



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

Course Code: EE 331	Course Title: Electric & Magnetic Fields (I)	Academic Year/Level: 3/6
Specialization: Electrical and control Eng	No. of Instructional Units: 3	Lecture 2 Tutorial/Practical

2- Course Aim	<ul style="list-style-type: none"> - Understanding the basic theory of Electrostatics. - Understanding the coordinate systems and vector analysis. - Understanding the concept of charge distributions. - Understanding Electrical Fields, Potential, and Energy.
3- Intended Learning Outcome	
a- Knowledge and Understanding	<p>A.5 Methodologies of solving engineering problems, data collection and interpretation</p> <p>A.8 Current engineering technologies as related to disciplines</p> <p>A.23 Principles of performing electrical system calculations, including load flow, earthling and equipment sizing</p> <p>A.30 Understand the principles of electrical, magnetic and electromagnetic circuits</p>
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	C.6 Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs
d- General Skills	D.1 Collaborate effectively within multidisciplinary team

4- Course Content	<i>Week Number 1:</i> Vector analysis. <i>Week Number 2:</i> Coordinate systems. <i>Week Number 3:</i> Coulomb's law. <i>Week Number 4:</i> Coulomb's law. <i>Week Number 5:</i> Electric field intensity <i>Week Number 6:</i> Electric flux density. <i>Week Number 7:</i> Gauss's law. <i>Week Number 8:</i> Divergence theorem. <i>Week Number 9:</i> Energy and potential. <i>Week Number 10:</i> Energy and potential. <i>Week Number 11:</i> Energy and potential <i>Week Number 12:</i> Conductors, Dielectric, and capacitance <i>Week Number 13:</i> Conductors, Dielectric, and capacitance. <i>Week Number 14:</i> Conductors, Dielectric, and capacitance. <i>Week Number 15:</i> Poisson's and la place's equations. <i>Week Number 16:</i> Final exam
5- Teaching and Learning Methods	- Lectures - Tutorials - Reports & sheets
6- Teaching and Learning Methods for Students with Special Needs	- Lectures - Tutorials - Reports & sheets
7- Student Assessment:	Quizzes: to asses part of the 7 th , 12 th week evaluation Report : to asses 7 th week practical evaluation Written exam: to assess the mid-term exam Final exam
a- Procedures used:	<ul style="list-style-type: none"> • Written examinations to asses knowledge and understanding & professional skills • Class activities (Reports, Discussions, -----) to assess the Intellectual Skills

b- Schedule:	Assessment 1 3 rd Week Assessment 2 5 th Week Assessment 3 7 th Week Assessment 4 10 th Week Assessment 5 12 th Week
c- Weighing of Assessment:	7 th Week Examination 30% 12 th Week Examination 20% Final-term Examination 40% Semester Work 10% Total 100%
8- List of References:	<ul style="list-style-type: none"> • R.V. Buckley “ Work out Electromagnetic Fields “ Macmillan work out series, 1988 • Fawwaz T. Ulaby, "Electromagnetics for Engineers", Pearson Education, 2005
a- Course Notes	
b- Required Books (Textbooks)	William H. Hayt, Jr. “ Engineering Electromagnetics” 5th Edition, McGraw – Hill , 1989
c- Recommended Books	
d- Periodicals, Web Sites, ..., etc.	

Course Instructor

Name: **Dr. Mohamed Abdel reheem**

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:

