



## Course Syllabus

<b>Course Code</b>	<b>Course Title</b>	<b>ECTS Credits</b>
ECE-433	Digital Signal Processing	6
<b>Prerequisites</b>	<b>Department</b>	<b>Semester</b>
ECE-431, ECE-332	Engineering	Fall
<b>Type of Course</b>	<b>Field</b>	<b>Language of Instruction</b>
Elective	Engineering	English
<b>Level of Course</b>	<b>Lecturer(s)</b>	<b>Year of Study</b>
1 <sup>st</sup> Cycle	Dr Ioannis Kyriakides	4 <sup>th</sup>
<b>Mode of Delivery</b>	<b>Work Placement</b>	<b>Corequisites</b>
Face-to-Face	N/A	None

### Course Objectives:

The main objectives of the course are to:

- provide students with advanced skills in discrete signals and systems processing
- explain filter design and processing of random signals

### Learning Outcomes:

After completion of the course students are expected to:

- understand the use and usefulness of Fourier transform and z-transform in signal processing and filter design
- perform filter design
- understand the propagation of random signals through digital systems
- perform correlation and cross-correlation

### Course Content:

- Review of the sampling theorem, discrete linear signals and systems,
- Review of discrete-time and discrete Fourier transforms and the z-transform
- Linear-phase filters
- Digital Filter Design
- Random signals
- Advanced signal processing topics (multirate, linear prediction, adaptive filters)

**Learning Activities and Teaching Methods:**

Lectures, in-class assignments.

**Assessment Methods:**

Exams, final examination.

**Required Textbooks / Readings:**

Title	Author(s)	Publisher	Year	ISBN
Digital Signal Processing: Principles, Algorithms and Applications	J. Proakis and D. Manolakis	Pearson Prentice Hall	2007	0131873741

**Recommended Textbooks / Readings:**

Title	Author(s)	Publisher	Year	ISBN
Discrete-Time Signal Processing	Oppenheim and Shafer	Prentice Hall	1999	0137549202