



COLLEGE OF ENGINEERING
Bachelor of Industrial Technology Major in Electrical Technology
Syllabus in ELT DC CIRCUITS
1st Semester, SY 2026-2027

UEP's Vision: A globally competitive university producing graduates in pursuit of higher economic welfare of the people and the community through inclusion and cooperation from the stakeholders.

UEP's Mission: Provide technical and professional training, advanced instruction in literature, arts, philosophy, the sciences and promotion of innovation, scientific and technological researches.

UEP QUALITY POLICY

The University of Eastern Philippines (UEP) commits to be academically competitive, research and extension-focused, and economically-sustainable public higher education institution.

Specifically, UEP shall:

Uphold the values relevance, integrity, productivity and excellence in service delivery;

Endeavor to continually improve the quality management system;

Provide quality services through participatory governance and compliance to legal and other prescribed requirements.

Program Educational Outcomes

A graduate of the BindTech Program must attain:

- Ability to analyze broadly defined industrial technology processes by using analytical tools that enhances creativity, innovativeness, and intellectual curiosity to improve methods, processes, and systems that meet the industry standards.
- Ability to design and implement broadly defined industrial systems, components, products or processes to meet specific industry needs with proficiency and flexibility in the area of specialization in accordance with global standards.
- Ability to apply appropriate techniques, resources, and state-of-the-art industrial technology tools to meet current industry needs and use these modern tools and processes to improve and increase entrepreneurial activities upholding the safety and health standard of business and industry.
- Ability to communicate with diverse groups of clientele the appropriate cultural language with clarity and persuasion, in both

	oral and written forms, including understanding and giving of clear instructions, high comprehension level, effectiveness in delivering presentations and writing documents, and articulating technological innovation outputs. e) Ability to develop leadership and management skills in a team-based environment by making informed decisions, keeping the team motivated, acting and delegating responsibility, and inspiring positive changes in the organization by exercising responsibility with integrity and accountability in the practice of one's profession. f) Practice the moral responsibilities of an industrial technologist to manage and balance wider public interest and uphold the norms and safety standards of the industrial technology profession, g) Ability to demonstrate enthusiasm and passion for continuous personal and professional development in broadly defined industrial technology and effecting positive changes in the entrepreneurial and industrial endeavor. h) Ability to recognize the need for, and an ability to engage in lifelong learning.
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Course Title:	DC CIRCUITS		
Course Credits:	2 Units (1 Units Lecture; 1 Unit Laboratory)	Contact Hours/Week:	4 hrs (1 hrs. Lecture. 3 hrs. Laboratory)
Course Description:	This course covers the fundamentals of DC electrical circuit, focusing on concepts such as ohm's law, circuits analysis and practical application. Students will develop skills in analyzing, building and trouble shooting resistive circuits. Emphasis is palce on understanding electrical quantities, notation and practical problem-solving.		
Prerequisite:	None		
Co-requisites	None		

Course Learning Outcomes	1. Interpret and used the language of electrical and electronics, including symbols, units and scientific notation. 2. Apply Ohm's Law, power formulas and unit prefixes to solve problems related to current, voltage, resistance and power in DC circuits. 3. Analyze and solve series and parallel and series-parallel resistive load. 4. Demonstrate proficiency in using measuring instruments for circuit analysis and troubleshooting.
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Number of Hours: **5 hours every week for 18 weeks or 90s hours in a semester**

Course Map

Program Educational Objectives and the Relationship to Institution Mission

Program Educational Objectives	Mission
The graduate of the BIndTech program shall :	
1. Be able to impart essential knowledge, element, tools and skills necessary to become successful technologists.	✓
2. Develop students ability to recognize, formulate and solve automotive technology problems; and	✓
3. Provide the students with a meaningful experience in research and design that are relevant to the Electrical technology field.	✓

Program Outcomes and Relationship to Program Educational Objectives

Program Outcomes	Program Educational Objectives		
	1	2	3
A graduate of the Bachelor of Industrial Technology Program must attain an ability to:			

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1. Ability to analyze broadly defined industrial technology processes by using analytical tools that enhances creativity, innovativeness, and intellectual curiosity to improve methods, processes, and systems that meet the industry standards.	✓	✓	✓
2. Ability to design and implement broadly defined industrial systems, components, products or processes to meet specific industry needs with proficiency and flexibility in the area of specialization in accordance with global standards.	✓		✓
3. Ability to apply appropriate techniques, resources, and state-of-the-art industrial technology tools to meet current industry needs and use these modern tools and processes to improve and increase entrepreneurial activities upholding the safety and health standard of business and industry.	✓	✓	✓
4. Ability to communicate with diverse groups of clienteles the appropriate cultural language with clarity and persuasion, in both oral and written forms, including understanding and giving of clear instructions, high comprehension level, effectiveness in delivering presentations and writing documents, and articulating technological innovation outputs	✓	✓	
5. Ability to develop leadership and management skills in a team-based environment by making informed decisions, keeping the team motivated, acting and delegating responsibility, and inspiring positive changes in the organization by exercising responsibility	✓	✓	
6. Practice the moral responsibilities of an industrial technologist to manage and balance wider public interest and uphold the norms and safety standards of the industrial technology profession,	✓	✓	
7. Ability to demonstrate enthusiasm and passion for continuous personal and professional development in broadly defined industrial technology and effecting positive changes in the entrepreneurial and industrial endeavor.	✓	✓	✓
8. Recognition of the need for, and an ability to engage lifelong learning.	✓	✓	✓

Course Learning Outcomes and Relationship to Institutional Graduate Outcomes

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Course Learning Outcomes	Institutional Graduate Outcomes					
	1	2	3	4	5	6
1. Interpret and use the language of electrical and electronics, including symbols and scientific notation	✓				✓	✓
2. Apply Ohm's Law, power formulas and unit prefixes to solve problems related to current, voltage, resistance and power in DC circuits.	✓	✓				✓
3. Analyze and solve series and parallel and series-parallel resistive load.	✓	✓				✓
4. Demonstrate proficiency in using measuring instruments for circuit analysis and troubleshooting.	✓	✓			✓	✓

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Course Learning Outcomes (CLOs) and Relationship to Program Outcomes
(Note : Limit the program outcomes of each subject to the most relevant ones only)

Program Outcomes Addressed by the Course	Program Outcomes							
Program Outcomes Addressed by the Course Learning Outcomes After completing this course, the student must be able to:	Program Code							
	1	2	3	4	5	6	7	8
1. Design and implement broadly defined industrial systems, components, products or processes to meet specific industry needs with proficiency and flexibility in the area of specialization in accordance with global standards.		E/D						
2. Apply appropriate techniques, resources and state-of-the-art industrial technology tools to meet current industry needs and use these modern tools and processes to improve and increase entrepreneurial activities upholding the safety and health standards of business and industry.			E					
3. Analyze broadly defined industrial technology processes by using analytical that enhances creativity, innovativeness and intellectual curiosity to improve methods, processes and system that meet the industry standards.	E							
4. Practice the moral responsibilities of an industrial technologists to manage and balance wider public interest and uphold the norms and safety standards of the industrial technology profession						E		

Legend : I – Introductory E – Enabling D – Demonstrative

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COURSE OUTLINE AND TIMEFRAME	
Weeks	COURSE CONTENT/SUBJECT MATTER
Week 1 & 3	Unit 1. The Language of Electrical and Electronics • Electrical Symbols and Notations • Basic Electrical Terms (Voltage, Current and Resistance) • Understanding Circuit Diagram
Week 4-5	Unit 2. Power of tens, Scientific Notations, Unit Prefix and Resistor color Coding • Power of Tens and Scientific Notation • Unit Prefixes (milli-, micro-, -kilo-, mega-) • Resistor Color Code Interpretation
Week 6-8	UNIT 3. Ohms Law, Current and Voltage • Ohm's Law (Relationship between Voltage, Current and Resistance) • Calculating Current, Voltage and Resistance • Application of Ohm's Law
Week 9	MIDTERM EXAMINATION
Week 9-12	UNIT 4. Resistance and power Circuit • Types of Resistors and their Characteristics • Calculating Power in DC Circuits Power Dissipation in Resistive components
Week 13-14	UNIT 5. Series Resistive Circuit • Characteristics of series circuit • Voltage Division in series circuit Application of series circuit

Week 15-17	UNIT 6. Parallel and Series-parallel Resistive Circuits. • Characteristics of Parallel Circuits • Current Division in Parallel Circuits Analysis of series parallel circuits
Week 18	FINAL EXAMINATION

LEARNING PLAN / COURSE COVERAGE

	Course Outcomes	Topics	Unit Learning Outcomes	Teaching and Learning Activities		Assessment Tasks	Performance Target
				Teaching Activities	Learning Activities		
			At the end of the week, the student must be able to:				
1-3	CLO 1	Unit 1. The Language of Electrical and Electronics • Electrical Symbols and Notations • Basic Electrical Terms (Voltage, Current and Resistance) • Understanding Circuit Diagram	• Understand and use basic electrical and electronic terminology, symbols and units.	• Face to face Instruction • Power Point Presentation	• Discussion • Exercises	• Quiz/ seatwork, graded Recitation • Practical exercise	75% of students get a rating of at least 60%.

3-5	CLO 1	Unit 2. Power of tens, Scientific Notations, Unit Prefix and Resistor color Coding - Power of Tens and Scientific Notation - Unit Prefixes (milli-, micro-, -kilo-, mega-) - Resistor Color Code Interpretation	Apply scientific notation, unit prefixes, and resistor color code to perform accurate calculations.	- Face to face Instruction - Power Point Presentation	- Discussion - Exercises - Hands on activities	- Worksheet on scientific notation and unit conversion - Quiz on resistor color code interpretation	75% of students get a rating of at least 60%.
6-8	CLO 2	UNIT 3. Ohms Law, Current and Voltage - Ohm's Law (Relationship between Voltage, Current and Resistance) - Calculating Current, Voltage and Resistance - Application of Ohm's Law	Use Ohms Law to solve problems related to current, voltage and resistance in DC circuits.	- Face to face Instruction - Power Point Presentation	- Lecture and exercise - Lab Activity	- Problem solving quiz on Ohms Law - Laboratory - LONG quiz to all topics of Midterm	75% of students get a rating of at least 60%.
9	MIDTERM EXAMINATION						

9-12	CLO 3, CO	UNIT 4. Resistance and power Circuit - Types of Resistors and their Characteristics - Calculating Power in DC Circuits - Power Dissipation in Resistive components	- Analyze the relationship between resistance and power - Calculate power dissipation in resistive circuits.	- Face to face Instruction - Power Point Presentation	- Lecture/ Discussion - Lab Activity	- Written quiz - Practical test	75% of students get a rating of at least 60%.
13-14		UNIT 5. Series Resistive Circuit - Characteristics of series circuit - Voltage Division in series circuit - Application of series circuit	Analyze and solve problems involving series resistive circuits using voltage division and ohms law.	- Face to face Instruction - Power Point Presentation	- Lecture/ Discussion - Lab Activity	- Worksheet on series circuit Analysis - Practical lab Assessment series circuit solving	75% of students get a rating of at least 60%.
15-17	CLO 4	UNIT 6. Parallel and Series-parallel Resistive Circuits. - Characteristics of Parallel Circuits - Current Division in Parallel Circuits - Analysis of series parallel circuits	Analyze and solve parallel and series-parallel resistive circuits using current division and Kirchhoff's Laws.	- Face to face Instruction - Power Point Presentation	- Lecture/ Discussion/Pre-reading - Board work	- Quiz/seatwork - graded Recitation Long Quiz for all topic in Final	75% of students get a rating of at least 60%.

References

A. **Books**

- Introductory Circuit Analysis by Robert L. Boylestad.
- Fundamental of electric Circuits by Charles Alexander
- Basic Engineering Mathematics by John Bird
- Practical Electronics for inventors by Paul Schers
-

B. **Periodicals/ Journals/Article**

- "Review on Electrical Wiring (Types, Sizes and Installation)" by Mustafa T. Mohammed Alhashimi et al.
- Schum's Outline of Electric Circuits by Mshmood Natvi

C. **Website**

<http://youtu.be/Pv-OU4Dluo?si=pNzr8Ea5a0NI9OKY>
<http://youtu.be/B9rne5PCoh4?si=2IMrowwRAHbQVLk3>

D. **Culminating Activities**

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Rubrics (May include common rubrics not indicated in details under Assessment Tasks)

The rubric to be used in the evaluation of the Midterm Examination and Final Examination is as follows

Level of Performance	Grade of Evaluation	Point Equivalent (%)	Criteria
Excellent	1.0-1.25	92%-100%	a.1 Seatwork (50%) a.2 Organization (15%) a.3 Cleanliness (15%) a.4 Timeliness (20%)
Very Good	1.5-2.0	86%-91%	
Satisfactory	2.25-3.0	50%-73%	
Poor	5.0	49%- below	

Course Requirements A student should have attended, at least, 75% of the total class hours; should have submitted all requirements such as Quiz, Seat work, Recitation, Laboratory; he/she should passed the percentage average rating of 60% in all activities and Mid-Term Exam and Final Exam. <table><tr><td>Equivalent Grade</td><td>Rating %</td></tr><tr><td>1.0</td><td>98 - 100%</td></tr><tr><td>1.25</td><td>93 – 97%</td></tr><tr><td>1.50</td><td>87 - 92%</td></tr><tr><td>1.75</td><td>81 – 86%</td></tr><tr><td>2.0</td><td>75 – 80%</td></tr><tr><td>2.25</td><td>69 – 74%</td></tr><tr><td>2.5</td><td>63 – 68%</td></tr><tr><td>2.75</td><td>57 – 62%</td></tr><tr><td>3.0</td><td>50 – 56%</td></tr><tr><td>5.0</td><td>0 – 49%</td></tr></table>	Equivalent Grade	Rating %	1.0	98 - 100%	1.25	93 – 97%	1.50	87 - 92%	1.75	81 – 86%	2.0	75 – 80%	2.25	69 – 74%	2.5	63 – 68%	2.75	57 – 62%	3.0	50 – 56%	5.0	0 – 49%	Classroom and Academic Policies Attendance: Attendance will be checked before and before the class. This is to monitor whether absences incurred by the student is still within the allowed number of absences for a course stipulated in the Student Handbook. The only valid excuses for missing exam are illness or a personal/family emergency of a serious nature provided by an excuse letter signed by the student and guardian. Quizzes: A total of six (6) quizzes will be administered throughout the semester. These will be either announced or unannounced. Other Rule: Gadgets are not allowed during examination. No students will be allowed to go out from the room during examinations. Personal necessities should be done before the examination started. Sanction will be in accordance with the student policy manual.	
Equivalent Grade	Rating %																							
1.0	98 - 100%																							
1.25	93 – 97%																							
1.50	87 - 92%																							
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2.5	63 – 68%																							
2.75	57 – 62%																							
3.0	50 – 56%																							
5.0	0 – 49%																							
Grading System LECTURED AND LABORATORY	Professor: JOHN PAUL V. AGAWA	Consultation Hours: Anytime the professor is in																						
	Email Address: Johnpaulagawa03@gmail.com																							

LECTURE A. Performance Task <u>60%</u> 1. Quizzes L.Q. SW (50%) 2. Participation/Recitation/Board work (20%) 3. Requirements (30%) B. Major Examination <u>40%</u> Midterm & Final Exam Total 100% Laboratory Requirements <u>50%</u> Examinations <u>50%</u> Total 100% Final Grade= 40% Lecture + 60% Laboratory	Contact Number: 09560646382	the office. Most Probably 7:30-11:30 am (Friday) 1:00-5:00 pm (Friday)
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Lifelong Learning Opportunities pursued through online courses, certifications, and hands-on workshops. electrical installation, safety, troubleshooting, and using various tools and equipment. Trade schools and community colleges often provide in-depth programs that cover wiring types, materials, installation methods, and safety protocols, with practical training. Additionally, certifications such as those from the National Fire Protection Association (NFPA) enhance knowledge in safety practices., helping individuals stay current with the latest industry standards and technologies. These opportunities ensure continuous professional growth and mastery of residential electrical systems.		Revision History Revision No.: 2 Date of Revision: August 13, 2024 Date of Implementation: 1stSem SY 2025-2026 Highlights of Revision: Followed OBTL Format per CMO # 97, s. 2017
PREPARED BY: JOHN PAUL V. AGAWA Part – Time Lecturer	CHECKED BY: RAMIL E. SALAZAR,MAME,MIT DEPARTMENT CHAIR, BET DEPARTMENT	APPROVED BY: <u>REM N. LAODEÑO, DEng</u> DEAN, COLLEGE OF ENGINEERING
Date:	Date:	Date:

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