



Course Specifications

Muharram 1437 H

Institution:	Majmaah University
Academic Department :	Engineering College
Programme :	Electrical Engineering
Course :	EE322
Course Coordinator :	Dr. Mohamed Ouda
Programme Coordinator :	Dr. Abdullah Al Muhaisen
Course Specification Approved Date :	.... / ... / ..... H



A. Course Identification and General Information

1 - Course title : Communications Principles	Course Code: E322		
2. Credit hours :) 3 (....			
3 - Program(s) in which the course is offered: Engineering/Electrical			
4 – Course Language : English			
5 - Name of faculty member responsible for the course: Dr. Mohamed Ouda			
6 - Level/year at which this course is offered : 7/ third year			
<ul style="list-style-type: none"> • 7 - Pre-requisites for this course (if any) : Signals and Systems Analysis EE221 + Statistics and Probability STAT 201 			
8 - Co-requisites for this course (if any) :			
<ul style="list-style-type: none"> • 			
9 - Location if not on main campus :			
(.....)			
10 - Mode of Instruction (mark all that apply)			
A - Traditional classroom	<input type="checkbox"/>	What percentage?	100%
B - Blended (traditional and online)	<input type="checkbox"/>	What percentage? %
D - e-learning	<input type="checkbox"/>	What percentage? %
E - Correspondence	<input type="checkbox"/>	What percentage? %
F - Other	<input type="checkbox"/>	What percentage? %
Comments :			
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B Objectives

<p>What is the main purpose for this course?</p> <p>Understand the basic concept of information. Understand how information is put into electronic for storage and delivery. Have detailed understanding of amplitude and frequency modulation and demodulation methods including synchronous demodulation, nonlinear demodulation and phase-locked loops (PLL). Have an understanding of design considerations for multiple access/use spectrum and multiplexing. Have detailed understanding of digital communication basics. Understand basic principles of Gaussian noise processes and their use/utility in communication system design</p> <p>Briefly describe any plans for developing and improving the course that are being implemented :</p> <ul style="list-style-type: none"> .- Discussing all the topics of the course at the beginning of the semester. - Encourage the student to use the Internet and encyclopedias to get more information about these topics. - Let the student using the Internet to do a project to develop their knowledge and skills.



C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Overview and Basic elements of communication systems	1	4
Overview and Basic elements of communication systems	1	4
Double Sideband Modulation (DSB), Amplitude modulation (AM)	1	4
Single Sideband Modulation (SSB), Vestigial Sideband Modulation (VSB)	1	4
Frequency Translation, Superhetrodin Receiver	1	4
Angle Modulation, Frequency Modulation (FM)	1	4
Frequency-division multiplexing (FDM) and Stereo FM Receiver	1	4
Correlation and Spectral Density	1	4
Random Variables 1 4	1	4
Random Process and Power Spectral Density	1	4
Random Processes and Linear Systems 1 4	1	4
Noise in Analog Systems 1 4	1	4
Sampling; Pulse Modulation (PAM, PWM, PPM) 1 4	1	4
TDM; Pulse Code Modulation (PCM); DPCM and DM; 1 4	1	4
Regenerative Repeaters; Advantages of Digital Communication;	1	4
Line Coding (Binary Signaling)	1	4
Introduction to Digital Modulation (ASK, FSK, PSK).		

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	..45....	.....15.....	.....0....	.....0.....	0	.....60.....
Credit	.....3.....	.....0.....	.....0....	.....0.....	.....0....	.....3....

3. Additional private study/learning hours expected for students per week.

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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	.....	.....	.....
1.2	.....	.....	.....
1.3	The ability to recall, understand, and present information, including knowledge of specific facts, knowledge of concepts, principles and theories, and knowledge of procedures	Lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, memorization and individual presentation	Standardized exams, Seminars and Assignments.
1.4	.....	.....	.....
1.5	.....	.....	.....
1.6	.....	.....	.....
2.0	Cognitive Skills		
2.1	.....	.....	.....
2.2	.....	.....	.....
2.3	An ability to identify, formulate, and solve engineering problems	Lecture, small group work, , research activities, lab demonstrations, projects and individual presentation	Standardized exams, Seminars and Assignments
2.4	The ability to analyze, design, and implement systems.	Lecture, small group work, research activities, lab demonstrations, projects and individual presentation.	Standardized exams, Seminars and Assignments
2.5	.....	.....	.....
2.6	.....	.....	.....
3.0	Interpersonal Skills & Responsibility		
3.1	.....	.....	.....
3.2	.....	.....	.....
3.3	.....	.....	.....
4.0	Communication, Information Technology, Numerical		
4.1	.....	.....	.....
4.2	.....	.....	.....
4.3	.....	.....	.....





	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
4.4	The ability to utilize statistics/probability, transform methods, discrete mathematics, or applied differential equations in support of electrical systems	Lecture, small group work, research activities, lab demonstrations, projects and individual presentation.	Standardized exams, Seminars and Assignments
4.5	.....	.....	.....
4.6	.....	.....	.....

5. Schedule of Assessment Tasks for Students During the Semester:

	Assessment task	Week Due	Proportion of Total Assessment
1	1 st Exam	Week 6	20%
2	Participation & Attendance	All along	10%
3	Quizzes & Homework	All along	10%
4	2 nd Exam	Week 11	20%
5	Final	Week 15	40%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

1. Weekly office hours (1 hours per week)
2. Exam error analysis in class
3. Feedback for each student
4. Providing weekly guidelines on students' overall performance
5. Teacher's web page.

E. Learning Resources

1. List Required Textbooks :

S. Haykin, An Introduction to Digital and Analog Communications, John Wiley, 2007.

2. List Essential References Materials :

S. Haykin, Communication Systems, John Wiley, 2001.....

3. List Recommended Textbooks and Reference Material :





B P Lathi, Modern Digital and Analog Communications Systems, Oxford University Press, 1998.

4. List Electronic Materials :

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5. Other learning material :

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F. Facilities Required

**1. Accommodation
seats, board and projector**

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2. Computing resources

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3. Other resources

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-
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G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching:

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**2 Other Strategies for Evaluation of Teaching by the Program/Department
Instructor :**

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3 Processes for Improvement of Teaching :

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4. Processes for Verifying Standards of Student Achievement

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5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement :

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Course Specification Approved
Department Official Meeting No (.....) Date ... / / *H*

Course's Coordinator

Name : Dr. Mohamed Ouda
Signature :
Date : .../ ... / *H*

Department Head

Name :
Signature :
Date : .../ ... / *H*

