<table>
<thead>
<tr>
<th>Course Title</th>
<th>Introduction to Digital Signal Processing</th>
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<tbody>
<tr>
<td>Course Code</td>
<td>ECE 429</td>
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<tr>
<td>Course Type</td>
<td>Elective</td>
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<tr>
<td>Level</td>
<td>Undergraduate</td>
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<tr>
<td>Year / Semester</td>
<td>4th Year/ 1st Semester</td>
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<tr>
<td>Teacher’s Name</td>
<td>Chrysafis Andreou</td>
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<tr>
<td>ECTS</td>
<td>6</td>
</tr>
<tr>
<td>Lectures / week</td>
<td>2 x 1.5 hours (lectures) + 1 hour (tutorial) per week</td>
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<tr>
<td>Laboratories / week</td>
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| Course Purpose and Objectives| • Provide knowledge and understanding of analysis tools for digital signal processing.  
                                • Enable the design of DSP systems.  
                                • Instruct on the implementation and analysis of DSP systems. |
| Learning Outcomes            | • Demonstrate knowledge and understanding of discrete-time signal representation and analysis tools.  
                                • Ability to analyze discrete-time signals using the z-transforms, discrete Fourier transform (DFT), Fast Fourier transform (FFT).  
                                • Ability to design digital filters using Infinite Impulse Response (IIR) and Finite Impulse Response (FIR).  
                                • Ability to utilize DSP software tools. |
| Prerequisites                | ECE 320 Required                          |
| Course Content               | Discrete-time signals and systems; Fourier and Z-transform analysis techniques, the discrete Fourier transform; elements of FIR and IIR filter design, filter structures; FFT techniques for high speed convolution; quantization effects. |
| Teaching Methodology         | • Lectures  
                                • Homework Assignments  
                                • Design project |
| Assessment                   | • Midterm Examination  
                                • Final examination  
                                • Homework Assignments  
                                • Design project |
| Language                     | Greek                                     |