Program	09TT- Engineering in Telecommunication Technologies and Services

Course number and name	
Number	95000057
Name	Telematic Systems and Service Engineering Ingeniería de Sistemas y Servicios Telemáticos
Semester	Y4-S8

Credits and contact hours	
ECTS Credits	4.5
Contact hours	45

Coordinator's name	Juan C Yelmo

Specific course information
Description of course content
This course provides a general approach to the development of software systems and telematics services, including both methodology guidelines and mainstream software technologies. The course includes regular lectures, individual lab work, self-study material and a Project-based Learning approach based on the assignment of a case study to be developed and presented by a group of students.
List of topics to be covered
• The software development process: software life-cycles, agile methodologies and software configuration management • Requirements engineering: development and management of software requirements, use cases and user stories • Software platforms and deployment environments: Java Enterprise technologies and Web-Java applications • Modelling and Design of software systems: Data modelling, data persistency, UML, software design methodologies • Service engineering: distributed systems architectures, data exchange technologies, web services • Systems and services testing: verification and validation, testing process automation, continuous integration and deployment
Prerequisites or co-requisites
NA
Course category in the program

__ R (required)	X E (elective)	__ SE (selective elective)

Specific goals for the course
Specific outcomes of instruction
RA89 – Ability to program, simulate and validate networked and distributed software services and applications RA90 – Ability to integrate systems for the acquisition, representation, processing, storage management and presentation of multimedia information for the construction of telecommunication systems and networked applications RA225 – Knowledge of the basic activities of the development process of software system and services and the main life cycle models. RA226 – Knowledge and ability to use Scrum as a process model for the development and management in software projects. RA227 – Knowledge of basic principles of software configuration management of evolving software systems and knowledge and ability to use basic tools for this activity. RA228 – Knowledge and understanding of software requirement and its different types. RA229 – Knowledge, understanding and ability to use different approaches to the definition and analysis of software requirements RA230 – Knowledge of basic principles of software requirements management and knowledge and ability to use basic tools for this activity. RA231 – Knowledge and ability to use the UML for software systems modeling. RA232 – Knowledge of different software architectural styles, understanding of their differences and ability to select the most suitable according to the system requirements. RA233 – Knowledge of common elements and patterns in the detailed design of software systems. RA234 – Knowledge of the process and activities for the transition, configuration, deployment and operation of software systems. RA235, RA237 – Ability to use tools for the automation of software construction and continuous integration and ability to apply them on a Java Enterprise platform. RA238 – Knowledge and ability to use technologies and tools for the provision of software services. RA239 – Understanding of the processes of software verification and validation and theirs relationship to other phases of the software life-cycle. RA240 – Knowledge of the main techniques and principles of software testing. RA241 – Ability to use tools for software testing at different levels
Student outcomes addressed by the course
CETL1, CETL6, CETL7, CG2, CG3, CG4, CG5, CG7, CG8, CG9, CG10, CG11, CG12

Bibliography and supplemental materials
• D. C. Kung. *Object-oriented Software Engineering: An Agile Unified Methodology*. McGraw Hill Higher Education, 2013.

Teaching methodology			
X **lectures**	__ **problem solving sessions**	X **collaborative actions**	X **laboratory sessions**
Other:	PBL		