



University/Academy: Arab Academy for Science, Technology & Maritime Transport
Faculty/Institute: College of Engineering & Technology
Program: Electrical and Control Engineering

Form no. (12)
Course Specification

1- Course Data

Course Code: EE 231	Course Title: Electrical Circuits (I)	Academic Year/Level: 2	
Specialization: Electrical and Control Eng Electronics and Communication Eng Computer Engineering	No. of Instructional Units: 3	Lecture 2	Practical 2
		Lab 2	

2- Course Aim	<ul style="list-style-type: none">- To inform the students with basic elements of electric circuits.- To apply the different methods of circuit analysis on dc circuits.- To introduce the concept of phasors to the students.- To inform the students with the waveform of ac circuits.
3- Intended Learning Outcome	
a- Knowledge and Understanding	A.5 Methodologies of solving engineering problems, data collection and interpretation A.13 Analytical and computer methods appropriate for electrical power and machines engineering. A.30 Understand the principles of electrical, magnetic and electromagnetic circuits

b- Intellectual Skills	<p>B.2 Select appropriate solutions for engineering problems based on analytical thinking</p> <p>B.8 Select and appraise appropriate ICT tools to a variety of engineering problems</p>
c- Professional Skills	<p>C.5 Use computational facilities and techniques, measuring instruments, workshops and laboratory equipment to design experiments, collect, analyze and interpret results</p> <p>C.6 Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs</p> <p>C.8 Apply safe systems at work and observe the appropriate steps to manage risks</p> <p>C.12 Prepare and present technical reports</p> <p>C.14 Use laboratory and field equipment competently and safely</p> <p>C.18 Test and examine components, equipment and systems of electrical power and machines and control engineering</p>
d- General Skills	<p>D.1 Collaborate effectively within multidisciplinary team</p> <p>D.3 Communicate effectively</p>

<p>4- Course Content</p>	<p><i>Week Number 1:</i> Basic dc circuit elements, series and parallel Networks</p> <p><i>Week Number 2:</i> Ohm's law and Kirchoff's laws</p> <p><i>Week Number 3:</i> Nodal Analysis</p> <p><i>Week Number 4:</i> Mesh Analysis</p> <p><i>Week Number 5:</i> Electric circuit theorems "source transformation"</p> <p><i>Week Number 6:</i> Superposition</p> <p><i>Week Number 7:</i> Thevenin's Theorem and Norton Theorem</p> <p><i>Week Number 8:</i> Maximum power transfer</p> <p><i>Week Number 9:</i> Alternating current Fundamentals and AC generation</p> <p><i>Week Number 10:</i> RMS value, average value, form factor and crist factor</p> <p><i>Week Number 11:</i> Phasor concept</p> <p><i>Week Number 12:</i> Relation between voltage and current in resistor, capacitor and inductor</p> <p><i>Week Number 13:</i> Response of RL and RC circuits</p> <p><i>Week Number 14:</i> Sinusoidal response of RLC circuit</p> <p><i>Week Number 15:</i> Series Resonance</p> <p><i>Week Number 16:</i> Final exam</p>
<p>5- Teaching and Learning Methods</p>	<p>-Lectures</p> <p>-Tutorials</p>

6- Teaching and Learning Methods for Students with Special Needs	<ul style="list-style-type: none"> - Lectures - Tutorials - Reports & sheets - Laboratories 														
7- Student Assessment:	<p>Quiz to asses part of the 7th and 12th week evaluation</p> <p>Report to asses part of practical evaluation</p>														
a- Procedures used:	<p>Written Examinations to asses The Intended Learning Outcomes</p> <p>Class Activities (Reports, Discussions, -----) to asses The Intellectual Skills</p>														
b- Schedule:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Assessment 1</td> <td style="text-align: right;">3rd Week</td> </tr> <tr> <td>Assessment 2</td> <td style="text-align: right;">4th Week</td> </tr> <tr> <td>Assessment 3</td> <td style="text-align: right;">5th Week</td> </tr> <tr> <td>Assessment 4</td> <td style="text-align: right;">7th Week</td> </tr> <tr> <td>Assessment 5</td> <td style="text-align: right;">10th Week</td> </tr> <tr> <td>Assessment 6</td> <td style="text-align: right;">11th Week</td> </tr> <tr> <td>Assessment 7</td> <td style="text-align: right;">12th Week</td> </tr> </table>	Assessment 1	3 rd Week	Assessment 2	4 th Week	Assessment 3	5 th Week	Assessment 4	7 th Week	Assessment 5	10 th Week	Assessment 6	11 th Week	Assessment 7	12 th Week
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c- Weighing of Assessment:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">7th Week Examination</td> <td style="text-align: right;">30%</td> </tr> <tr> <td>12th Week Examination</td> <td style="text-align: right;">20%</td> </tr> <tr> <td>Final-term Examination</td> <td style="text-align: right;">40%</td> </tr> <tr> <td>Practical Examination</td> <td style="text-align: right;">10%</td> </tr> <tr> <td>Total</td> <td style="text-align: right;">100%</td> </tr> </table>	7 th Week Examination	30%	12 th Week Examination	20%	Final-term Examination	40%	Practical Examination	10%	Total	100%				
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8- List of References:	<ul style="list-style-type: none"> ▪ R. L. Boylestad, "Introductory circuit analysis", Merrill, London, 1994. ▪ W.J. Hayt and J.E. Kemmerly, "Engineering circuit Analysis", Mc Graw-Hill International Edition, 1986. 														

a- Course Notes	
b- Required Books (Textbooks)	J. Nilsson & S. Riedel, "Electrical Circuits", Prentice Hall, latest edition
c- Recommended Books	
d- Periodicals, Web Sites, ..., etc.	

Course Instructor

Name: **Prof. Samah El Safty**

Signature:



Dean of College of Engineering and Technology of AASTMT

Name: **Prof. Moustafa Hussein Aly**

Signature:

Head of Department

Name: **Prof. Hamdy Ashor**

Signature:

Executive Manager of Quality Assurance Center of AASTMT

Name: **Prof. Aziz Ezzat**

Signature: