

Program	09TT- Engineering in Telecommunication Technologies and Services
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Course number and name	
Number	95000062
Name	Electronic Equipment Fabrication Fabricación de Equipos Electrónicos
Semester	Y4-S7

Credits and contact hours	
ECTS Credits	4.5
Contact hours	45

Coordinator's name	Jesús Sangrador García
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Specific course information		
Description of course content		
<p>The course focuses on the design and fabrication of electronic equipment. Apart from issues related with the design of the electronic systems, the different manufacturing technologies available are studied and their most important characteristics are examined, so the students will be able to select the most appropriate technology for the specific application. The most important aspects of the industrial process management are also considered.</p>		
List of topics to be covered		
<p>1- Physical design of electronic equipment. Mechanical, thermal and electrical design considerations. Interferences and electromagnetic compatibility 2- Printed circuits boards. Materials, fabrication processes and tests. 3- Electronic components. Types. Physical characteristics. 4- Electronic circuits assembly. Components placement, soldering and inspection. In-circuit and functional testing. 5- Production management. Design of fabrication process. Statistical process control. Reliability and maintenance. Process simulation. 6- Hybrid circuits. Thick and thin film circuits. Materials, fabrication processes and tests. Resistor trimming.</p>		
Prerequisites or co-requisites		
<p>None, but it will be assumed that students have knowledge of circuit analysis, and analogue and digital electronics.</p>		
Course category in the program		
<input type="checkbox"/> R (required)	<input checked="" type="checkbox"/> E (elective)	<input type="checkbox"/> SE (selective elective)

Specific goals for the course

Specific outcomes of instruction

RA70: Knowledge of electronic devices, circuits, equipment and systems.
 RA71: Knowledge of the electronic circuits design techniques.
 RA74: Knowledge of interferences and electromagnetic compatibility.

Student outcomes addressed by the course

CE-SE1, CE-SE3, CE-SE5, CE-SE9
 CG6, CG9, CG12

Bibliography and supplemental materials

- Edwards, P.R. Manufacturing Technology in the Electronics Industry. Chapman & Hall, London, 1991.
- Bogatin, E. Signal and Power Integrity - Simplified. 2nd. ed. Prentice Hall, Upper Saddle River, 2010.
- Coombs, C.F. Printed Circuits Handbook. 6th ed. McGraw-Hill, New York, 2007
- Schroeder, R.G. Operations Managements. Decision Making in the Operations Function, 4ª ed. McGraw-Hill, New York, 1993.
- Gupta, T.K. Handbook of Thick- and Thin-Film Hybrid Microelectronics. Willey-Interscience, Hoboken, New Jersey, 2003.
- Moodle page of the course: [https:// moodle.upm.es/titulaciones/oficiales](https://moodle.upm.es/titulaciones/oficiales)

Teaching methodology

<input checked="" type="checkbox"/> lectures	<input checked="" type="checkbox"/> problem solving sessions	<input type="checkbox"/> collaborative actions	<input type="checkbox"/> laboratory sessions
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Other: