

University : Menoufiya University

College : Faculty of Electronic Engineering

Department : Electronics and electrical communication engineering

## Course Specification

1- Course basic information :		
Course Code: EC 426	Course Title: LAB. 4 <sup>th</sup> year [1,2]	Academic year: 2012/2013 Level ( ﺋ ) – Semester : \, 2
Department requirement	Teaching hours: Lecture <input type="text" value="2"/> Tutorial <input type="text" value="3"/> Lab <input type="text" value="."/>	

<b>2- Aim of the course</b>	<ul style="list-style-type: none"><li>• Understand the GPS/GSM, LANS System and Antenna demonstration issues.</li><li>• Understand optical fiber communications systems.</li><li>• Understand the principles of microwave measurements and micro strip line technology</li></ul>
3- Intended Learning Outcomes:	
<b>A- Knowledge and Understanding:</b>	a1) Concepts and theories of mathematics and sciences, appropriate to the microwave and radar technology. a2) Basics of information and communication technology (ICT) a4) Principles of design including elements design, process and/or a system related to specific disciplines a8) Current engineering technologies as related to disciplines. a17) Communication systems a20) Antenna and wave propagation a23) Microwave applications a25) Optical communication systems
<b>B- Intellectual Skills</b>	b1) Select appropriate mathematical and computer-based methods for modeling and analyzing problems. b6) Investigate the failure of components, systems, and processes. b7) Solve engineering problems, often on the basis of limited and possibly b11) Analyze results of numerical models and assess their limitations. b14) Plan, conduct and write a report on a project or assignment. b16) Synthesis and integrate electronic systems for certain specific function using the right equipment

<b>C- Professional Skills</b>	<p>c2) Professionally merge the engineering knowledge, understanding, and feedback to improve design, products and/or services.</p> <p>c3) Create and/or re-design a process, component or system, and carry out specialized engineering designs.</p> <p>c7) Apply numerical modeling methods to engineering problems.</p> <p>c8) Apply safe systems at work and observe the appropriate steps to manage risks.</p> <p>c11) Prepare and present technical reports.</p> <p>c14) Use relevant laboratory equipment and analyze the results correctly.</p> <p>c15) Troubleshoot, maintain and repair almost all types of electronic systems using the standard tools.</p>
<b>D- General Skills</b>	<p>d1) Collaborate effectively within multidisciplinary team.</p> <p>d3) Communicate effectively.</p> <p>d7) Search for information and engage in life-long self learning discipline.</p> <p>d8) Acquire entrepreneurial skills.</p> <p>d9) Refer to relevant literatures.</p>
<b>4- Course Contents</b>	<p>Micros trip filter and amplifier – Antenna demonstration – mobile communication – optical fiber communications. – Microwave measurements- Radar systems – LAN communication systems GPS/GSM systems – pulsed radar – directional coupler.</p>
<b>5- Teaching and Learning Methods</b>	<ul style="list-style-type: none"> <li>- Lectures</li> <li>- Tutorials</li> <li>- Labs and/or case studies</li> <li>- Research assignments</li> </ul>
<b>6- Teaching and Learning Methods for disable students</b>	<p>NA</p>
<b>7- Student Assessment</b>	
<b>a- Assessment Methods</b>	<ul style="list-style-type: none"> <li>- Weekly sheet exercises at class room</li> <li>- Quizzes</li> <li>- Labs and/or case study for more demonstration.</li> <li>- Mid term, and final exams</li> </ul>
<b>b- Assessment Schedule</b>	<ul style="list-style-type: none"> <li>- Exercise sheet/ Lab assignment : Weekly</li> <li>- Quizz-1: Week <u>no</u> 4 &amp; 15</li> <li>- Mid-Term exam: Week <u>no</u> 8</li> <li>- Quizz-2: Week <u>no</u> 12</li> <li>- Lab exam: Week <u>no</u> 15 &amp; 27</li> </ul>

	- Final – term examination:	<b>Week no 16 &amp; 28</b>
<b>c- Weighting of Assessment</b>	- Class tutorial and quizzes :	10 %
	- Mid-term examination:	15 %
	- Oral examination	30 %
	- Final – term examination:	45 %
	- Other types of assessment:	... %
	<b>Total</b>	<b>100 %</b>
<b>8- List of text books and references:</b>		
<b>a- Course notes</b>	There are lectures notes prepared in the form of a book authorized by the department	
<b>b- Text books</b>	<ol style="list-style-type: none"> <li>1. Carlson, A. B., <i>Communication Systems, An Introduction to Signals and Noise in Electrical Communication</i>, 3rd edition, McGraw-Hill, New York, 1986.</li> <li>2. Carpentier, M. H., <i>Principles of Modern Radar Systems</i>, Artech House, Norwood, MA, 1988.</li> </ol>	
<b>c- Recommended books</b>	<ol style="list-style-type: none"> <li>1. Abramowitz, M. and Stegun, I. A., Editors, <i>Handbook of Mathematical Functions, with Formulas, Graphs, and Mathematical Tables</i>, Dover Publications, 1970.</li> <li>2. Balanis, C. A., <i>Antenna Theory, Analysis and Design</i>, Harper &amp; Row, New York, 1982.</li> <li>3. Barkat, M., <i>Signal Detection and Estimation</i>, Artech House, Norwood, MA, 1991.</li> <li>4. Barton, D. K., <i>Modern Radar System Analysis</i>, Artech House, Norwood, MA, 1988.</li> </ol>	
<b>d- Periodicals, Web sites .....etc</b>	<b>IEEE periodicals</b>	

### Course contents - ILOs Matrix

Content Topics	Week	A- Knowledge & Understanding	B- Intellectual skills	C- Professional and practical skills	D- General and transferable skills
Microwave components	1-4	a1,a2,a8	b1,b6,b11	C2,C3,c11	d1,d3
Antenna demonstration	5-9	a1,a4,a20	b1,b7,b14	C2,c8,c14	d3,d7
mobile communication Systems	10-13	a4,a17	b7,b11	C8,c13	d7,d8

GPS/GSM systems	11-12	A4,a17	B1,b6,b16	C2,C11,c14	D1.d3,d7
optical fiber communications	13-14	A17,a23	B11,b16	C11,c13,c14	D1,d3
Microstrip line technology and amplifiers	15-20	A23,a25	B1,b7,b11,b14	C3,,c13,c15	d3,d8
Radar system – pulsed Radar	21-23	A8,a20,a23	B1,b7,b14,b16	C11,c14	D3,d10,d8
LAN Communication	24-26	A1,a8,a20	B6,b7,b14	C2,c14	D1,d3

**Course coordinator:**

**Head of Department:**

**Date:** / /