

University : Menoufiya University

College : Faculty of Electronic Engineering

Department : Electronics and electrical communication engineering

## Course Specification

1- Course basic information :		
<b>Course Code: EC 326</b>	<b>Course Title:</b> LAB.3 [1 , 2 ]	<b>Academic year: 2012/2013</b> <b>Level ( ٣ ) – Semester : ١ , 2</b>
<b>Department requirement</b>	<b>Teaching hours: Lecture</b> <input type="text" value="2"/> <b>Tutorial</b> <input type="text" value="0"/> <b>Lab</b> <input type="text" value="3"/>	

<b>2- Aim of the course</b>	<ul style="list-style-type: none"><li>- understand, and troubleshoot the operation of analog modulation techniques</li><li>- understand, and troubleshoot the operation of digital modulation techniques</li><li>- understand the operation of Oscillators, spread spectrum and OFDM, Digital Telephone Exchange, Fiber Optics , DSP and color TV.</li></ul>
<b>3- Intended Learning Outcomes:</b>	
<b>A- Knowledge and Understanding:</b>	a4) Principles of design including elements design a8) Current engineering technologies a14) Basics of design engineering systems. a17) Communication systems
<b>B- Intellectual Skills</b>	b2) Select appropriate solutions for engineering problems based on analytical thinking. b5) Assess and evaluate the characteristics and performance of components, systems and processes. b16) Synthesis and integrate electronic systems for certain specific function using the right equipment.
<b>C- Professional Skills</b>	c1) Apply knowledge of science, technology, design. c15) Troubleshoot, maintain and repair almost all types of electronic systems using the standard tools. c17) Use appropriate tools to measure system performance.
<b>D- General Skills</b>	d1) Collaborate effectively within multidisciplinary team. d3) Communicate effectively. d9) Refer to relevant literatures.
<b>4- Course Contents</b>	Amplitude Modulation(AM)- Frequency Modulation (FM) - Pulse Code Modulation (PCM) -Phase Locked Loop (PLL) –Fiber

	Optics- Digital Modulation-Oscillators-Digital Telephone Exchange - Color Television - Spread Spectrum OFDM.
<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>	NA
<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 :           <b>Weekly</b></li> <li>- Quizz-1:   <b>Week <u>no</u> 4</b></li> <li>- Mid-Term exam:                                   <b>Week <u>no</u> 8</b></li> <li>- Quizz-2:   <b>Week <u>no</u>12</b></li> <li>- Lab exam:   <b>Week <u>no</u> 15</b></li> <li>- Final – term examination:                   <b>Week <u>no</u> 16</b></li> </ul>
<b>c- Weighting of Assessment</b>	<ul style="list-style-type: none"> <li>- Class tutorial and quizzes :                   10 %</li> <li>- Mid-term examination:                           15 %</li> <li>- oral examination:                                   30 %</li> <li>- Final – term examination:                       45 %</li> </ul> <p style="text-align: right;"><b>Total   100 %</b></p>
<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>	<ul style="list-style-type: none"> <li>1- Laboratory manuals.</li> <li>2- Analog and digital communication systems, 5th edition, Martin S. Rodin</li> <li>3- Modern digital and analog communication systems, 3<sup>rd</sup> edition, B. P. Lathi</li> </ul>
<b>c- Recommended books</b>	Principles of communication systems, H. Taub, C. Saha, D. L. Schilling
<b>d- Periodicals, Web sites .....etc</b>	

### Course contents - ILOs Matrix

Content Topics	Week	A- Knowledge & Understanding	B- Intellectual skills	C- Professional and practical skills	D- General and transferable skills
<b>Amplitude Modulation(AM)</b>	1	a2, a4	b1, b5	c1	d1,d9
<b>Frequency Modulation (FM)</b>	2	a5, a8	b5, b7, b8	c6	d3,d9
<b>Oscillators</b>	3	a5, a14	b2,b7	c6, c13	d8,d9
<b>Phase Locked Loop (PLL)</b>	4-5	a2, a8	b2,b4,b7	c15, c17	d1, d9
<b>DSP</b>	6-7	a5, a24	b2,b7	c1, c13	d1, d9
<b>Digital Modulation-</b>	9-10	a2, a4, a14	b2	c6, c17	d1, d3
<b>Pulse Code Modulation (PCM)</b>	11	a5, a14	b2,b7	c6	d8
<b>Digital Telephone Exchange</b>	12-13	a2, a4	b2,b7	c6, c13	d1, d9
<b>Color Television Trouble shooting</b>	14	a2,a8	b2,b7	C1,c13	d1,d8
<b>Fiber Optics</b>	15-18	a21,a22 ,a25	b8,b16	C6,c13,c15, c16,c17	d1,d3
<b>OFDM</b>	19-20	a17	B2,B7	C15,C16,C17	d3,d8,d9
<b>Delta Modulation</b>	21-22	a17	b2,b7	C15,c16,c17	d8,d9
<b>Spread Spectrum</b>	23-24	a17	b1,b2	C15,c16,c17	d3,d9
<b>Line Coding</b>	25-	a18	b2,b7	C15,c16,c17	d3,d9

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**Course coordinator:**

**Head of Department:**

**Date:** / /