2309 EIE351 (D1 and D2) Course Outline

Subject Code : EIE351
Subject Title : Communications Laboratory
Course Type : Compulsory
Level : 4
Credits : 3
Teaching Activity : Lecture 45 hours
Prior Knowledge* : EIE350 Principle of Communications; EIE220 Signals and Systems; EIE320 Digital Signal Processing;
Class Schedule :

Class	Week	Time	Classroom	Date
D1	Tue.	15:30-18:20	C404	04/09/2022 - 17/12/2022
D2	Thur.	12:30-15:20	C404	04/09/2022 - 17/12/2022

Instructor : Yuyang Peng
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E-mail Address : yypeng@must.edu.mo
Office : A318
Office Hour : Monday 15:00-17:00
Tuesday 13:30-15:30
Wednesday 14:30-17:30
Thursday 15:30-18:30

COURSE DESCRIPTION

This course provides a concise introduction and practice to the design of communication systems for undergraduate students. The course covers the following topics: Fourier representation of signals and systems, random process, Monte Carlo simulation, analog to digital conversion, quantization, baseband digital transmission, M-ary signals, other signaling methods, bandwidth limited communication system.

Required Text Book:

No recommended textbook, but the learning materials will be provided to students during the classes.

Reference Book:

B. Sklar, F. Harris. *Digital Communications: Fundamentals and Applications*, 3rd Edition, Pearson Press, 2021.

J. Proakis, M. Salehi. Levitin. *Digital Communications*, 5th Edition, McGraw-Hill Education Press, 2007.

INTENDED LEARNING OUTCOMES

Upon successful completion of this subject, students will be able to:

1. Understand the principles of communications systems, including the models and technologies used in the modern communication networks.
2. Understand the simulation of the communication systems.
3. Understand the implementation of the communication systems
4. Have an ability to make basic configurations on the communication systems according to the given requirement.
5. Have an ability to analyze and figure out the communication system problems.
6. Have an ability to complete a simple task of implementation of communication systems.

Weekly Schedule

Week	Topic	Hours	Teaching Method
1	Introduction and Basic Required Knowledge	3	lab
2	Fourier Representation of Signals and Systems	3	lab
3	Random Process	3	lab
4	Monte Carlo Simulation	3	lab
5	Analog to Digital Conversion	3	lab
6	Quantization	3	lab
7	Baseband Digital Transmission	3	lab
8	Midterm Exam	3	Exam
9	M-ary Signal	3	lab
10	Other Signaling Methods	3	lab
11	Bandwidth limited channel transmission	3	lab

12	Seminar & Project	3	Implementation & Presentation
13	Seminar & Project (continue)	3	Implementation & Presentation
14	Seminar & Project (continue)	3	Implementation & Presentation
15	Review and Quiz	3	Lecture & quiz

ASSESSMENT APPROACH

Assessment method	Weighting
Attendance	10%
Assignment	10%
Midterm exam	30%
Quiz	10%
Project implementation & Final report	40%
Total	100 %

Guideline for Letter Grade:

Marks	Grade
93-100	A+
88-92	A
83-87	A-
78-82	B+
72-77	B
68-71	B-
63-67	C+
58-62	C
53-57	C-
50-52	D
0-49	F

Notes:

Students will be assessed on several assessment items (i.e. attendance, assignment midterm exam, quiz, project implementation and final report.). The attendance evaluates the student's participation in the classes. The midterm exam, quiz, project implementation and final report evaluate the student's understanding of the communication system experiments.