

Program	09TT- Engineering in Telecommunication Technologies and Services
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Course number and name	
Number	95000018
Name	Digital Electronics Electrónica Digital
Semester	Y2-S3

Credits and contact hours	
ECTS Credits	3
Contact hours	30

Coordinator's name	Miguel Ángel Sánchez García
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Specific course information		
Description of course content		
A course introducing fundamental and basic concepts of Analysis and Design of Digital Electronic circuits, in order to set the basis for more advanced analysis in future courses. Both combinational and sequential circuits are analyzed. Hardware description language (VHDL) is also presented to describe digital circuits.		
List of topics to be covered		
Functional and structural descriptions of digital circuits. Introduction to VHDL. Circuits descriptions in VHDL. Combinational Circuits. Number systems and information coding. Boolean Algebra. Simple and complex logic gates. Multiplexers. Encoders and decoders. Comparators and operators. ROM memories. Sequential circuits. R-S Latch. Flip-flops. Registers. Counters. Shift registers. Finite-State Machines.		
Prerequisites or co-requisites		
None		
Course category in the program		
<input checked="" type="checkbox"/> R (required)	<input type="checkbox"/> E (elective)	<input type="checkbox"/> SE (selective elective)

Specific goals for the course
Specific outcomes of instruction
RA1:-Ability to analyze and design electronic circuits, both analog and digital. RA5: Knowledge of hardware description languages. RA13: Ability to use hardware description languages. RA102: To learn and master Boolean Algebra together with other tools to simplify logic expressions.

RA103: Ability to apply the acquired knowledge on combinational and sequential circuits for the design of finite-state machines.

RA104: To achieve fundamental concepts on information coding and number systems.

Student outcomes addressed by the course

CG1, CG2; CG4; CG5;CG6; CG9; CG12
 CECT9; CECT10

Bibliography and supplemental materials

“Digital Design (Principles and practices)”, fourth edition, John F. Wakerly, Prentice Hall. 2006.

“Problemas Resueltos de Electrónica Digital”, Javier García Zubía, Thomson, 2003.

“Digital Fundamentals” (9th Edition), Thomas L. Floyd, Prentice Hall, 2006

“Ejercicios de Electrónica Digital”, Isidoro Padilla, Servicio de Publicaciones de la ETSIT, 1988

Teaching methodology

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