



T-104
2022

Course Specification





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Course Specification

Course Title:	Communication Systems
Course Code:	258 CIS-4
Program:	Technical support
Department:	Computer Department
College:	Applied College
Institution:	Najran University
Version:	T -104 2022
Last Revision Date:	25-8-2023



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A. General information about the course:

Course Identification	
1. Credit hours:	4hours (3+1)
2. Course type	
a.	University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Track <input type="checkbox"/> Others <input type="checkbox"/>
b.	Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: Level 4 - year :2nd	
4. Course general Description This course introduces the fundamentals of electronic communication systems. Topics include the frequency spectrum, electrical noise, modulation techniques, characteristics of transmitters and receivers, digital communications, Transmission and Propagation and Telecommunication Systems.	
5. Pre-requirements for this course (if any): 252 CIS-3	
6. Co- requirements for this course (if any): No	
7. Course Main Objective(s)	
<ul style="list-style-type: none"> • Introduce the main concepts of AM & FM communication systems • Interpret analog and digital communication circuit diagrams • Analyze transmitter and receiver circuits • Calculate the bandwidth and signal-to-noise ratio of a signal at the output of a linear system or filter 	

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	75	100%
2.	E-learning		
3.	Hybrid <ul style="list-style-type: none"> • Traditional classroom • E-learning 		
4.	Distance learning		





2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	45
2.	Laboratory/Studio	30
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		75

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Introduce the main concepts of communication systems	K2	Lecture Discussion	Exam • Assignments • Quizzes
1.2	Explain the basic principles of electronic and digital communication system	K3	Lecture Discussion	Exam • Assignments • Quizzes
...	Describe the types and principles of multiplexing and demultiplexing and principles of antennas and wave propagation.	K1	Lecture Discussion	Exam • Assignments • Quizzes
2.0	Skills			
2.1	Calculate the bandwidth and signal-to-noise ratio of a signal at the output of a linear system or filter	S1	Lecture • Discussion • Lab work • Brainstorming	Exam • Assignments • Quizzes
2.2	Design a block-diagram of the transmitter and receiver for a basic digital communications system	S2	Lecture • Discussion • Lab work • Brainstorming	Exam • Assignments • Quizzes
2.3	Calculate the modulation index and percent of modulation for FM and AM communication systems	S3	Lecture • Discussion • Lab work • Brainstorming	Exam • Assignments • Quizzes



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
3.0	Values, autonomy, and responsibility			
3.1	Work in a group to practice laboratory activities, delivers presentations	V2	Discussion • Project	Assignments • Report
3.2				
...				

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Electronic Communication -Communication system concepts - Noise, bandwidth, gain, attenuation, and decibels - Fundamentals of electronic RLC tuned circuit filters - Communication applications.	4 (Theory) 4x2 (Lab)
2.	Modulation - The need for modulation - Amplitude modulation - Pulse modulation - Frequency modulation.	4 (Theory) 4x2 (Lab)
3	Amplitude Modulator and Demodulator Circuits	4 (Theory) 2x2 (Lab)
4	Fundamentals of Frequency Modulation	4 (Theory) 2x2 (Lab)
5	FM Circuits	4 (Theory) 4x2 (Lab)
6	Digital Communication Techniques	4 (Theory) 4x2 (Lab)
7	Radio Transmitters	4 (Theory) 4x2 (Lab)
8	Communication Receivers	4 (Theory) 4x2 (Lab)
9	Multiplexing and Demultiplexing	4 (Theory) 4x2 (Lab)
10	Digital Data Transmission	3 (Theory) 3
11		
Total		75



D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Assignment	2,4,8	10%
2.	Monthly Exam	8	20%
3.	Practical exam	15	20%
4.	Final exam	17	50%
5.			
...			

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Frenzel, Louis. Principles of Electronic Communication System
Supportive References	S. Haykin, "Communication Systems", J. Wiley and Sons
Electronic Materials	Najran University E.Library • Saudi Digital Library
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Computer Lab, A Lecture room
Technology equipment (projector, smart board, software)	Programming examples and exercises in MATLAB
Other equipment (depending on the nature of the specialty)	Digital storage Oscilloscope (DSO) Spectrum Analyzer Function Generator



F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Student	Questioners
Effectiveness of students assessment	Staff committee	Cross checking
Quality of learning resources	Faculty Administration	Review and check the results
The extent to which CLOs have been achieved	Quality management in the department	A review of the measurement of learning outcomes
Other		

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE		
REFERENCE NO.		
DATE		