# Course number and name

<table>
<thead>
<tr>
<th>Number</th>
<th>95000028</th>
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</table>
| Name      | Digital Signal Processing  
           | Tratamiento Digital de Señales |
| Semester  | Y3-S5    |

# Credits and contact hours

<table>
<thead>
<tr>
<th>ECTS Credits</th>
<th>6</th>
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<tbody>
<tr>
<td>Contact hours</td>
<td>60</td>
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# Coordinator's name

| Juan Gómez Mena |

# Description of course content

The aim of this course is to train the future engineer in the basics of Digital Signal Processing:
- Sampling of continuous signals as a gateway to the discrete world.
- Study and implementation of rational discrete systems, commonly called digital filters.
- Analysis and design transformed domains, with emphasis on spectral analysis.
- Exhibition of the latest in signal processors and converters A/D and D/A technological advances.

# List of topics to be covered


# Prerequisites or co-requisites

Calculus, Vector analysis, Random signals and Signals and Systems.

# Course category in the program

| X | R (required) | E (elective) | SE (selective elective) |

# Specific goals for the course

**Specific outcomes of instruction**

RA1: To understand the fundamentals and applications of transform analysis.
RA2: To know the theorems and concepts related to sampling of continuous signals and sampling rate changes using digital techniques.
RA3: To analyze, design and implement digital filters. To know the basic structures for
IIR and FIR filters and represent them by flowcharts. Knowing the effects of quantization of filter coefficients.

RA4: To know digital signal processing devices: FPGAs and DSP and reference manufacturers.

RA5: To know the DFT and its applications, as well as a fast calculation algorithm and DCT.

RA6: To know the basic techniques of spectral analysis.

**Student outcomes addressed by the course**

CECT1, CECT4, CECT5

CG1, CG2, CG4, CG5, CG6, CG9

**Bibliography and supplemental materials**


**Teaching methodology**

<table>
<thead>
<tr>
<th></th>
<th>lectures</th>
<th>X problem solving sessions</th>
<th>X collaborative actions</th>
<th>X laboratory sessions</th>
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**Other:**