



Course Syllabus

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| Course Code ECE-452 | Course Title Digital Communications | ECTS Credits 6 |
| Prerequisites ECE-332, ECE-350 | Department Engineering | Semester Spring |
| Type of Course Required | Field Engineering | Language of Instruction English |
| Level of Course 1 st Cycle | Lecturer(s) Dr Ioannis Kyriakides | Year of Study 3 rd |
| Mode of Delivery Face-to-Face | Work Placement N/A | Corequisites None |

Course Objectives:

The main objectives of the course are to:

- explain digital modulation for digital transmission of a message
- explain the concept of digital amplitude and angle modulation
- explain pulse shaping
- explain channel estimation and tracking
- identify receiver performance

Learning Outcomes:

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

- represent signals using digital modulation
- identify linear and non-linear, analog and digital, amplitude and angle modulation methods
- apply amplitude and angle digital modulation methods
- explain the basics of pulse shaping
- explain the basics of channel estimation and tracking
- explain the basics of receiver performance in terms of bit error rate

Course Content:

- Characterization of signal and systems
- Digital Modulation
- Amplitude modulation
- Angle modulation
- Channel estimation
- Receiver performance – Bit error rate

Learning Activities and Teaching Methods:

Lectures, in-class examples, exercises, project

Assessment Methods:

Exams, final examination.

Required Textbooks / Readings:

| Title | Author(s) | Publisher | Year | ISBN |
|--------------------------------|-----------------------------|---------------|------|------------|
| Modern Wireless Communications | Simon Haykin, Michael Moher | Prentice Hall | 2005 | 0130224727 |

Recommended Textbooks / Readings:

| Title | Author(s) | Publisher | Year | ISBN |
|---|--------------------------------|---------------|------|---------------|
| Analogue and Digital Communication Techniques Ebsco Host | Smillie, Grahame | Oxford | 1999 | 9780080527147 |
| Digital Communications | John G. Proakis, Masoud Salehi | McGraw Hill | 2007 | 0072957166 |
| Communication Systems Engineering | John G. Proakis | Prentice Hall | 2003 | 0130617938 |