Program	59EC – Communications Electronic Engineering B. Eng. 59SC – Telecommunications Systems Engineering B. Eng. 59SO – Sound and Image Engineering B.Eng. 59TL – Telematics Engineering B. Eng.

Course number and name	
Number	595000009, 595000308, 595000108, 595000208
Name	Electronics I
Semester	S1 [(September-January)] & S2 [(February-June)]

Credits and contact hours	
ECTS Credits	6
Contact hours	60

Coordinator's name	Martínez Moreno, Francisco [francisco.martinezm@upm.es]

Specific course information
Description of course content
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”).
List of topics to be covered
1. Introduction to electronic systems 1.1. Signs 1.2. Systems 2. Electronic components and devices 2.1. Passive components, sensors and actuators 2.2. Diodes 2.3. MOSFET 2.4. BJT 3. Integrated electronic subsystems 3.1. Amplifiers 3.2. Comparators Lab sessions: 1: Measurements in signals 2: Diodes 3: Transistors
Prerequisites or co-requisites
- Circuit Analysis I - Introductory Workshop on Engineering

Specific goals for the course

Specific outcomes of instruction

- RA70 – To understand the model and the basic properties of amplifiers and its implementation with ideal operational amplifiers.
- RA68 – To understand the block diagram of simple electronic systems applied to the telecommunications sector.
- RA67 – To understand the main characteristics of the functional blocks that make up a basic electronic system (amplifier, attenuator, supply, ADC, DAC).
- RA66 – To understand the nomenclature and the basic properties of elementary signals which are used in electronic circuits.
- RA69 – To learn about the basic function and characteristics of passive electronic components (resistance, capacitor and coil). To know their basic properties.
- RA71 - To learn about the basic function and characteristics of active electronic components (diode, bipolar and unipolar transistors).

Further reading and supplementary materials

- Malvino: Principios de electrónica, 7ª ed. McGraw-Hill, 2007.
- Storey: Electrónica, de los sistemas a los componentes, Addison-Wesley Iberoamericana, 1995.
- The lab sessions are carried out in student couples with the following equipment: Power supply, oscilloscope, function generator, multimeter, PC.
- Moodle.