University : Menoufiya University

College : Faculty of Electronic Engineering

Department : Electronics and electrical communication engineering

Course Specification

1- Course basic information :		
Course Code: EC 428	**Course Title:** Advanced Communication Systems	**Academic year:** Level (٤) – Semester : 2
Department requirement	**Teaching hours: Lecture** $\boxed{3}$ **Tutorial** $\boxed{2}$ **Lab** $\boxed{.}$	

2- Aim of the course	• Understanding the basic fundamentals of data network and spread spectrum. • Learn the basics of radar and remote sensing. • Develop the student's skills to analyze, and design and design basic Mobile Communication-Computer Communication.
3- Intended Learning Outcomes:	
A- Knowledge and Understanding:	a1) Concepts and theories of mathematics and sciences, appropriate to the Mobile Communication. a3) Characteristics of engineering materials related to the Mobile Communication. a4) Principles of design including elements design, process and/or a system related to specific Mobile Communication. a8) Current engineering technologies as related to Mobile Communications. a17) Communication systems a23) Microwave applications
B- Intellectual Skills	b1) Select appropriate mathematical and computer-based methods for modeling and analyzing 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	Data Network -Spread Spectrum-Radar and Remote Sensing -Satellite Communication-Mobile Communication-Computer Communicati
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	1) Y. Akaiwa; Introduction of Digital Communications, John Wiley & Sons Ltd, 1996 2) Glen Kramer, Ethernet Passive Optical Networks, McGraw-Hill, Copyright, 2005, USA
c- Recommended books	3) Govind P. Agrawal, Lightwave Technology, Copyright John Wiley & sons, Canada, 2005 **4)** Jordi Perez-Romero, Radio Resource Management Strategies in UMTS, Copyright Johin Wiley & sons, England, 2005 **5)** Jeff Hecht, Understanding Fiber Optics, 200**2**
d- Periodicals, Web sites ………etc	IEEE Transactions

Course contents - ILOs Matrix

Content Topics	Week	A- Knowledge & Understanding	B- Intellectual skills	C- Professional and practical skills	D- General and transferable skills
Data Network	1-2	A1,a3	B1,b7	C1,c6	D1,d3
Spread Spectrum	3-5	A3,a4	B7	C6,c13	D3,d6
Radar and Remote Sensing	6-7	A4,a8	B7,b12	C1,c13	D3,d9
Satellite Communication	9-10	A8,a17	B1,b12	C13,c16	D1,d9
Mobile Communication	11-12	A17,a23	B7,b15	B7,b15	D1,d9
Computer Communication	13-14	A3	B15	B15	D1,d3,d9

Course coordinator: **Head of Department:**

Date: / /