



**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 211	<b>Course Title:</b> Electrical Measurements and Instrumentation (1)	<b>Academic Year/Level:</b> 2/4
<b>Specialization:</b> Electrical and Control Engineering	<b>No. of Instructional Units:</b> 3	<b>Lecture</b> 2 <b>Tutorial/Practical</b> 2

<b>2- Course Aim</b>	To Introduce the basic concepts of measurement techniques and the construction and characteristics of the different types of indicating instruments
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<b>3- Intended Learning Outcome</b>	
<b>a- Knowledge and Understanding</b>	A.5 Methodologies of solving engineering problems, data collection and interpretation  A.30 Understand the principles of electrical, magnetic and electromagnetic circuits  A.31 Formulate the problem, realizing the requirements and identifying the constraints

<b>b- Intellectual Skills</b>	B.15 Integrate electrical, electronic and mechanical components and equipment with transducers, actuators and controllers in creatively computer controlled systems
<b>c- Professional Skills</b>	<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.12 Prepare and present technical reports</p> <p>C.14 Use laboratory and field equipment competently and safely</p> <p>C.16 Specify and evaluate manufacturing of components and equipment related to electrical power and machines</p> <p>C.18 Test and examine components, equipment and systems of electrical power and machines and control engineering</p>
<b>d- General Skills</b>	D.3 Communicate effectively

<b>4- Course Content</b>	<i>Week Number 1:</i> Accuracy of Measurement and error analysis I. <i>Week Number 2:</i> Accuracy of measurement and error analysis II. <i>Week Number 3:</i> Absolute and Secondary instruments. <i>Week Number 4:</i> Secondary circuit instrumentation. <i>Week Number 5:</i> Moving coil instruments. <i>Week Number 6:</i> Moving iron instruments. <i>Week Number 7:</i> 7th week exam + Dynamometer type instruments. <i>Week Number 8:</i> Induction instruments. <i>Week Number 9:</i> Measuring of Active power. <i>Week Number 10:</i> Measuring of power factor. <i>Week Number 11:</i> DC Bridges. <i>Week Number 12:</i> 12th week + AC Bridges. <i>Week Number 13:</i> Current transformers. <i>Week Number 14:</i> Potential transformers. <i>Week Number 15:</i> Oscilloscope. <i>Week Number 16:</i> Final Exam.														
<b>5- Teaching and Learning Methods</b>	- Lectures - Tutorials - Discussion - Practical Training														
<b>6- Teaching and Learning Methods for Students with Special Needs</b>	- Lectures - Tutorials - Discussion - Practical Training														
<b>7- Student Assessment:</b>															
<b>a- Procedures used:</b>	Quiz (1) to asses part of the 7 <sup>th</sup> week evaluation Quiz (2) to asses part of the 7 <sup>th</sup> week evaluation Quiz (3) to asses part of the 7 <sup>th</sup> week evaluation Quiz (4) to asses part of the 12 <sup>th</sup> week evaluation Quiz (5) to asses part of the 12 <sup>th</sup> week evaluation Practical examination														
<b>b- Schedule:</b>	<table data-bbox="702 1370 1508 1534"> <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>10<sup>th</sup> Week</td> </tr> <tr> <td>Assessment 5</td> <td>12<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	10 <sup>th</sup> Week	Assessment 5	12 <sup>th</sup> Week				
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<b>c- Weighing of Assessment:</b>	<table data-bbox="702 1550 1508 1780"> <tr> <td>7<sup>th</sup> Week Examination</td> <td>30%</td> </tr> <tr> <td>12<sup>th</sup> Week Examination</td> <td>20%</td> </tr> <tr> <td>Final-term Examination</td> <td>40%</td> </tr> <tr> <td>Oral Examination</td> <td>0%</td> </tr> <tr> <td>Practical Examination</td> <td>5%</td> </tr> <tr> <td>Semester Work</td> <td>5%</td> </tr> <tr> <td>Total</td> <td>100%</td> </tr> </table>	7 <sup>th</sup> Week Examination	30%	12 <sup>th</sup> Week Examination	20%	Final-term Examination	40%	Oral Examination	0%	Practical Examination	5%	Semester Work	5%	Total	100%
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Oral Examination	0%														
Practical Examination	5%														
Semester Work	5%														
Total	100%														
<b>8- List of References:</b>	<ul data-bbox="750 1796 1508 1926" style="list-style-type: none"> <li>• E. Golding and F. Widdis “ Electrical Measurement and measuring instruments“ Pittmann latest edition.</li> <li>• A. Fitzgerald , C. Kingsley and S. Umans “ Electric Machinery “ , 1990.</li> </ul>														
<b>a- Course Notes</b>															

<b>b- Required Books (Textbooks)</b>	Helfrick, "Modern Electronic Instrumentation and Measurement", Prentice Hall
<b>c- Recommended Books</b>	
<b>d- Periodicals, Web Sites, ..., etc.</b>	

**Course Instructor**

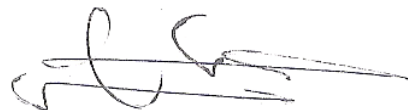
Name: **Prof. Hussein El Dessouki**

Signature:

**Head of Department**

Name: **Prof. Hamdy Ashour**

Signature:



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

Name: **Prof. Moustafa Hussein Aly**

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**Executive Manager of Quality Assurance  
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Name: **Prof. Aziz Ezzat**

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