King Saud University
College of Engineering **Second Semester 1435/1436**
Electrical Engineering Dept

EE201 Fundamentals of Electric Circuits

Instructor:

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Text Book:

"Introductory Circuit Analysis" By Robert L. Boylestad, 12th (or 11th or 10th) Edition, Published by Prentice Hall, 2001.

Course outline:

Topic	Chapters
Definitions and Laws	1-4
Series/Parallel (DC) circuits analysis	5-8
Network Theorems (DC) circuits	9
Sinusoidal alternating and phasors	13-14
Series/Parallel (AC) circuits analysis	15-17
Network Theorems (AC) circuits	18
Power (AC)	19
Polyphase Systems	22

Grading Policy:

Mid-Term Exams:	20% + 20%
Home Works + Quizzes	20%
Final Exam	40%

Mid-term Exams:

First mid-term Exam:	Sunday,	5 April 2015
Second Mid-Term Exam:	Sunday,	3 May 2015

Notes:

1. All mid-term exams will be performed after Maghreb prayers
2. If you miss any mid-term exam, there will be no makeup test for any given reasons
3. The only allowed calculator during Mid-term and Final exams is "**Casio FX-991ES"** or "**Casio FX-991ES Plus**".

Attendance Policy:

Attendance will be taken at every lecture. Students with less than 75% attendance will be forbidden from entering the final exam. In addition, all students who are late more than five minutes for the lectures will not be allowed to enter the classroom.

Cheating Policy:

Cheating and plagiarism of any kind will not be tolerated. This includes giving answers as well as taking them. This applies to any course work, tests, quizzes and homework. Each person's answers to an assignment should be his alone and should not be identical to another student's work. Cheating will result in a grade of "F" for all persons involved, if convicted.

Weekly Teaching Plan:

Subjects	Week
Chapter 2- Current and Voltage 2.2 Current 2.3 Voltage 2.4 Fixed dc supplies **Chapter 4- Ohm's Law, Power and Energy** 4.1 Ohm's law 4.3 Power **Chapter 5- Series Circuit** 5.2 Series circuits 5.3 Voltage sources in series 5.4 Kirchhoff's voltage law 5.5 Voltage divider rule 5.6 Notation	2
Chapter 6- Parallel Circuits 6.2 Parallel elements 6.3 Total conductance and resistance 6.4 Parallel networks 6.5 Kirchhoff's current law 6.6 Current divider rule 6.7 Voltage sources in parallel 6.8 Open and short circuits	3
Chapter 7- Series- Parallel Networks 7.1 Series-Parallel networks 7.2 Descriptive Examples 7.3 Ladder networks	4

Chapter 8- Methods of Analysis and Selected Topics (dc) 5 8.2 Current sources 8.3 Source conversions 8.4 Current sources in parallel 8.5 Current sources in series 8.7 Mesh analysis (general approach) 8.8 Mesh analysis (formatted approach)	5
Chapter 8- Methods of Analysis and Selected Topics (dc) 8.9 Nodal analysis (general approach) 8.10 Nodal analysis (formatted approach) 8.11 Bridge network 8.12 Star- Delta conversions	6
Chapter 9- Network Theorems 9.2 Superposition theorem 9.3 Thevenin's theorem	7
Chapter 9- Network Theorems 9.4 Norton's theorem 9.5 Maximum power transfer Theorem **Chapter 13- Sinusoidal Alternating Waveforms** 13.2 AC Voltage Definition 13.4 General format for the sinusoidal V or I 13.5 Phase relation 13.7 Effective value	8,9
Chapter 14- The basic Elements and Phasors 14.3 Response of basic R, L, and C elements to a sinusoidal V or I 14.5 Average power and power factor 14.6 Complex numbers	10
Chapter 14- The basic Elements and Phasors 14.1 Rectangular form 14.2 Polar form 14.3 Conversion between forms 14.4 Mathematical operations with complex numbers 14.5 Phasors **Chapter 15- Series and Parallel ac Circuits** 15.2 Impedance and the phasor diagram 15.3 Series configuration	11
Chapter 15- Series and Parallel ac Circuits 15.4 Voltage divider rule 15.6 Admittance and susceptance 15.7 Basic elements in parallel ac networks	12

15.8 Current divider rule 15.9 Equivalent circuits **Chapter 16- Series-Parallel ac Networks** 16.1 Introduction 16.2 Illustrative example 16.3 Ladder networks	
Chapter 17- Methods of Analysis and Selected Topics (ac) 17.3 Source conversions 17.4 Mesh analysis (formatted approach) 17.5 Nodal analysis (formatted approach) 17.6 Bridge networks (ac) 17.7 Star-Delta conversions **Chapter 18- Network Theorems** Same theorems as in Chapter 9	13
Chapter 19- Power (ac) 19-3 Apparent Power 19-4 Inductive circuit and reactive power (Q) 19-5 Capacitive circuit 19-6 The power triangle 19-7 The total P, Q, and S 19-8 Power factor correction	14
Chapter 22- Polyphase Systems 22-2 The three-phase generator 22.3 The Y-connected generator 22.4 Phase sequence (Y-connected Generator) 22.6 The Y-Δ system 22.10 Three-phase POWER	15