



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

**Form no. (12)**  
**Course Specification**

**1- Course Data**

<b>Course Code:</b> EE 332	<b>Course Title:</b> Network Analysis	<b>Academic Year/Level:</b> 3
<b>Specialization:</b> Electrical and control Eng	<b>No. of Instructional Units:</b> 3	<b>Lecture</b> 2 <b>tutorial</b> 2

<b>2- Course Aim</b>	To give the students the skills of analysis electrical networks using complex frequency approach , Laplace transform and apply such approaches to magnetically complied circuits and two port networks
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<b>3- Intended Learning Outcome</b>
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<b>a- Knowledge and Understanding</b>	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
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<b>b- Intellectual Skills</b>	<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>
<b>c- Professional Skills</b>	<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.20 Evaluate different techniques and strategies for solving electrical engineering problems</p>
<b>d- General Skills</b>	<p>D.2 Work in stressful environment and within constraints</p>
<b>4- Course Content</b>	<p><i>Week Number 1:</i> Introducing the topic and illustrating its importance for electrical eng.</p> <p><i>Week Number 2:</i> Complex frequency method for different wave forms.</p> <p><i>Week Number 3:</i> Laplace transform and relation between current and voltage for resistance, capacitance and inductance.</p> <p><i>Week Number 4:</i> Laplace transform and electric circuit sources</p> <p><i>Week Number 5:</i> The impulse function in circuit analysis</p> <p><i>Week Number 6:</i> Laplace transform and the concept of transfer function.</p> <p><i>Week Number 7:</i> 7th week exam + The concept of magnetic coupling</p> <p><i>Week Number 8:</i> Analysis of magnetically coupled circuits.</p> <p><i>Week Number 9:</i> Linear transformers</p> <p><i>Week Number 10:</i> Ideal transformers.</p> <p><i>Week Number 11:</i> Two – port networks and its differential equations form</p> <p><i>Week Number 12:</i> 12th week exam + Evaluation of its parameter.</p>

	<p><i>Week Number 13:</i> Analysis of terminated two-port circuits.</p> <p><i>Week Number 14:</i> Interconnected two – port networks.</p> <p><i>Week Number 15:</i> Revision and a set of solved examples</p> <p><i>Week Number 16:</i> Final exam</p>										
<p><b>5- Teaching and Learning Methods</b></p>	<ul style="list-style-type: none"> <li>- Lectures</li> <li>-Tutorials</li> <li>-Discussion papers</li> <li>-Designing codes</li> </ul>										
<p><b>6- Teaching and Learning Methods for Students with Special Needs</b></p>	<ul style="list-style-type: none"> <li>- Lectures</li> <li>- Tutorials</li> <li>- Reports &amp; sheets</li> <li>- Laboratories</li> <li>- Seminars</li> </ul>										
<p><b>7- Student Assessment:</b></p>	<table border="0"> <tr> <td><b>Quiz</b></td> <td><b>to asses part of the 7<sup>th</sup> week evaluation</b></td> </tr> <tr> <td><b>Report</b></td> <td><b>to asses 7<sup>th</sup> week practical evaluation</b></td> </tr> <tr> <td><b>Written exam</b></td> <td><b>to asses the mid-term exam</b></td> </tr> <tr> <td><b>Written exam</b></td> <td><b>to asses the 12<sup>th</sup> week evaluation</b></td> </tr> <tr> <td><b>Matlab code</b></td> <td><b>to asses class activities</b></td> </tr> </table>	<b>Quiz</b>	<b>to asses part of the 7<sup>th</sup> week evaluation</b>	<b>Report</b>	<b>to asses 7<sup>th</sup> week practical evaluation</b>	<b>Written exam</b>	<b>to asses the mid-term exam</b>	<b>Written exam</b>	<b>to asses the 12<sup>th</sup> week evaluation</b>	<b>Matlab code</b>	<b>to asses class activities</b>
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<b>a- Procedures used:</b>	Written Examinations to assess The Intended Learning Outcomes Class Activities (Reports, Discussions, -----) to assess The Intellectual Skills										
<b>b- Schedule:</b>	<table> <tr> <td>Assessment 1</td> <td>3<sup>rd</sup> Week</td> </tr> <tr> <td>Assessment 2</td> <td>5<sup>th</sup> Week</td> </tr> <tr> <td>Assessment 3</td> <td>7<sup>th</sup> Week</td> </tr> <tr> <td>Assessment 4</td> <td>12<sup>th</sup> Week</td> </tr> <tr> <td>Assessment 5</td> <td>14<sup>th</sup> Week</td> </tr> </table>	Assessment 1	3 <sup>rd</sup> Week	Assessment 2	5 <sup>th</sup> Week	Assessment 3	7 <sup>th</sup> Week	Assessment 4	12 <sup>th</sup> Week	Assessment 5	14 <sup>th</sup> Week
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<b>8- List of References:</b>	<p>*D. E. Johnson, J.R. Johnson and J.L. Hilbnce, "Electric circuit Analysis", Prentice–Hall, N.J. , 1992.</p> <p>*James E. Nilsson, "Electric circuits", Addison–Wesley, 1993.</p>										
<b>a- Course Notes</b>											
<b>b- Required Books (Textbooks)</b>	W. J. Hayt and J.E. Kemmerly, "Engineering Circuit Analysis", McGraw-Hill International, 1993										
<b>c- Recommended Books</b>											
<b>d- Periodicals, Web Sites, ..., etc.</b>											

**Course Instructor**

Name: **Dr. Mustafa Abdel-Geliel**

Signature:



**Dean of College of Engineering and Technology of  
AASTMT**

Name: **Prof. Moustafa Hussein Aly**

Signature:

**Head of Department**

Name: **Prof. Hamdy Ashour**

Signature:

**Executive Manager of Quality Assurance  
Center of AASTMT**

Name: **Prof. Aziz Ezzat**

Signature: