



**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 333	<b>Course Title:</b> Electric & Magnetic Fields (II)	<b>Academic Year/Level:</b> 3/7
<b>Specialization:</b> Electrical and Control Eng	<b>No. of Instructional Units:</b> 3	<b>Lecture</b> 2 <b>Tutorial/Practical</b> 2

<b>2- Course Aim</b>	<ul style="list-style-type: none"><li>- Understanding the basic theory of steady magnetic and time varying fields.</li><li>- Comprehend the magnetic field theory and the differences between steady magnetic &amp; electrostatic fields.</li><li>- Understanding the four Maxwell's equations and their roles in solving different problems in time varying fields and waves</li></ul>
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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.8 Current engineering technologies as related to disciplines  A.30 Understand the principles of electrical, magnetic and electromagnetic circuits

<b>b- Intellectual Skills</b>	B.2 Select appropriate solutions for engineering problems based on analytical thinking  B.8 Select and appraise appropriate ICT tools to a variety of engineering problems
<b>c- Professional Skills</b>	C.6 Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs
<b>d- General Skills</b>	D.2 Work in stressful environment and within constraints
<b>4- Course Content</b>	<p><i>Week Number 1:</i> The steady magnetic field</p> <p><i>Week Number 2:</i> The steady magnetic field</p> <p><i>Week Number 3:</i> The steady magnetic field</p> <p><i>Week Number 4:</i> Analogy between steady magnetic field and Electro static field.</p> <p><i>Week Number 5:</i> Magnetic forces</p> <p><i>Week Number 6:</i> Magnetic forces.</p> <p><i>Week Number 7:</i> Magnetic materials and inductance</p> <p><i>Week Number 8:</i> Magnetic materials and inductance</p> <p><i>Week Number 9:</i> Magnetic materials and inductance</p> <p><i>Week Number 10:</i> Time varying fields</p> <p><i>Week Number 11:</i> Time varying fields</p> <p><i>Week Number 12:</i> Time varying fields</p> <p><i>Week Number 13:</i> Maxwell's four equations.</p> <p><i>Week Number 14:</i> The uniform plane wave</p> <p><i>Week Number 15:</i> The uniform plane wave.</p> <p><i>Week Number 16:</i> Final exam</p>
<b>5- Teaching and Learning Methods</b>	- Lectures -Tutorials - Reports
<b>6- Teaching and Learning Methods for Students with Special Needs</b>	- Lectures -Tutorials - Reports
<b>7- Student Assessment:</b>	<b>Quizzes:</b> to asses part of the 7 <sup>th</sup> week evaluation <b>Report:</b> to asses 7 <sup>th</sup> week practical evaluation <b>Written exam:</b> to assess the mid-term exam

	<b>Written exam: to asses the 12<sup>th</sup> week evaluation</b> <b>Matlab code: to asses class activities</b>
<b>a- Procedures used:</b>	Written Examinations to asses knowledge and understanding & professional skills Class Activities (Reports, Discussions, -----) to asses The Intellectual Skills
<b>b- Schedule:</b>	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
<b>c- Weighing of Assessment:</b>	7th Week Examination                      30%  12th Week Examination                      20%  Final-term Examination                      40%  Semester Work                      10%  Total                      100%
<b>8- List of References:</b>	R.V. Buckley, "Work out Electromagnetic Fields", Macmillan work out series, 1988
<b>a- Course Notes</b>	
<b>b- Required Books (Textbooks)</b>	William H – Hayt , Jr. " Engineering Electro Magnetics", 5 <sup>th</sup> Edition, McGraw – Hill , 1989
<b>c- Recommended Books</b>	
<b>d- Periodicals, Web Sites, ..., etc.</b>	

**Course Instructor**

Name: **Prof. Medhat Elsengaby**

Signature:

**Head of Department**

Name: **Prof. Hamdy Ashour**

Signature:

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

Name: **Prof. Moustafa Hussein Aly**

Signature:

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

Name: **Prof. Aziz Ezzat**

Signature: