



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

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

**1- Course Data**

<b>Course Code:</b> EE 449	<b>Course Title:</b> Electrical Power in Ships	<b>Academic Year/Level:</b> 4
<b>Specialization:</b> Marine Engineering	<b>No. of Instructional Units:</b> 3	<b>Lecture</b> 2 <b>Tut/Lab</b> 2

<b>2- Course Aim</b>	<ul style="list-style-type: none"><li>- Providing detailed skills related to Power System elements.</li><li>- Providing concise integrated treatment of the essentials of electrical power systems especially those used on board ships; distribution, short circuit analysis and protection techniques.</li></ul>
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<b>3- Intended Learning Outcome</b>
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<b>a- Knowledge and Understanding</b>	<ul style="list-style-type: none"><li>- Students should be able to understand the elements of electric power system in ships.</li><li>- Students should be able to understand the different types of distribution systems.</li><li>- Students should gain basic knowledge about cables.</li><li>- Students should gain knowledge &amp; understanding of the definition &amp; use of per-unit systems.</li><li>- Students should gain knowledge &amp; understanding of the types &amp; calculations of three-phase faults.</li><li>- Students should gain general knowledge of the types, construction, characteristics of protective elements.</li><li>- Students should gain general knowledge of the types and methods of protection of ship's power system components.</li></ul>
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<b>b- Intellectual Skills</b>	<p>- Student should be able to size &amp; set protective elements.</p>
<b>c- Professional Skills</b>	<p>-Students should be able to search for operational performance data of power system components applied in ships.</p>
<b>d- General Skills</b>	<p>- Students should be able to work individually and in small groups to perform laboratory experiments / tutorial exercises in electric power systems.</p>

<p><b>4- Course Content</b></p>	<p>Elements of Power Systems</p> <p><i>Week Number 2:</i> DC Radial Distributors with Concentrated Loads.</p> <p><i>Week Number 3:</i> Uniformly Loaded distributors</p> <p><i>Week Number 4:</i> D.C. Three Wire Distributor.</p> <p><i>Week Number 5:</i> DC Ring Distributor</p> <p><i>Week Number 6:</i> AC Radial Distributors</p> <p><i>Week Number 7:</i> AC Ring Distributor</p> <p><i>Week Number 8:</i> Cables.</p> <p><i>Week Number 9:</i> Per-unit system</p> <p><i>Week Number 10:</i> Symmetrical faults</p> <p><i>Week Number 11:</i> Protection elements (1)</p> <p><i>Week Number 12:</i> Protection elements (2)</p> <p><i>Week Number 13:</i> Protection elements (3)</p> <p><i>Week Number 14:</i> Protection of power system components (1)</p> <p><i>Week Number 15:</i> Protection of power system components (2)</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>- Reports &amp; sheets</li> <li>- Laboratories</li> <li>- Seminars</li> </ul>

<b>6- Teaching and Learning Methods for Students with Special Needs</b>	<ul style="list-style-type: none"> <li>- Lectures</li> <li>- Tutorials</li> <li>- Reports &amp; sheets</li> <li>- Laboratories</li> <li>- Seminars</li> </ul>
<b>7- Student Assessment:</b>	<p>Written Examinations to assess The Intended Learning Outcomes</p> <p>Class Activities (Reports, Discussions, -----) to assess The Intellectual Skills</p>
<b>a- Procedures used:</b>	<p>Written Examinations to assess The Intended Learning Outcomes</p> <p>Class Activities (Reports, Discussions, -----) to assess The Intellectual Skills</p>

<b>b- Schedule:</b>	<table> <tr> <td><b>Assessment 1 Exam</b></td> <td><b>7<sup>th</sup> Week Written</b></td> </tr> <tr> <td><b>Assessment 2 Exam</b></td> <td><b>12<sup>th</sup> Week Written</b></td> </tr> <tr> <td><b>Assessment 3 Assessments</b></td> <td><b>Continuous</b></td> </tr> <tr> <td><b>Assessment 4 Written Exam</b></td> <td><b>16<sup>th</sup> Week Final</b></td> </tr> </table>	<b>Assessment 1 Exam</b>	<b>7<sup>th</sup> Week Written</b>	<b>Assessment 2 Exam</b>	<b>12<sup>th</sup> Week Written</b>	<b>Assessment 3 Assessments</b>	<b>Continuous</b>	<b>Assessment 4 Written Exam</b>	<b>16<sup>th</sup> Week Final</b>						
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<b>8- List of References:</b>	<p>W. Stevenson &amp; J.Grainger, "Power System Analysis", McGraw Hill, 1994.</p> <p>Uppal S.L., "Electrical Power", Khanna Publishers, Delhi, 1998.</p> <p>H.D.McGeorge, "Marine electrical equipment and practice", Newnes, 1993.</p>														
<b>a- Course Notes</b>															
<b>b- Required Books (Textbooks)</b>	<p>J. Glover &amp; M.Sarma " Power system analysis and design", PWS publishers, Boston, latest edition.</p>														
<b>c- Recommended Books</b>															

<b>d- Periodicals, Web Sites, ..., etc.</b>	
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**Course Instructor:**

**Head of Department:**

**Program Manager:**