

<b>Program</b>	59EC – Communications Electronic Engineering B. Eng. 59SC – Telecommunications Systems Engineering B. Eng. 59SO – Sound and Image Engineering B.Eng. 59TL – Telematics Engineering B. Eng.
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Course code and name	
<b>Code</b>	595000009, 595000308, 595000108, 595000208
<b>Name</b>	Electronics I
<b>Semester</b>	S1 [(September-January)] & S2 [(February-June)]

Credits and contact hours	
<b>ECTS Credits</b>	6
<b>Contact hours</b>	60

<b>Coordinator's name</b>	Martínez Moreno, Francisco [francisco.martinezm@upm.es]
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Specific course information	
<b>Tuition language</b>	Spanish
<b>Description of course content</b>	
It is a course based on the fundamentals of the analogue electronics (the fundamentals of digital electronics are taught in the third semester course “Electronics II”).	
<b>List of topics to be covered</b>	
1. Introduction to electronic systems <ul style="list-style-type: none"> <li>1.1. Signs</li> <li>1.2. Systems</li> </ul> 2. Electronic components and devices <ul style="list-style-type: none"> <li>2.1. Passive components, sensors and actuators</li> <li>2.2. Diodes</li> <li>2.3. MOSFET</li> <li>2.4. BJT</li> </ul> 3. Integrated electronic subsystems <ul style="list-style-type: none"> <li>3.1. Amplifiers</li> <li>3.2. Comparators</li> </ul> Lab sessions: <ul style="list-style-type: none"> <li>1: Measurements in signals</li> <li>2: Diodes</li> <li>3: Transistors</li> </ul>	
<b>Prerequisites or co-requisites</b>	
<ul style="list-style-type: none"> <li>- Circuit Analysis I</li> <li>- Introductory Workshop on Engineering</li> </ul>	

Course category in the program	
<input checked="" type="checkbox"/> R (required)	<input type="checkbox"/> E (elective) <i>(elective courses may not be offered every year)</i>

Specific goals for the course
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Specific outcomes of instruction
<ul style="list-style-type: none"> <li>• RA70 – To understand the model and the basic properties of amplifiers and its implementation with ideal operational amplifiers.</li> <li>• RA68 – To understand the block diagram of simple electronic systems applied to the telecommunications sector.</li> <li>• RA67 – To understand the main characteristics of the functional blocks that make up a basic electronic system (amplifier, attenuator, supply, ADC, DAC).</li> <li>• RA66 – To understand the nomenclature and the basic properties of elementary signals which are used in electronic circuits.</li> <li>• RA69 – To learn about the basic function and characteristics of passive electronic components (resistance, capacitor and coil). To know their basic properties.</li> <li>• RA71 - To learn about the basic function and characteristics of active electronic components (diode, bipolar and unipolar transistors).</li> </ul>

Further reading and supplementary materials
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<ul style="list-style-type: none"> <li>– Malvino: Principios de electrónica, 7ª ed. McGraw-Hill, 2007.</li> <li>– Storey: Electrónica, de los sistemas a los componentes, Addison-Wesley Iberoamericana, 1995.</li> <li>– The lab sessions are carried out in student couples with the following equipment: Power supply, oscilloscope, function generator, multimeter, PC.</li> <li>– Moodle.</li> </ul>
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