Course Profile:

Title of the course: Electrical Circuits I Laboratory
Course Code: EEE 102
Credit Hour: 1.5 credits
Contact Hours: 3 Hour/Week 39
Level/Term: 1/1
Type: Core/Major:
Prerequisite: Basic Knowledge on Electrical Circuits

Instructor: Eftekhar Hossain
Class schedule:
Counseling Time:
Room No:
Email address: eftekhar.13ete@gmail.com
Phone No: 01521532765

Rationale: Intended to enable the learners to analyze the behavior of electrical circuits, use the acquired knowledge to implement or design efficient electrical circuits practically to solve real world problems.

Course Objectives:
The objective of the course is

1. This course provides practical knowledge to electrical circuits as well as the technical skills to implement such electrical circuits. (PEO3)
2. Help the students to pursue further studies in electrical or telecommunications engineering as well as some other related engineering disciplines including computer engineering. (PEO2, PEO3)
3. This course covers practical works that helpful for students to build and analyze devices in real world. (PEO1, PEO2, PEO3)

Course Outcomes (COs):
Upon successful completion of this course, students will be able to

CO 1. Define the circuit theorems and demonstrate simple DC as well as AC circuits/networks. (PO1, PO2, PO3, PO5)
CO 2. Solve electrical circuits and able to build such electrical circuits. (PO5, PO6)
CO 3. Demonstrate a basic understanding of phasors and phasor diagrams for AC circuit analysis. (PO3, PO4, PO6)
CO 4. Demonstrate basic proficiency in building basic electrical circuits and operating fundamental electrical engineering equipment. (PO4, PO6, PO7)

Course Description (Catalog Description):
Familiarization with the component and devices used in electrical circuit I laboratory, Verification of Ohm's law, Verification of KVL and Voltage Divider Rule, Verification of KCL and Current Divider Rule, Branch current analysis, Branch current analysis using Thevenin's theorem, Verification of Reciprocity theorem, Verification of Superposition theorem, Maximum power transfer theorem, To draw the vector diagram of RLC series circuit measuring the voltage.

Text and Reference books:

1. Introductory Circuit Analysis, *Robert L. Boylestad*

2. Alternating Current Circuits, *Russell M Kerchner, George F Corcoran*

Teaching Strategy: Lecture, Demonstration, Experiment etc.

Assessment Strategy: Class attendance-(10%), Laboratory performance-(10%), Laboratory report-(20%), Quizzes/viva/presentation-(10%), Final exam-(50%).

CO delivery and assessment:

COs	Corresponding POs	Bloom's taxonomy domain/level *(C: Cognitive, P: Psychomotor A: Affective)*	Delivery methods and activities	Assessment tools
CO1	PO1, PO2, PO3, PO5	C1	Lecture, Demonstration, Experiment	Laboratory performance, Laboratory report, Exam.
CO2	PO5, PO6	C3	Lecture, Demonstration, Experiment	Laboratory performance, Laboratory report, Exam.
CO3	PO3, PO4, PO6	C2, C3	Lecture, Demonstration, Experiment	Laboratory performance, Laboratory report, Exam.
CO4	PO4, PO6, PO7	C3	Lecture, Demonstration, Experiment	Laboratory performance, Laboratory report, Exam.

CO-PO Mapping:

CO/PO mapping (S/M/W indicates strength of correlation) S-Strong, M-Medium, W- Weak												
COs	Program Outcomes (POs)											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	M	S	M		S							
CO2					S	M						
CO3			M	W		S						
CO4				S		M	S					

Lesson Plans (3hours = 1.5*2=11 classes)

Lesson	Topic	Teaching strategy	Course Outcome (CO)	Assessment Strategy
Date-1	Familiarization with the component and devices used in electrical circuit I	Demonstration	CO1	Laboratory performance

	laboratory,			
Date-2	Verification of Ohm's law	Demonstration and discussion	CO1, CO2	Laboratory performance
Date-3	Verification of KVL and Voltage Divider Rule	Discussion	CO1, CO4	Laboratory performance
Date-4	Verification of KCL and Current Divider Rule	Demonstration and discussion	CO1, CO4	Laboratory performance
Date-5	Branch Current Analysis	Demonstration and discussion	CO1, CO4	Laboratory performance
Date-6	Verification of Thevenin's theorem	Discussion	CO2, CO4	Laboratory performance
Date-7	Verification of Norton's theorem	Demonstration and discussion	CO1, CO4	Laboratory performance
Date-8	Verification of Superposition theorem	Demonstration and discussion	CO1, CO4	Laboratory performance
Date-9	Demonstration of Maximum power transfer theorem	Demonstration and discussion	CO3	Laboratory performance
Date-10	Demonstration of the transient behavior of capacitor and inductor	Demonstration	CO1, CO2, CO4	Laboratory performance
	FINAL EXAM		CO1, CO2, CO3, CO4	Lab Quiz and Viva.