University : Menoufiya University

College: Faculty of Electronic Engineering

Department: Electronics and electrical communication engineering

Course Specification

1- Course basic information :				
Course Code: EC 424	Course Title: Antennas Engineering	Academic year: 2012/2013 Level (½) – Semester : \		
Department requirement	Teaching hours: Lecture Tutorial Lab .			

2- Aim of the course	Knowing the different types of antennas			
	 Understanding the different analysis methods of antennas 			
	Understanding the ground wave propagation mechanisms.			
3- Intended Learning	3- Intended Learning Outcomes:			
A- Knowledge and	A1) Concepts and theories of mathematics and sciences,			
Understanding:	appropriate to the antennas.			
	a3) Characteristics of engineering materials related to the			
	antennas.			
	a4) Principles of design including elements design, process			
	and/or a system related to specific antennas.			
	a8) Current engineering technologies as related to antennas.			
	a20) Antenna and wave propagation.			
B- Intellectual Skills	b1) Select appropriate mathematical and computer-based			
	methods for modeling and analyzing problems.			
	b2) Select appropriate solutions for engineering problems based			
	on analytical thinking.			
	b6) Investigate the failure of components, systems, and			
	processes.			
	b11) Analyze results of numerical models and assess their			
	limitations.			
	b16) Synthesis and integrate electronic systems for certain			
	specific function using the right equipment.			

C- Professional Skills	c1) Apply knowledge of mathematics, science, information technology, design, business context and engineering practice integrally to solve engineering problems. c2) Professionally merge the engineering knowledge, understanding, and feedback to improve design, products and/or services. c6) Use a wide range of analytical tools, techniques, equipment,		
	and software packages pertaining to the discipline and develop required computer programs. c7) Apply numerical modeling methods to engineering problems.		
D- General Skills	c17) Use appropriate tools to measure system performance. d1) Collaborate effectively within multidisciplinary team. d3) Communicate effectively. d7) Search for information and engage in life-long self learning antennas. d9) Refer to relevant literatures.		
4- Course Contents	Linear Antenna-Arrays of Elements-Aperture Antenna-Microstrip Antennas-Smart Antenna-Receiving Antennas-Ground wave Propagation-Space wave Propagation-Sky wave Propagation.		
5- Teaching and Learning Methods	 Lectures Tutorials Labs and/or case studies Research assignments 		
6- Teaching and Learning Methods for disable students	NA		
7- Student Assessmer	nt		
a- Assessment Methods	 Weekly sheet exercises at class room Quizzes Labs and/or case study for more demonstration. Mid term, and final exams 		
b- Assessment Schedule	 Exercise sheet/ Lab assignment : Quizz-1: Mid-Term exam: Quizz-2: Lab exam: Final – term examination: 	Weekly Week <u>no</u> 4 Week <u>no</u> 8 Week <u>no</u> 12 Week <u>no</u> 15 Week <u>no</u> 16	

c- Weighting of Assessment	- Class tutorial and quizzes: 5 % - Mid-term examination: 15 % - Case study and/or practical exam: 5 % - Final – term examination: 70 % - Other types of assessment: 5 % Total 100 %		
8- List of text books a	nd references:		
a- Course notes	There are lectures notes prepared in the form of a book authorized by the department		
b- Text books	 C. A. Balanis, "Antenna Theory: A Review," <i>Proc. IEEE</i>, Vol. 80, No. 1, pp. 7–23, January 1992. L. V. Blake, <i>Antennas</i>, Wiley, New York, 1966, p. 289. C. A. Balanis, <i>Advanced Engineering Electromagnetics</i>, Wiley, New York, 1989 		
c- Recommended books	Z.N. Chen, Antennas for portable devices, Wiley & Sons, Inc., England, 2007		
	2. J. D. Kraus, Antennas, McGraw-Hill, New York, 1988.		
	3. J. D. Kraus, Electromagnetics, McGraw-Hill, New York, 1992, pp. 761–763.		
	4. S. A. Schelkunoff and H. T. Friis, Antenna Theory and Practice, Wiley, New York, 1952		
d- Periodicals, Web sitesetc	IEEE Transactions		

Course contents - ILOs Matrix

Content Topics	Week	A- Knowledge & Understandin g	B- Intellectual skills	C- Professional and practical skills	D- General and transferable skills
Linear Antenna- Arrays of Elements	1-3	A1,a3	B1,b2	C1,c2	D3
Aperture Antenna	4-5	A4,a8	B6,b11	C1,c6	D1
Microstrip Antennas	6-7	A8,a20	B2,b6	C2,c7	D3,d7
Smart Antenna	9-10	A1,a3,a4	B11,b16	C7,c17	D9

Receiving	11	A1,a4	В6	C1,c2	D1,d7
Antennas					
Ground wave	12-13	A1,a8,a20	B6,b11	C1,c2,c17	D1,d7,d9
Propagation					
Space wave	14	A8	B6,b11	C1,c2	D9
Propagation-Sky					
wave					
Propagation.					

Course coordinator:

Head of Department:

Date: / /