Faculty: Engineering Technology

Department: Energy

Program: Bachelor Degree

Academic year: 2022-2023

Semester: 1st(Fall)



Course Plan

First: Course Information

Course No. 0906404	<i>Course Title:</i> Communications systems principles	Credit Hours:3
Prerequisite: 0906410	Section No.: 1	Lecture Time: 11-12,Sun,Tue,and Thu
Type Of Course:	 Obligatory Faculty Requirement Elective ObligatoryUniversity Requirement Course Elective SpecialtyRequirementObli 	 University Requirement FacultyRequirement gatorySpecialization requirement
Type of Learning:	 Face-to-Face Learning BlendedLearning(2 Face-to-Face + 1Asynch Online Learning (2 Synchronous+1 Asynch 	hronous) ronous)

Second: Instructor's Information

Name: Dr. Hani Attar			Academic Rank: Assistant Professor			
Office Number:43 l			Ext. Number:2029		E-mail: Hattar@zu.edu.jo	
Office Hours:	Sunday 10-11	Monda <u>.</u> 11-12	y Tuesday 10-11	Wednese 11 -12	day Thursday 10-11	

Third: Course Description

ReviewofFouriertransformandfilters.Amplitudemodulation(AM,DSB,SSB,VSB).An glemodulation(FM, PM). Sampling, Quantization, PCM, DPCM, DM. Multiplexing. Line coding. Baseband channel andISI.Digitalmodulation(PSK,ASK,FSK,andM-ary).Powerspectraofdigitalsignals.Synchronization.



Fourth: Learning Source				
Main Reference:	"CommunicationSystems", bySimonHaykin, 4thedition,JohnWiley&sons Inc.			
Author: SimonHaykin		Issue No.:	Publication Year: 2001	
Additional Sources&Websites:	•			
Teaching Type:	Classroom	Laboratory 🗆 Worksho	p 🖂 MS Teams 🗀 Moodle	

Fifth: Learning Outcomes

Cour se Code	Course IntendedLearning Outcomes (CILOs)	Connecti on To Program ILOs Code	
	Knowledge		
**K1	Calculate the BER using the matched filter receiver for the different binary digital modulation schem	*PK1	
K2	Explain the M-Ary digital modulation schemes	PK2	
K3	Explain the digital multiplexing and hierarchy standard	PK3	
	Skills		
***S 1	Understand different blocks in communication system and how noise affects communication using different parameters.		
S2	2 Distinguishbetweendifferentamplitudemodulationschemeswiththeiradvantages,disad vantagesandapplications		
S 3	Analyze generation and detection of FM signal and comparison between amplitude and anglemodulationschemes.		
S4	DesignPCMsystemwithvariouslinecodes		
S5	DesignthebasebanddigitalchannelforfreeISI.		
Competencies			
**** C1	Explainthebinarydigitalmodulationschemes and the required BW; ASK, FSK, PSK, and DPSK	PC1	
C2	Explain the binary digital modulation schemes and the required BW; ASK, FSK, PSK, and DPSK	PC2	

* P: Program, **K: knowledge, ***S: skills, ****C: competencies



Sixth: Course Structure

Lecture Date	Intended Teaching Outcomes(ILOs)	Topics	Teaching Procedures*	TeachingMethods***	References***
5/3/2023	0	Sampling Theorem	General discussions	Discussion and problem Solving	Energy Engineering
7/3/2023	1	Sampling Theorem	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
9/3/2023	1	Sampling Theorem	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
12/3/2023	1	Sampling Theorem	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
14/3/2023	2	Sampling Theorem	At least one exam will be held suddenly during the semester	Discussion and problem Solving	Energy Engineering
16/3/2023	1 & 2	Sampling Theorem	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
19/3/2023	3	Sampling Theorem	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
21/3/2023	3	Sampling Theorem	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
23/3/2023	3	Sampling Theorem	General discussions	Discussion and problem Solving	Energy Engineering
26/3/2023	3	Sampling Theorem	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
28/3/2023	3	Sampling Theorem	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
30/3/2023	4	Sampling Theorem	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
2/4/2023	3 & 4	Sampling Theorem	At least one exam will be held suddenly during the semester	Discussion and problem Solving	Energy Engineering
4/4/2023	3 & 4	Sampling Theorem	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
6/4/2023	4	Assign#1 Submission & Tutorial Session	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
9/4/2023	5	Assign#1 Submission & Tutorial Session	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
11/4/2023	5	Assign#1 Submission & Tutorial Session	General discussions	Discussion and problem Solving	Energy Engineering
13/4/2023	5	Assign#1 Submission & Tutorial Session	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
16/4/2023	5	Assign#1 Submission & Tutorial Session	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
18/4/2023	5	Assign#1 Submission & Tutorial Session	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
20/4/2023	4	Assign#1 Submission & Tutorial Session	At least one exam will be held suddenly during the semester	Discussion and problem Solving	Energy Engineering
27/4/2023	3 & 4	Assign#1 Submission & Tutorial Session	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
30/4/2023	6	Binary Optimum Receiver (Matched Filter)	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering



2/5/2023	4	Binary Optimum Receiver (Matched Filter)	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
4/5/2023	3 & 4	Binary Optimum Receiver (Matched Filter)	General discussions	Discussion and problem Solving	Energy Engineering
7/5/2023	3 & 4	Binary Optimum Receiver (Matched Filter)	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
9/5/2023	4	Binary Optimum Receiver (Matched Filter)	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
11/5/2023	6	Probability and Random Processes (Review)	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
14/5/2023	4	Probability and Random Processes (Review)	At least one exam will be held suddenly during the semester	Discussion and problem Solving	Energy Engineering
16/5/2023	6	Probability and Random Processes (Review)	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
18/5/2023	4	Probability and Random Processes (Review)	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
21/5/2023	7	Probability and Random Processes (Review)	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
23/5/2023	8,9,10	Probability and Random Processes (Review)	General discussions	Discussion and problem Solving	Energy Engineering
28/5/2023	8,9,10	Probability and Random Processes (Review)	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
30/5/2023	8,9,10	Probability and Random Processes (Review)	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
1/6/2023	8,9,10	Probability and Random Processes (Review)	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering
4/6/2023	10	Probability and Random Processes (Review)	At least one exam will be held suddenly during the semester	Discussion and problem Solving	Energy Engineering
5/6/2023	10	Probability and Random Processes (Review)	Review the previous lecture, then explain the current lecture	Discussion and problem Solving	Energy Engineering

* Learning procedures: (Face-to-Face, synchronous, asynchronous). * * Teaching methods: (Lecture, video....). ** * Reference: (Pages of the book, recorded lecture, video....).



Seventh: Assessment methods

Methods	Grade	Date	Platform	CLO'S
First Exam	20	Fixed by the Department	Classroom	
Second Exam	20	Fixed by the Department	Classroom	
Assign, Quizzes &Participation	10	During Semester	Classroom+Moodle	
Final Exam	50	Fixed by the Department	Classroom	

Eighth: Course Policies

- All course policies are applied on all teaching patterns (online, blended, and face-to-face Learning) as follows:
 - a. Punctuality.
 - b. Participation and interaction.
 - c. Attendance and exams.
- Academic integrity: (cheating and plagiarism are prohibited).

Approved by:	Name	Date	Signature
Head of Department	Dr. Ayman Amer	5/3/2023	- Pri-
Faculty Dean	Prof .Taiseer Alghanim	5/3/2023	Mr.

