University : Menoufiya University

College : Faculty of Electronic Engineering

Department : Electronics and electrical communication engineering

Course Specification

1- Course basic information :		
Course Code: EC 431	**Course Title:** satellite engineering	**Academic year:2012/2013** **Level (٤) – Semester : 2**
Department requirement	**Teaching hours: Lecture** 3 **Tutorial** 2 **Lab** ٠	

2- Aim of the course	• Understanding the basic fundamentals of satellite systems and orbits • Learn the basics of modulation techniques in satellite communication. • Develop the student's skills to analyze, and design satellite Communication systems.
3- Intended Learning Outcomes:	
A- Knowledge and Understanding:	a1) Concepts and theories of mathematics and sciences, appropriate to the satellite engineering. a3) Characteristics of engineering materials related to the satellite engineering. a4) Principles of design including elements design, process and/or a system related to specific satellite engineering. a8) Current engineering technologies as related to satellite engineering a17) Communication systems
B- Intellectual Skills	b1) Select appropriate mathematical and computer-based methods for modeling and analyzing satellite orbits problems. b7) Solve engineering problems, often on the basis of limited and possibly contradicting information. b12) Create systematic and methodic approaches when dealing with new and advancing technology. b15) Analyze the performance of digital and analog communication systems.
C- Professional Skills	c1) Apply knowledge of mathematics, science, information technology, design, business context and engineering practice integrally to solve engineering problems. c6) Use a wide range of analytical tools, techniques, equipment, and

	software packages pertaining to the discipline and develop required computer programs. c13) Practice computer programming for the design and diagnostics of digital and analog communication, mobile communication, coding, and decoding systems. c16) Identify appropriate specifications for required devices. c17) Use appropriate tools to measure system performance.
D- General Skills	d1) Collaborate effectively within multidisciplinary team. d3) Communicate effectively. d6) Effectively manage tasks, time, and resources. d9) Refer to relevant literatures.
4- Course Contents	Introduction - microwave systems – satellite systems-satellite links-satellite orbits-modulation techniques in Satellite Communication systems-multiple access techniques-satellite systems applications.
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 Assessment	
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 : Weekly - Quizz-1: Week no 4 - Mid-Term exam: Week no 8 - Quizz-2: Week no 12 - Lab exam: Week no 15 - Final – term examination: Week no 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 and references:	
a- Course notes	There are lecture notes prepared in the form of a book authorized by the department
b- Text books	• Pelton, Joseph N., "Wireless & Satellite

	Telecommunications: The Technology, the Market, &the Regulations", Prentice Hall 1995 • Cochetti, Roger, "Mobile Satellite Communications Handbook", Quantum Publishing,Incorporated 1995 • Michael J. Miller (Editor),Branka Vucetic (Editor),Les Berry (Editor) , "Satellite Communications: Mobile & Fixed Services" Kluwer Academic Publishers, 1993 • Gerard Maral,Michel Bousquet, "Satellite Communication System: Systems, Techniques &Technology", John Wiley & Sons, Incorporated, 1993
c- Recommended books	• Tom Logsdon, "Mobile Communication Satellites", McGraw Hill Text, February 1995 • Dennis Roddy, "Satellite Communications", McGraw Hill Text, 1995
d- Periodicals, Web sites ……etc	• IEEE Transactions • ATM by Satellitehttp://www.telesat.ca/ • SATELLITE COMMUNICATIONS NETWORK TECHNOLOGY • Satellite Broadcasting and Communications Association

Course contents - ILOs Matrix

Content Topics	Week	**A- Knowledge & Understanding**	**B- Intellectual skills**	**C- Professional and practical skills**	**D- General and transferable skills**
Introduction	1-2	A1,a3	B1,b7	C1,c6	D1,d3
satellite systems	3-5	A3,a4	B7	C6,c13	D3,d6
satellite links- satellite orbits	6-7	A4,a8	B7,b12	C1,c13	D3,d9
modulation techniques in Satellite Communication systems	9-10	A8,a17	B1,b12	C13,c16	D1,d9
multiple access techniques	11-12	A17	B7,b15	B7,b15	D1,d9
satellite systems	13-14	A3	B15	B15	D1,d3,d9

applications.					

Course coordinator: **Head of Department:**

Date: / /