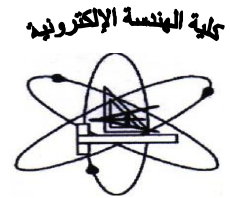


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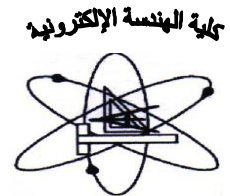
Department offering the program: Electronics and Electrical Communications Engineering
Department offering the course: Electronics and Electrical Communications Engineering

Course Specification

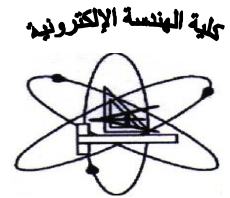
1. Course Basic Information		
Code: ECE 222	Title: Communication Engineering	Academic year: 2015-2016 Level (2) – Semester (2 nd)
Department requirement	Teaching hours: Lecture [2] Tutorial [1] Lab [0]	

2. Course Objectives	1. To equip students with the basic elements of any communications system and the necessity for modulation in a radio communications system.
	2. To provide students with the major types of modulations used in broadcasting communication systems.
	3. To teach students the propagation of radio waves in free space and over land.
	4. To equip students with the basic principles of radar systems.
	5. To give the basics of satellite communications systems.
	6. To teach students the basic elements of digital communications systems.
	7. To demonstrate different transmission media.
	8. To provide students with basic antenna parameters.
	9. To teach students the principles of analog to digital conversion.
	10. To provide students with the fundamentals of computer data communications.
	11. To equip students the fundamental concepts of cellular systems.

3. Intended learning outcomes:		Course ILOs
ARS		
A- Knowledge and understanding	A.1 Explain concepts and theories of mathematics and sciences appropriate to communications engineering.	A.1.1 Explain concepts and theories of mathematics and science appropriate to analog modulation such as Fourier transform. A.1.2 Explain concepts and theories of sciences appropriate to broadcasting. A.1.3 Explain concepts and theories of sciences appropriate to radar and satellite systems. A.1.4 Understand the concepts of cellular system.
	A.8 Describe current engineering technologies as related to communications engineering.	A.8.1 Describe modulation technologies. A.8.2 Describe broadcasting technologies. A.8.3 Describe modern communication technologies. A.8.4 Describe data communication technologies. A.8.5 Describe cellular system technologies.



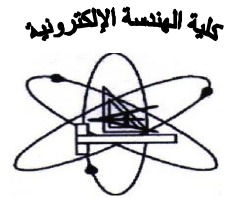
B. Intellectual skills	<p>B.4 Combine, exchange, and assess different ideas, views, and knowledge from a range of sources</p> <p>B.5 Assess and evaluate the characteristics and performance of components, systems, and processes.</p>	<p>B.4.1 Combine, exchange, and assess different ideas, views, and knowledge from a range of sources to understand analog modulation schemes.</p> <p>B.4.2 Combine, exchange, and assess different ideas, views, and knowledge from a range of sources to understand analog to digital conversion.</p> <p>B.4.3 Combine, exchange, and assess different ideas, views, and knowledge from a range of sources to understand digital data transmission.</p> <p>B.5.1 Assess and evaluate the characteristics of and performance of broadcasting communication systems.</p> <p>B.5.2 Assess and evaluate the characteristics of radar and satellite systems.</p> <p>B.5.3 Assess and evaluate the characteristics of parallel and coaxial transmission lines, and optical fibers.</p> <p>B.5.4 Assess and evaluate the basic characteristics of antennas.</p> <p>B.5.5 Assess and evaluate the performance of Modems.</p> <p>B.5.6 Assess and evaluate the characteristics of and performance of Modern communication systems.</p>
	C- Professional skills	<p>C.1 Apply knowledge of mathematics, science, information technology, design, business context and engineering practice integrally to solve engineering problems.</p>
D- General skills	<p>D.3. Communicate effectively.</p> <p>D.4. Demonstrate efficient IT capabilities.</p> <p>D.6. Effectively manage tasks, time, and resources.</p> <p>D.7. Search for information and engage in life-long self learning discipline.</p>	<p>D.3.1 Communicate effectively and use the appropriate medium, including written, oral, and electronic communication methods in class room and in lecture time.</p> <p>D.4.1 Demonstrate efficient IT capabilities in digital data transmission.</p> <p>D.6.1 Effectively manages tasks, time, and resources in writing reports, solving problems, and exams.</p> <p>D.7.1 Search for information and engage in life-long self learning discipline in fields related to analog, digital, radar, and satellite communication systems.</p>
4. Course contents	<p>Introduction in Communication Systems- Energy spectral density analysis – Amplitude modulation suppressed carrier and its de-modulation - Amplitude modulation with carrier its de-modulation – Single side band suppressed carrier its de-modulation - Vestigial side band its de-modulation – Narrow</p>	



	band frequency modulation and demodulation- wide-band frequency modulation and demodulation- Phase modulation- Frequency and amplitude modulation receiving systems- Frequency division multiplexing- Noise in analog modulation systems.	
5. Teaching and learning methods	<ul style="list-style-type: none"> - Lectures - Tutorials - Study assignments 	
6. Teaching and learning methods for disable students	<ul style="list-style-type: none"> - Official low cost special classes for developing student skills, arranged by the faculty administration. - Assign a portion of the office hours for those students. - Arrange meetings for more discussion and declaration. - Repeat the explanation of some of the material and tutorials. 	
7. Student assessment		
a- Assessment methods	<ul style="list-style-type: none"> - Weekly problem sets sheet at class room. - Quizzes. - Mid-term and final exams. 	
b- Assessment schedule	<ul style="list-style-type: none"> - Problem sets: One per week - Quiz 1: Week <u>no</u> 4 - Mid-term exam: Week <u>no</u> 8 - Quiz 2: Week <u>no</u> 12 - Final-term exam: Week <u>no</u> 16 	
c- Weighting of assessment	<ul style="list-style-type: none"> - Class tutorial and quizzes: 10% - Mid-term examination: 20 % - Final-term examination: <u>70 %</u> 	Total <u>100 %</u>
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	- Louis E. Frenzel, Principles of Electronic Communication Systems, 3 rd ed, McGraw Hill, 2008.	
c- Recommended books	[1] S. Haykin, Communication Systems, 5 th ed, New York, NY: Wiley, 2009, ISBN: 9780470169964. [2] C. A. Balanis, Antenna Theory: Analysis and Design, 3 ^{ed} ed, J. Wiely, 2005. [3] M. Salehi, J. G. Proakis, Fundamentals of Communication Systems, Pearson Prentice Hall, 2005. [4] T. Pratt, Satellite Communications, 2 nd ed, John Wiley, 2002. [5] W. Stallings, Data and Computer Communications, 6 th ed, 2000.	
d- Periodicals, Web sites, etc.	www.cedmagazine.com/ www.commeng.com/ http://spectrum.ieee.org/	

Course Contents - ILOs Matrix

Content topics	Week	A. Knowledge & understanding	B. Intellectual skills	C. Professional & practical skills	D. General & transferable skills
Introduction to	1-2	A.1, A.8	B.4	C.1	D.3,D.6,D.7



communication Systems and modulations techniques					
Broadcasting communication systems	3-4	A.1, A.8	B.5		D.3,D.6,D.7
Radar systems and satellites	5-7	A.1	B.5	C.1	D.3,D.6,D.7
Introduction to digital communications, transmission media, and antennas	9-11	A.8	B.5	C.1	D.3,D.6,D.7
Multiplexing and analog to digital conversions	12	A.1	B.4		D.3,D.6,D.7
Computer data communications	13-14	A.8	B.4		D.3,D.4,D.6,D.7
Modern communication systems	15	A.8	B.5		D.3,D.4,D.6,D.7

Teaching and learning methods - ILOs Matrix

Teaching and learning methods	A. Knowledge & understanding	B. Intellectual skills	C. Professional & practical skills	D. General & transferable skills
Lectures	A.1, A.8	B.4, B.5		D.3
Tutorials	A.1, A.8	B.4, B.5	C.1	D.3,D.4,D.6,D.7
Exercises	A.1, A.8	B.4, B.5	C.1	D.3,D.4,D.6,D.7
Reports and assignments	A.1, A.8	B.4, B.5		D.3,D.4,D.6,D.7

Assessment methods - ILOs Matrix

Assessment methods	A. Knowledge & understanding	B. Intellectual skills	C. Professional & practical skills	D. General & transferable skills
Weekly sheet exercises	A.1, A.8	B.4, B.5	C.1	D.3,D.4,D.6,D.7
Reports	A.1, A.8	B.4, B.5	C.1	D.3,D.4,D.6,D.7
Quizzes	A.1, A.8	B.4, B.5	C.1	D.4,D.6
Mid-term, and final written exams	A.1, A.8	B.4, B.5	C.1	D.4,D.6

Authorized from department board at 15/05/2016

Authorized from college board at 05/06/2016

Course coordinator:

Dr. Abd Elnaser Abd Elgawad

Head of Department:

Prof. Fathi El-Sayed Abd El-Samie