Course Outline

CSE 109: Electrical Circuits

Department of Computer Science & Engineering

EAST WEST UNIVERSITY

Dhaka, Bangladesh

Fall 2015

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**Course Code:** CSE 109

**Course Title:**  Electrical Circuits

**Credit:** 4: Theory -3 and Lab -1

**Prerequisite**: None

**Class Schedule:** Section# 1:

Theory - Tuesday (Room #109) and Thursday (Room #113) from 1:30 pm

to 3.00 pm

Lab - Thursday at 8:00 am to 10:00 am at Room # 547

Section# 2:

Theory - Tuesday and Thursday from 3:10 pm to 4.40 pm at Room # 434

Lab - Thursday at 10:10 am to 12:10 pm at Room # 547

**Course Instructor:** Dr. Md. Forkan Uddin, Associate Professor, Dept. of EEE, BUET, Dhaka

**Mobile Number:**  01678-024-389

**Email:** forkanbuet@gmail.com

**Office Hours:** 12.00 pm to 1.00 pm on Tuesday

**Course Objective:**

“Electrical Circuits” is a fundamental course not only for Electrical Engineering but also for Electronic, Communication, Computer, Civil and Mechanical Engineering. This course provides the basic knowledge on different laws and theorems of electrical circuits, methodology of calculation of currents, voltages and power in DC and AC circuits. The concepts of this course are necessary to understand the courses electronic circuits, logic circuits, communications and VLSI design which are very important for Computer Engineering. Thus, the objective of this course is to convey the fundamental knowledge of DC and AC circuits.

**Course Contents:**

1. Basics of circuits elements and electrical quantities, Ohm’s law, Series-Parallel Circuits, KVL and KCL [3 Lectures]
2. Mesh and Nodal Analysis [2 Lectures]
3. Circuits Theorems: Superposition, Thevenin, Norton, Maximum Power Transfer [4 Lectures]
4. Instantaneous current and voltage, representation of sinusoidal function, Force response of first order circuits to sinusoidal excitation, Impedance, current, voltage and power of R, R-L, R-C, RLC branches. Real power, reactive power, and power factor [4 Lectures]
5. Effective current and voltage of AC [1 Lecture]
6. Phasor algebra and complex quantities [2 Lectures]
7. AC circuit analysis: Nodal and mesh analysis, Thevenin’s, Norton`s, Superposition and Maximum power transfer theorems [2 Lectures]
8. Introduction to poly phase circuits [3 Lectures]

**Text Book:** 1. “Introductory Circuit Analysis,” Boylestad

2. “Fundamentals of Electric Circuits,” [Charles Alexander](http://www.google.com.my/search?tbo=p&tbm=bks&q=inauthor:%22Charles+Alexander%22) and [Matthew Sadiku](http://www.google.com.my/search?tbo=p&tbm=bks&q=inauthor:%22Matthew+Sadiku%22)

3. “Alternating-current circuits,” [Russell Marion Kerchner](http://www.google.com/search?tbo=p&tbm=bks&q=inauthor:%22Russell+Marion+Kerchner%22) and [George Francis](http://www.google.com/search?tbo=p&tbm=bks&q=inauthor:%22George+Francis+Corcoran%22)

[Corcoran](http://www.google.com/search?tbo=p&tbm=bks&q=inauthor:%22George+Francis+Corcoran%22)

**Exam Dates:**

Mid Term I : June 09, 2015 (Tuesday)

Mid Term II : July 07, 2015 (Tuesday)

Final : August 18, 2015 (Tuesday)

**Marks Distribution:**

Mid Term I : 15%

Mid Term II : 15%

Final: 25%

Class Participation: 5%

Quiz/Class test: 15% (Best two out of three will be considered)

Lab: 25%

**Grading policy:** As per EWU rule

**Special Instructions:**

1. Number of Lectures shown may slightly vary.
2. There is zero tolerance for cheating at EUW. Students caught with cheat sheets in their possession, whether used or not, and or copying cheat sheets, writing on palm hand etc. will be treated as cheating in exam hall. The only penalty for cheating is expulsion from EWU.