**Course number and name**

<table>
<thead>
<tr>
<th>Number</th>
<th>95000020</th>
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<tbody>
<tr>
<td>Name</td>
<td>Analog Electronics&lt;br&gt;Electrónica Analógica</td>
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<tr>
<td>Semester</td>
<td>Y2-S4</td>
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**Credits and contact hours**

<table>
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<th>ECTS Credits</th>
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<tr>
<td>Contact hours</td>
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**Coordinator's name**

Javier Ferreiros López

**Specific course information**

**Description of course content**

This subject addresses the mastering of the methodology of frequency response analysis of circuits and its representation as asymptotic Bode diagram (magnitude and phase) as well as the mastering of the methodology of feedback circuits analysis and their frequency response with the analysis of their stability, their compensation or their oscillation.

**List of topics to be covered**

1. Analysis of frequency response of circuits and its representation as asymptotic Bode diagram
   1.1 Low frequency analysis
   1.2 Bode diagrams
   1.3 High frequency analysis
2. Analysis of feedback circuits and their frequency response with analysis of stability, compensation or oscillation
   2.1 Introduction. Feedback theory
   2.2 Effects of sensitivity, bandwidth and distortion
   2.3 Basic topologies of feedback amplifiers
   2.4 Analysis of feedback amplifiers
   2.5 Stability of feedback amplifiers
   2.6 Sinusoidal oscillators

**Prerequisites or co-requisites**

None specified

**Course category in the program**

| _X_ R (required) | _ E (elective) | _ SE (selective elective) |
Specific goals for the course

**Specific outcomes of instruction**

RA3: Feedback and oscillation understanding.
RA203: Ability for the analysis of feedback electronic circuits and their frequency response with the analysis of stability, their compensation or their oscillation.

**Student outcomes addressed by the course**

CECT1, CG2, CG5

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**Bibliography and supplemental materials**

Disponible en castellano, Prentice Hall, 1996

Equipo docente de Electrónica Analógica del curso 2013-14, “Método de análisis de circuitos con realimentación negativa en frecuencias medias”, publicaciones ETSIT-UPM

J.I. Izpura, “Diseño con Amplificadores Operacionales: Control básico de las realimentaciones”, Fundetel, ETSIT-UPM, 2004

Disponible en castellano, Oxford University Press, 1999


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**Teaching methodology**

<table>
<thead>
<tr>
<th><em>X</em> lectures</th>
<th><em>X</em> problem solving sessions</th>
<th>_ _ collaborative actions</th>
<th>_ _ laboratory sessions</th>
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**Other:** 2 In-class exercises with qualification