating wires using various methods.	Students participation in question and answer activity facilitated by teacher	Student and class participation accomplished by professor.  Rubrics Score Grade /Presentation of output	a, b, d	a, b, c	Unity and teamwork
3.2. Introduce the Basic Circuit Wiring	3.2. The students can know how to use simple circuits, including series and parallel circuits, using switches, outlets, and other components.	Practice exercises	Practical quiz			Value of participation
3.3. Discuss Conduit Installation	3.3. The students can understand conduit types, bending techniques, and installation methods.					
3.4. Discuss the Electrical Troubleshooting	3.4. The students can Identify and resolve common electrical problems, using multimeters and other diagnostic tools.					

Topic: Electrical Diagrams and Schematics (12 hours)						
4.1. Introduce the Electrical Symbols and Conventions.	4.1. The students can Understand the symbols used in electrical diagrams and schematics.	Students participation in question and answer activity facilitated by teacher	Class Exercises results/presentation of output	a, b, c	a, d	Unity and teamwork
4.2. Reading and Interpreting Electrical Drawings.	4.2. They can Decode electrical diagrams to understand wiring configurations, circuit components, and electrical systems.		Practical Quiz/ Direct observation			Value of participation
4.3 Creating Simple Electrical Diagrams.	4.3. The students can understand the basic principles of creating electrical diagrams using drafting tools or computer-aided design (CAD).	Practice exercises	Rubrics Score Grade/Presentation of output			

Topic: Electrical Components and Circuits (12 hours)						
5.1. Discuss the Basic Electrical Concepts	5.1. The students can Review fundamental electrical concepts, including voltage, current, resistance, and power.	Students participation in discussion and answer activity facilitated by teacher	Quiz/ Class Exercise results	a, b	a, c, d	Unity and teamwork
5.2. Introduce the Common Electrical Components	5.2. The students can identify and understand the functions of resistors, capacitors, inductors, diodes, transistors, and other common electrical components.	Practice exercises	Rubrics Score Grade /Presentation of output			Value of participation
TOTAL NO. of HOURS	Lecture – 52 hrs		Practical quiz/ Direct observation			Value of Hard work

	<b>Exam - 2 hrs</b>						
	<b>Total - 54 hrs</b>						

## 8. Course Evaluation

**Course Requirements:** report, assignment, quizzes, exam, class attendance.

### Grading System:

#### MIDTERM

Exam	- 35%
Attendance	- 10%
Quizzes/Participation	- 20%
Laboratory/Project	- 35%

#### FINAL TERM

Exam	- 35%
Attendance	- 10%
Quizzes/participation	- 20%
Laboratory/Project	- 35%

$$\text{MTG+FTG/2=FG}$$

### Schedule of Examination:

Classes End

Midterm  
Final Term

### References

*LAWRENCE BERKELEY NATIONAL LABORATORY ELECTRICAL SAFETY MANUAL*. Revision: Rev 1 Date: January 2017

*Basic Operation, Care And Maintenance And Advanced Troubleshooting For The Skilled Trades AN ADAPTATION OF TRADES ACCESS COMMON CORE LINE E: ELECTRICAL FUNDAMENTALS COMPETENCY E-4: USE OF MULTI-METERS BRENT Pfifer*

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