UNIVERSITY of NICOSIA

Course Syllabus

Course Code	Course Title	ECTS Credits
ECE-352	Electronic Communications	6
Prerequisites	**Department**	**Semester**
ECE-212, ECE-213, ECE-331	Engineering	Spring
Type of Course	**Field**	**Language of Instruction**
Elective	Engineering	English
Level of Course	**Lecturer(s)**	**Year of Study**
1st Cycle	Dr Ioannis Kyriakides	3rd
Mode of Delivery	**Work Placement**	**Corequisites**
Face-to-Face	N/A	None

Course Objectives:

The main objectives of the course are to:

- relate the theoretical aspect of analog communications to the practical design of electronic communications circuits
- analyze the behavior of tuned circuits and oscillators
- introduce amplitude and frequency modulation and analyze common radio frequency transmitter and receiver circuits
- study the effect of noise on analog communications

Learning Outcomes:

After completion of the course students are expected to be able to:

1. Apply signal and system analysis in the Fourier domain
2. Analyze tuned circuits and amplifiers by deriving the transfer function and describing the input versus output relationship
3. Analyze common oscillator circuits
4. Apply the concepts of transmission of information using amplitude modulation (AM) and frequency modulation (FM)
5. Analyze AM and FM transmitter and receiver circuits
6. Define the effect of noise to the transmitted and demodulated signal and calculate the signal to noise ratio

Course Content:

1. Signal and system analysis. Fourier series and Fourier transform
2. Tuned circuits and amplifiers
3. Oscillators. RC phase-shift, Wien-Bridge, Hartley, Colpitts oscillators
4. Amplitude-modulation (AM): Double, single and vestigial sideband, quadrature AM, AM transmitter and receiver systems, phase-locked loop, local oscillator, mixer, IF amplifier, the superheterodyne receiver
5. Frequency modulation (FM): FM transmitters and receivers
6. Behavior of analog communication systems in the presence of noise

Learning Activities and Teaching Methods:

Lectures, in-class assignments.

Assessment Methods:

Exams, final examination.

Required Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Modern Digital and Analog Communication Systems	B. P. Lathi	Oxford University Press	1998	0195110099

Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Electric Circuits	James W. Nilsson, and Susan Riedel	Prentice Hall	2007	0131989251
Electronic Devices and Circuits	Theodore F. Bogart, Jeffrey S. Beasley, and Guillermo Rico	McGraw Hill	2003	0131111426
Fundamentals of Electronics: Book 4 Oscillators and Advanced Electronics Topics	Thomas Schubert, Jr., Ernest Kim	Morgan and Claypool	2016	9781627055680