University of Sana'a
Faculty of Engineering
Department: Electrical Engineering
Title of the Program: Communication and Network Engineering

Course Specification of Communications for Electrical Power Systems

I. Course Identification and General Information:

1.	Course Title:	Communications for Electrical Power Systems				
2.	Course Code & Number:	CNE438				
3.	Credit hours:	C.H				TOTAL
		Th.	Tu.	Pr.	Tr.	
		2	-	2	-	3
4.	Study level/ semester at which this course is offered:	5^{th} Year – 2^{nd} semester				
5.	Pre-requisite (if any):	Statistics and Probability for Engineers (BR131), Signals and Systems (CNE216)				
6.	Co-requisite (if any):	Electronics 1 (PME113)				
7.	Program(s) in which the course is offered:	Electrical Power and Machines Engineering				
8.	Language of teaching the course:	English				
9.	Location of teaching the course:	Faculty of Engineering, Sana'a University				
10.	Prepared By:	Asst. Prof. Dr. Mohammed Alwadeai				
11.	Date of Approval:	2020				

II. Course Description:

Communication systems lie at the heart of all modern information processes. This course covers the basic techniques employed in such systems, including their theoretical background, whether they are used in legacy AM and FM radio or Digital Systems. It covers an overview of communication system architecture/organization, the general structure of an communication system, Amplitude modulation and detection, SNR in AM reception, Frequency modulation and demodulation, Phase modulation and demodulation, SNR in angle modulation, Performance of communication systems in presence of noise, Pulse modulation, Time-division multiplexing, Intersymbol interference, Pulse-code modulation, Description of a digital communication system, Random signals, Sampling and quantization, Baseband and

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bandpass modulation methods, Comparison of digital modulation methods, and Multiplexing and multiple access.

III. Course Intended learning outcomes (CILOs) of the course		**Referenced PILOs**
a1	Define the fundamentals of Communication Systems: their components(Transmitter, Channel and Receivers), structures, types, roles, the concept of communication process.	A1, A2
a2	Demonstrate the principles and applications of communication systems.	
b1	Evaluate the principles of amplitude modulated and angle modulated communication systems (oscillator, mixer, filters, modulator and demodulator).	B1, B2
b2	Analyze communication system performance in terms of bandwidth efficiency and SNR, and identify some aspects of racing conditions and their solutions.	
c1	Apply suitable basic principles of communication systems and modulation method for solving the related problems.	C1, C2
c2	Design appropriate technique applied in real-life communication system (both analog and digital).	
d1	Conduct searches on solutions for engineering problems from engineering and non-engineering domains.	D2, D3
d2	Adopt professional and ethical responsibilities.	

(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:			
	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1.	Define the fundamentals of Communication Systems: their components (Transmitter, Channel and Receivers), structures, types, roles, the concept of communication process.	▪ Active Lectures. ▪ Tutorials, ▪ Seminars.	▪ Written Assessment. ▪ Quizzes, ▪ Exams.
a2.	Demonstrate the principles and applications of communication systems.	▪ Active Lectures. ▪ Tutorials,	▪ Written Assessment. ▪ Quizzes,

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	▪ Seminars.	▪ Exams.

(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:			
	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
b1.	Evaluate the principles of amplitude modulated and angle modulated communication systems (oscillator, mixer, filters, modulator and demodulator).	▪ Active Lectures. ▪ Tutorials, ▪ Seminars. ▪ Laboratory.	▪ Written Assessment. ▪ Quizzes, ▪ Exams.
b2.	Analyze communication system performance in terms of bandwidth efficiency and SNR, and identify some aspects of racing conditions and their solutions.	▪ Active Lectures. ▪ Tutorials, ▪ Seminars. ▪ Laboratory.	▪ Written Assessment. ▪ Quizzes, ▪ Exams.

(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:			
	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
c1.	Apply suitable basic principles of communication systems and modulation method for solving the related problems.	▪ Active Lectures. ▪ Tutorials, ▪ Seminars. ▪ Laboratory.	▪ Written Assessment. ▪ Quizzes, ▪ Exams.
c2.	Design appropriate technique applied in real-life communication system (both analog and digital).	▪ Active Lectures. ▪ Tutorials, ▪ Seminars. ▪ Laboratory.	▪ Written Assessment. ▪ Quizzes, ▪ Exams.

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(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:			
	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
d1.	Conduct searches on solutions for engineering problems from engineering and non-engineering domains.	▪ Project	▪ Reports
d2.	Adopt professional and ethical responsibilities.	▪ Project	▪ Reports

IV. Course Content:

A. Theoretical Aspect

Order	Units/Topics List	Learning Outcomes	Sub Topics List	Number of Weeks	Contact hours

1.	Introduction	a1, a2, b1, b2, c1, c2	- General introduction to modern communication and communication networks and their stages of development.
			- General block diagram of communication Systems.
			- The Transmitter (elements, structures).
			- Channels (types, Drawback).
			- The Receiver (elements, structures).
			- Review of:
			  - Signals and Systems,
			  - Orthogonality and signal representations,
			  - Fourier analysis,
			  - Band pass,
			  - Power Spectral Density.
				2	4

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2.	Amplitude Modulation	a1, a2, b1, b2, c1, c2, d1, d2	- Amplitude Modulation: Suppressed Carrier
			  - Generation of DSB-SC Signals
			  - The Chopper Modulator
			  - Use of Nonlinear Devices
			  - Demodulation (Detection) of DSB-SC Signals
			  - The Chopper Amplifier
			  - Pilot Carrier Systems
			  - The Phase-Locked Loop
			  - The Scanning Spectrum Analyzer
			- Amplitude Modulation: Large Carrier (AM)
			  - Carrier and Sideband Power in AM
			  - Generation of DSB-LC Signals
			  - The Chopper (Rectifier) Modulator
			  - Modulator Using Nonlinearities
			  - Demodulation (Detection) of DSB-LC Signals
			  - The Envelope Detector
			  - Rectifier Detector
			  - The Tuned-Radio-Frequency (TRF) Receiver
			  - The Superheterodyne Receiver
			- Single-Sideband (SSB) Modulation
			  - Generation of SSB Signals
			  - Analytic Signals and Hilbert Transform
			  - Demodulation of SSB Signals
			- A Time-Representation of Bandpass Noise
			- Effects of Noise in AM Systems
			  - DSB-SC
			  - SSB-SC
			  - DSB-LC: The Envelope Detector
				4	8

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			- Propagation Effects		
3.	Angle Modulation	a1, a2, b1, b2, c1, c2, d1, d2	- Frequency Modulation (FM) and Phase Modulation (PM) - Narrowband FM - Wideband FM - General Approximations - Sinusoidal Case - Commercial FM Transmissions - Average Power in Angle-Modulated Waveforms - Phase Modulation - Generation of Wideband FM Signals - Indirect FM - Direct FM - Demodulation of FM Signals - Direct Method - Indirect Method: The Phase-Locked Loop - The Linearized PLL - The First-Order PLL - The Second-Order PLL - SNR in FM Reception - Threshold Effect in FM - Signal-to-Noise Improvement Using Deemphasis. - FM Multiplexing	3	6
4.	Pulse Modulation	a1, a2, b1, b2, c1, c2, d1, d2	- Pulse-Amplitude Modulation (PAM) - Time-Division Multiplexing (TDM) - Pulse Shaping and Intersymbol Interference - Pulse-Width Modulation (PWM) - Pulse-Position Modulation (PPM) - SNR in Analog Pulse Modulation	3	6

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			- PAM - Pulse-timing Modulation - Pulse-Code Modulation (PCM) - Use of Parity and Redundancy in PCM - Time-Division Multiplexing of PCM signals - The Matched Filter - Pseudonoise (PN) Sequences		
5.	Digital Modulation	a1, a2, b1, b2, c1, c2, d1, d2	- Description of a digital communication system. - Random signals. - Sampling and quantization. - Geometric representation of signals. - Baseband and bandpass modulation methods. - Comparison of digital modulation methods. - Multiplexing and multiple access.	2	4
Number of Weeks /and Units Per Semester				**14**	**28**

B- Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours	Learning Outcomes
1.	Introduction (Safety regulations and requirements in electrical laboratories, introduction to main laboratory devices and instrumentations, introduction to main measurement devices, reporting format)	1	2	a1, a2, b1, b2, c1, c2, d1, d2
2.	Modulation of double side-band suppressed carrier (DSB-SC)	1	2	a1, a2, b1, b2, c1, c2, d1, d2

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3.	Demodulation of DSB-SC signal	1	2	a1, a2, b1, b2, c1, c2, d1, d2
4.	Modulation of double side-band large carrier (DSB-LC)	1	2	a1, a2, b1, b2, c1, c2, d1, d2
5.	Demodulation of DSB-LC signal (Envelope detector)	1	2	a1, a2, b1, b2, c1, c2, d1, d2
6.	Modulation of single side-band suppressed carrier (SSB-SC)	1	2	a1, a2, b1, b2, c1, c2, d1, d2
7.	Demodulation of SSB-SC signal	1	2	a1, a2, b1, b2, c1, c2, d1, d2
8.	Generation of frequency modulation (FM)	1	2	a1, a2, b1, b2, c1, c2, d1, d2
9.	Demodulation of FM signal	1	2	a1, a2, b1, b2, c1, c2, d1, d2
10.	Generation of phase modulation (PM)	1	2	a1, a2, b1, b2, c1, c2, d1, d2
11.	Pulse width modulation (PWM)	1	2	a1, a2, b1, b2, c1, c2, d1, d2
12.	Analog to digital converter	1	2	a1, a2, b1, b2, c1, c2, d1, d2
13.	Quantization and PCM systems	1	2	a1, a2, b1, b2, c1, c2, d1, d2

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14.	Baseband and bandpass random signals	1	2	a1, a2, b1, b2, c1, c2, d1, d2
Number of Weeks /and Units Per Semester		**15**	**30**	

V. Teaching strategies of the course:

Lectures
Problems Solving
Laboratory works
Demonstrations
Practical classes
Simulation Tools

VI. Assignments :

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1.	Homework at the end of a lecture.	a1, a2, b1, b2, c1,c2	Weekly	1.5
2.	Design and implementation of DSB-SC, DSB-LC, SSB modulators/demodulators using MATLAB.	a1, a2, b1, b2, c1,c2, d1, d2	6th	1.5
3.	Design and implementation of FM, PM modulators/demodulators using MATLAB.	a1, a2, b1, b2, c1,c2, d1, d2	10th	1.5
4.	Design of a practical project.	b1, b2, c1,c2, d1, d2	12th	1.5
6.	Lab-reports	a1,a2,b1,b2	Weekly	1.5
	Total			**7.5**

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

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1.	Quizzes	3^{th}, 7^{th}, 10^{th}, 13^{th},15^{th}	7.5	5%	a1,a2,b1,b2
2.	Assignments & Homework, Tasks & Presentation	Weekly	7.5	5%	a1,a2,b1,b2,d2
3.	Mid-term exam	8^{th}	15	10%	a1,a2,b1,b2,c1
4.	Final Exam (Practical)	15^{th}	30	20%	a1,a2,b1,b2,c1,c2,d2
5.	Final Exam	16^{th}	90	60%	a1,a2,b1,b2,c1,c2
	Sum		**150**	**100%**	

VIII. Learning Resources:

Written in the following order: (Author - Year of publication – Title – Edition – Place of publication – Publisher).

1- Required Textbook(s) (maximum two).

1- Ferrel G. Stremler, Introduction to Communication Systems, 3rd Edition, Addison-Wesley, 1990.

2- Essential References.

1- S. Haykin, M. Moher, Introduction to Analog and Digital Communications, 2nd Edition, 2007.
2- Martin S. Roden, Analog and Digital Communication Systems, 4^{th} Edition, Prentice Hall Int. Inc.
3- R. E. Ziemer & W. H. Tranter, Principles of Communications, $5t^{h}$ Edition, Wiley.
4- Leon W. Couch, Digital and Analog Communication Systems, 5^{th} Edition, Prentice Hall.

3- Electronic Materials and Web Sites *etc*.

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IX. Course Policies:	
1.	**Class Attendance:** - The students should have more than 75% of attendance according to rules and regulations of the faculty.
2.	**Tardy:** - The students should respect the timing of attending the lectures. They should attend within 15 minutes from starting of the lecture.
3.	**Exam Attendance/Punctuality:** - The student should attend the exam on time. The punctuality should be implemented according to rules and regulations of the faculty for mid-term exam and final exam.
4.	**Assignments & Projects:** - The assignment is given to the students after each chapter; the student has to submit all the assignments for checking on time.
5.	**Cheating:** - If any cheating occurred during the examination, the student is not allowed to continue and he has to face the examination committee for enquires.
6.	**Plagiarism:** - If one student attends the exam on another behalf; he will be dismissed from the faculty according to the policy, rules and regulations of the university.
7.	**Other policies:** - All the teaching materials should be kept out the examination hall and mobile phones are not allowed. - Mutual respect should be maintained between the student and his teacher and also among students. Failing in keeping this respect is subject to the policy, rules and regulations of the university.

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Faculty of Engineering
Department: Electrical Engineering
Title of the Program: Communication and Network Engineering

Reviewed By	**Vice Dean for Academic Affairs and Post Graduate Studies: Asst. Prof. Dr. Tarek A. Barakat** **President of Quality Assurance Unit: Assoc. Prof. Dr. Mohammed Algorafi** **Name of Reviewer from the Department: Asst. Prof. Dr.Mohammed Al-Suraby**
	Deputy Rector for Academic Affairs Asst. Prof. Dr. Ibrahim AlMutaa **Assoc. Prof. Dr. Ahmed Mujahed** **Asst. Prof. Dr. Munasar Alsubri**

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University of Sana'a
Faculty of Engineering
Department: Electrical Engineering
Title of the Program: Communication and Network Engineering

Template for Course Plan of Communications for Electrical Power Systems

I. Information about Faculty Member Responsible for the Course:							
Name of Faculty Member	Asst. Prof. Dr. Mohammed Alwadeai	**Office Hours**					
Location& Telephone No.	773003355	**SAT**	**SUN**	**MON**	**TUE**	**WED**	**THU**
E-mail	aatmw@yahoo.com		10-12				

II. Course Identification and General Information:						
1.	Course Title:	Communications for Electrical Power Systems				
2.	Course Code & Number:	CNE438				
3.	Credit hours:	C.H				TOTAL
		Th.	Tu.	Pr.	Tr.	4
		2	2	2	-	
4.	Study level/ semester at which this course is offered:	5^{th} Year – 2^{nd} semester				
5.	Pre-requisite (if any):	Statistics and Probability for Engineers (BR131), Signals and Systems (CNE216)				
6.	Co-requisite (if any):	Electronics 1 (PME113)				
7.	Program(s) in which the course is offered:	Electrical Power and Machines Engineering				
8.	Language of teaching the course:	English				
9.	System of Study:	Semester				
10.	Mode of delivery:	semesters				
11.	Location of teaching the course:	Faculty of Engineering, Sana'a University				

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III. Course Description:

Communication systems lie at the heart of all modern information processes. This course covers the basic techniques employed in such systems, including their theoretical background, whether they are used in legacy AM and FM radio or Digital Systems. It covers an overview of communication system architecture/organization, the general structure of an communication system, Amplitude modulation and detection, SNR in AM reception, Frequency modulation and demodulation, Phase modulation and demodulation, SNR in angle modulation, Performance of communication systems in presence of noise, Pulse modulation, Time-division multiplexing, Intersymbol interference, Pulse-code modulation, Description of a digital communication system, Random signals, Sampling and quantization, Baseband and bandpass modulation methods, Comparison of digital modulation methods, and Multiplexing and multiple access.

IV. Intended learning outcomes (ILOs) of the course:

- Brief summary of the knowledge or skill the course is intended to develop**:**

1. Define the fundamentals of Communication Systems: their components (Transmitter, Channel and Receivers), structures, types, roles, the concept of communication process.
2. Demonstrate the principles and applications of communication systems.
3. Evaluate the principles of amplitude modulated and angle modulated communication systems (oscillator, mixer, filters, modulator and demodulator).
4. Analyze communication system performance in terms of bandwidth efficiency and SNR, and identify some aspects of racing conditions and their solutions.
5. Apply suitable basic principles of communication systems and modulation method for solving the related problems.
6. Design appropriate technique applied in real-life communication system (both analog and digital).
7. Conduct searches on solutions for engineering problems from engineering and non-engineering domains.
8. Adopt professional and ethical responsibilities.

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V. Course Content:

A. Theoretical Aspect

Order	Units/Topics List	Sub Topics List	Number of Weeks	Contact hours

1.	Introduction	- General introduction to modern communication and communication networks and their stages of development.
		- General block diagram of communication Systems.
		- The Transmitter (elements, structures).
		- Channels (types, Drawback).
		- The Receiver (elements, structures).
		- Review of:
		  - Signals and Systems,
		  - Orthogonality and signal representations,
		  - Fourier analysis,
		  - Band pass,
		  - Power Spectral Density.
			1st, 2nd	4

2.	Amplitude Modulation	- Amplitude Modulation: Suppressed Carrier
		  - Generation of DSB-SC Signals
		  - The Chopper Modulator
		  - Use of Nonlinear Devices
		  - Demodulation (Detection) of DSB-SC Signals
		  - The Chopper Amplifier
		  - Pilot Carrier Systems
		  - The Phase-Locked Loop
		  - The Scanning Spectrum Analyzer
		- Amplitude Modulation: Large Carrier (AM)
		  - Carrier and Sideband Power in AM
			3rd ,4th ,5th,6th	8

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		- Generation of DSB-LC Signals - The Chopper (Rectifier) Modulator - Modulator Using Nonlinearities - Demodulation (Detection) of DSB-LC Signals - The Envelope Detector - Rectifier Detector - The Tuned-Radio-Frequency (TRF) Receiver - The Superheterodyne Receiver - Single-Sideband (SSB) Modulation - Generation of SSB Signals - Analytic Signals and Hilbert Transform - Demodulation of SSB Signals - A Time-Representation of Bandpass Noise - Effects of Noise in AM Systems - DSB-SC - SSB-SC - DSB-LC: The Envelope Detector - Propagation Effects		
3.	Mid-term Exam	All previous topics	7^{th}	2
4.	Angle Modulation	- Frequency Modulation (FM) and Phase Modulation (PM) - Narrowband FM - Wideband FM - General Approximations - Sinusoidal Case - Commercial FM Transmissions - Average Power in Angle-Modulated Waveforms - Phase Modulation - Generation of Wideband FM Signals	8^{th} ,9^{th} ,10^{th}	6

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		- Indirect FM - Direct FM - Demodulation of FM Signals - Direct Method - Indirect Method: The Phase-Locked Loop - The Linearized PLL - The First-Order PLL - The Second-Order PLL - SNR in FM Reception - Threshold Effect in FM - Signal-to-Noise Improvement Using Deemphasis. - FM Multiplexing		

5.	Pulse Modulation	- Pulse-Amplitude Modulation (PAM)
		- Time-Division Multiplexing (TDM)
		- Pulse Shaping and Intersymbol Interference
		- Pulse-Width Modulation (PWM)
		- Pulse-Position Modulation (PPM)
		- SNR in Analog Pulse Modulation
		  - PAM
		  - Pulse-timing Modulation
		- Pulse-Code Modulation (PCM)
		- Use of Parity and Redundancy in PCM
		- Time-Division Multiplexing of PCM signals
		- The Matched Filter
		- Pseudonoise (PN) Sequences
			11^{th} ,12^{th} ,13^{th}	6

6.	Digital Modulation	- Description of a digital communication system. - Random signals. - Sampling and quantization. - Geometric representation of signals.	14^{th} ,15^{th}	4

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		- Baseband and bandpass modulation methods. - Comparison of digital modulation methods. - Multiplexing and multiple access.		
7.	Final Exam	All topics.	16th	2
Number of Weeks /and Units Per Semester			**16**	**32**

C- Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours
1.	Introduction (Safety regulations and requirements in electrical laboratories, introduction to main laboratory devices and instrumentations, introduction to main measurement devices, reporting format)	1st	2
2.	Modulation of double side-band suppressed carrier (DSB-SC)	2nd	2
3.	Demodulation of DSB-SC signal	3rd	2
4.	Modulation of double side-band large carrier (DSB-LC)	4th	2
5.	Demodulation of DSB-LC signal (Envelope detector)	5th	2
6.	Modulation of single side-band suppressed carrier (SSB-SC)	6th	2
7.	Demodulation of SSB-SC signal	7th	2
8.	Generation of frequency modulation (FM)	8th	2
9.	Demodulation of FM signal	9th	2
10.	Generation of phase modulation (PM)	10th	2
11.	Pulse width modulation (PWM)	11th	2
12.	Analog to digital converter	12th	2
13.	Quantization and PCM systems	13th	2
14.	Baseband and bandpass random signals	14th	2
15.	Laboratory final exam	15th	2
Number of Weeks /and Units Per Semester		**15**	**30**

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VI. Teaching strategies of the course:

Lectures
Problems Solving
Laboratory works
Demonstrations
Practical classes
Simulation Tools

VII. Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1.	Homework at the end of a lecture.	a1, a2, b1, b2, c1, c2	Weekly	1.5
2.	Design and implementation of DSB-SC, DSB-LC, SSB modulators/demodulators using MATLAB.	a1, a2, b1, b2, c1, c2, d1, d2	6th	1.5
3.	Design and implementation of FM, PM modulators/demodulators using MATLAB.	a1, a2, b1, b2, c1, c2, d1, d2	10th	1.5
4.	Design of a practical project.	b1, b2, c1, c2, d1, d2	12th	1.5
6.	Lab-reports	a1, a2,b1,b2	Weekly	1.5
	Total			**7.5**

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

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1.	Quizzes	3th, 7th, 10th, 13th,15th	7.5	5%
2.	Assignments & Homework, Tasks & Presentation	Weekly	7.5	5%
3.	Mid-term exam	8th	15	10%
4.	Final Exam (Practical)	15th	30	20%

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5.	Final Exam	16th	90	60%
	Sum		**150**	**100%**

IX. Learning Resources:

Written in the following order: (Author - Year of publication – Title – Edition – Place of publication – Publisher).

1- Required Textbook(s) (maximum two).

1. Ferrel G. Stremler, Introduction to Communication Systems, 3rd Edition, Addison-Wesley, 1990.

2- Essential References.

1. S. Haykin, M. Moher, Introduction to Analog and Digital Communications, 2nd Edition, 2007.
2. Martin S. Roden, Analog and Digital Communication Systems, 4th Edition, Prentice Hall Int. Inc.
3. R. E. Ziemer & W. H. Tranter, Principles of Communications, 5th Edition, Wiley.
4. Leon W. Couch, Digital and Analog Communication Systems, 5th Edition, Prentice Hall.

3- Electronic Materials and Web Sites *etc*.

X. Course Policies:

1.	**Class Attendance:** - The students should have more than 75% of attendance according to rules and regulations of the faculty.
2.	**Tardy:** - The students should respect the timing of attending the lectures. They should attend within 15 minutes from starting of the lecture.
3.	**Exam Attendance/Punctuality:** - The student should attend the exam on time. The punctuality should be implemented according to rules and regulations of the faculty for mid-term exam and final exam.

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4.	**Assignments & Projects:** - The assignment is given to the students after each chapter; the student has to submit all the assignments for checking on time.
5.	**Cheating:** - If any cheating occurred during the examination, the student is not allowed to continue and he has to face the examination committee for enquires.
6.	**Plagiarism:** - If one student attends the exam on another behalf; he will be dismissed from the faculty according to the policy, rules and regulations of the university.
7.	**Other policies:** - All the teaching materials should be kept out the examination hall and mobile phones are not allowed. - Mutual respect should be maintained between the student and his teacher and also among students. Failing in keeping this respect is subject to the policy, rules and regulations of the university.

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