GREEN UNIVERSITY OF BANGLADESH

Department of Computer Science and Engineering

Course Outline

01.	**Faculty**	Faculty of Science and Engineering
02.	**Department**	Computer Science and Engineering
03.	**Program**	B.Sc in CSE
04.	**Name of Course**	Introduction to Electrical Engineering
05.	**Course Code**	EEE 201
06.	**Trimester**	Summer 2021
07.	**Pre-requisites**	Nil
08.	**Status**	Core course
09.	**Credit Hours**	3
10.	**Section**	DC, DD
11.		

Section	Class Day	Class Hours	Venue
DD	Tuesday and Thursday	08.30 am-10.00am	
DC	Tuesday and Thursday	10.00 am-11.30am	

12.	**Class Location**	Science Building
13.	**Course Website**	www.elms.green.edu.bd
14.	**Course Teacher**	Md. Shariful Islam
15.	**Contact**	shariful@eee.green.edu.bd
16.	**Office**	
17.	**Text Book**	"Fundamentals of Electrical Circuits" – Charles K. Alexander and Matthew N.O. Sadiku, fourth edition.
19.	**Reference**	1. "Introductory Circuit Analysis" – Robert L. Boylstad , eleventh edition. 2. "Electrical Circuits" – James W. Nilsson and Susan A. Riedel, ninth edition.
20.	**Equipment & Aids**	Bring your own materials (*calculator, pen, paper, etc.*) to participate effectively in classroom activities. **You are not allowed to borrow from others inside the classroom during class activities.** *Besides class note, Please keep at least one blank A4 size paper per class with you.*
21.	**Course Rationale**	Learning Electric Circuits is the gateway to the vast world of Electrical and Electronic Engineering. In fact many subjects you will study in other sector of your study life depend on the sound knowledge of this subject. The primary objective of this subject is to establish a firm understanding of the basic laws of electric circuits which develop a working knowledge of the methods of analysis used most frequently in further topics of Electrical Engineering. This course also provides a comprehensive insight into the principal techniques available for characterizing circuits and networks theoretically. Students should have no weakness in this subject. This course is a core course for EEE students.
22.	**Course Description**	Circuit variables: voltage, current, power and energy, Voltage and current independent and dependent sources, Circuit elements: resistance, inductance and capacitance. Modelling of practical circuits, Ohm's law and Kirchhoff's laws, Solution of simple circuits with both dependent and independent sources, Series-parallel resistance circuits and their equivalents,

		Delta-Wye equivalent circuits, Techniques of general DC circuit analysis (containing both independent and dependent sources): Node-voltage method, Mesh-current method, Source transformations. Thevenin and Norton equivalents, Maximum power transfer. Superposition technique. Properties of Inductances and capacitances. Series-parallel combinations of inductances and capacitances; Concepts of transient and steady state response with dc source. Introduction to sinusoidal steady state analysis: Sinusoidal sources, impedance, admittance, reactance; Norton Equivalents, Phase diagrams. Sinusoidal steady state power calculations, RMS values, Real and reactive power. Maximum power transfer, impedance matching. Steady state voltage, current. Resonance in AC circuits: Series and parallel resonance and Q factors. Magnetically coupled circuits.
23.	**Teaching Methods**	The methods of teaching will include the following techniques but are not limited to: • Course documentation • Practical Demonstration. • Lectures • Interactive Teaching • Group & Individual presentation • Learning partner • Writing Reflection Note.

24.	**Course Learning Outcomes (CO)**	**Learning Domain: Cognitive**
	CO1: Explain circuit variables and elements, energy storage properties of inductors and capacitors, magnetic quantities and variables, laws of magnetic circuits and Wye-delta transformation.	Understand
	CO2: Analyze transient natural and step responses of RL, RC and R-L-C circuits.	Analysis
	CO3: Solve series and parallel circuits, dc linear circuits using Mesh and Nodal analysis techniques, Superposition, Thevenin's, Norton, Reciprocity, Maximum Power transfer Theorems and magnetic circuits	Apply

25. Lecture	**Selected Topics**	**Reference**	**Activities**	**Outcome**
01.	Introduction to the course and other particulars of the course	CL		
02.	Basic Quantities, Circuit Elements	1.1-1.6		CO1
03.	Ohm's Law, Nodes, Branches, and Loops	2.2-2.3		CO1
04.	Kirchhoff's Laws	2.4	Problem solving, Question-answer	CO1
05.	Series resistors and voltage divisions, Parallel resistors & current divisions	2.5-2.6		CO1
06.	Finding equivalent resistance, Wye Delta Transformations	2.6-2.7	Problem solving, Question-answer	CO1
07.	Nodal Analysis	3.2-3.3		CO1+CO3
08.	Mesh Analysis	3.4-3.5		CO1+CO3
09.	Linearity Property, Superposition Theorem	4.2-4.3	Problem solving, Question-answer	CO1+CO3
10.	Source transformation, Thevenin's and Norton's Theorem	4.4-4.6		CO1+CO3
11.	Maximum Power Transfer Theorem, Capacitors, Series & parallel capacitors	4.8	Problem solving, Question-answer	CO1
12.	Review of Midterm Syllabus			
Mid Exam				

13.	Capacitors,	6.1		CO1
14.	Series & parallel capacitors,	6.2-6.3		CO1
15.	Inductors	6.4		CO1
16.	Series & parallel inductors	6.5		CO1
17.	Introduction to first order circuits	7.2	Problem solving, Question-answer	CO2+CO3
18.	Introduction to first order circuits	7.3		CO2+CO3
19.	Problem regarding first order circuits	7.4	Problem solving, Question-answer	CO2+CO3
20.	Series-parallel combinations of inductances and capacitances	12.1-12.2		CO1
21.	Sinusoidal steady state power calculations, RMS values, Real and reactive power.	12.3		CO1
22.	Magnetically coupled circuits	12.5-12.8		CO1
23.	Series and parallel resonance and Q factors	12.4,12.7	Problem solving, Question-answer	CO1
24.	Review of Final Syllabus			
Final Exam				

26. CIE- Continuous Internal Evaluation (30 Marks)

Bloom's Category (Marks out of 30)	Class Test	Group Assignment	Presentation	Class Performance (Class attendance)
Remember				
Understand	5			
Apply	5	2	3	5
Analysis	5			
Evaluate				
Create				

27. SME- Semester Mid-term Examination (30 Marks)

Bloom's Category	Test
Remember	0
Understand	10
Apply	20
Analysis	0
Evaluate	0
Create	0

28. SEE- Semester End Examination (40 Marks)

Bloom's Category	Test
Remember	0
Understand	15
Apply	15
Analysis	10
Evaluate	0
Create	0

29. Assessment of CO

Assessment

COs	CT1	CT2	CT3	MT	FE	Assignment	Project
CO1	√			√	√		
CO2			√		√		
CO3		√		√	√		
CO4							
CO5							
CO6							

30. Program Outcomes (POs) addressed

PO1 – Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.

	by this course	**PO2 –** Problem analysis: Identify, formulate, research the literature and analyze complex engineering problems and reach substantiated conclusions using first principles of mathematics, the natural sciences and the engineering sciences.

31. CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	√											
CO2		√										
CO3	√											
CO4												
CO5												
CO6												

32.

The following chart will be followed for grading. This has been customized from the guideline provided by the School of Engineering and Computer Science.

A+	A	A-	B+	B	B-	C+	C	D	F
80 and above	75-<80	70-<75	65-<70	60-<65	55-<60	50-<55	45-<50	40-<45	<40

33. Additional Course Policies

Assignments :	There will be one assignment. No late homework will be accepted. Any kind of copy in assignment will carry zero mark. Zero tolerance will be shown in this regard. Solutions to assignment problems will be provided through web and on hand.
Presentation :	There will be one presentation for each student. Presentation will be taken individually or group work. Project can be given instead of assignment.
Class Test :	There will be at least three CTs, best two will be counted. A CT can be taken with announcement in prior or without any announcement.
Exams :	Mid-term and final exam will be closed book, closed notes. Mobile is strictly prohibited in exam hall. Please bring your own watch and synchronize time during exam hours.
Test Policy :	If you are absent from a test, and you have not spoken to the teacher personally beforehand, your grade for the test will be zero. No make-up for class test will be taken because it has alternative (two out of three). No make-up for mid will be entertained without presence and recommendation of guardian and written permission of the department. Make-up test of mid - term or final examination will be much harder than the regular test.

34. Additional Information

a. Academic Information and Policies: http://www.green.edu.bd/academics/academic-rules-a-regulations
b. Grading and Performance Evaluation: http://www.green.edu.bd/academics/academic-rules-a-regulations
c. Proctorial Rules: http://www.green.edu.bd/administrator/proctors-office