SUBJECT TEACHING GUIDE

G659 - Software Engineering II

Degree in Computer Systems Engineering

Academic year 2016-2017

1. IDENTIFYING DATA					
Degree	Degree in Computer Systems Engineering			Type and Year	Compulsory. Year 3
Faculty	Faculty of Sciences				
Discipline	Subject Area: Software and Information Systems Engineering Compulsory Module				
Course unit title and code	G659 - Software Engineering II				
Number of ECTS credits allocated	6	Term	Semester based (2)		
Web					
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. INGENIERÍA INFORMÁTICA Y ELECTRÓNICA
Name of lecturer	PATRICIA LOPEZ MARTINEZ
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Other lecturers	MIGUEL SIERRA SANCHEZ CARLOS BLANCO BUENO

3.1 LEARNING OUTCOMES
- Knowledge about the main concepts regarding verification and validation of software systems.
- Design of unit tests for software systems.
- Usage of a unit testing framework.
- Knowledge about the main techniques for software maintenance.
- Applying basic refactorizations as maintenance method.
- Usage of a software configuration management tool.
- Usage of a tool for automatic software building.
- Knowledge of the main concepts related with project management.
- Knowledge about software project plans.
- Knowledge about the concept of software product and software process quality.
- Applying different techniques for the implementation of state machines.

4. OBJECTIVES
To get basic knowledge about verification and verification of software systems.
To apply a methodological process for the unit testing of software systems.
To get basic knowledge about software maintenance and to use tools oriented to change management.
To understand the role of software product and software process quality.
To understand the problems associated to software configuration management and to use tools for that purpose.
To get basic knowledge and skills about software project management.

6. COURSE ORGANIZATION	
	CONTENTS
1	SOFTWARE SYSTEMS CONSTRUCTION - Construction phase inside the lifecycle of software systems. - Concepts and principles related to software construction. - Software development environments and frameworks. - State machines implementation.
2	SOFTWARE SYSTEMS TESTING - Software Verification and Validation (V&V). - Testing phase inside the lifecycle of software systems. - Testing levels: unit, integration, system. - Techniques for the design of unit tests.
3	SOFTWARE MAINTENANCE - Terminology and basic concepts. - Maintenance types. - Software maintenance management. - Maintenance techniques.
4	SOFTWARE CONFIGURATION MANAGEMENT - Terminology and basic concepts. - Problems related to SCM - SCM Plan. - Version control tools. - Software building tools.
5	SOFTWARE SYSTEMS AND SOFTWARE PROCESS QUALITY - Concept of Software quality. - Product quality vs process quality
6	SOFTWARE PROJECT MANAGEMENT - Introduction to project management. - Cost management. - Time management. - Risk management.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
The final exam has two parts: a short questions part and an exercises part. For the exercises part, the students can bring notes, books or any other type of written material.	Written exam	Yes	Yes	60,00
The students will have a number of lab assignments, which they can address individually or in couples. All the assignments must be delivered to pass the subject, although the final qualification will be obtained as the weighted average of a subset of them	Laboratory evaluation	No	Yes	40,00
TOTAL				100,00

Observations

The qualification of those students that pass only one of the parts (theory or practice) in the rdinary examination session will be calculated as the minimun of 4.5 and the obtained average qualification. In the extraordinary session those students can address only the reassesment of the previously failed part.

Observations for part-time students

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Ian Sommerville, “Ingeniería del Software”, 7ª Edición, Addison-Wesley, 2005.

IEEE Computer Society, "SWEBOK - Guide to the Software Engineering Body of Knowledge, v3", 2014.

Glenford J. Myers, Corey Sandler and Tom Badgett, "The Art of Software Testing", 3ª Edición, Wiley, 2011.

Project Management Institute (PMI), "PMBOK - Project Management Body of Knowledge", 5ª edición, 2013.

M. Piattini, F. García, I. García-Rodríguez de Guzmán, F. Pino, "Calidad de Sistemas de Informació", 3º Ed., Ra-Ma, 2015.

D. Echevarría, "Manual para Project Managers: cómo gestionar proyectos con éxito", 2ª Edición, Wolters Kluwer España, 2013.

Martin Fowler, "Refactoring : improving the design of existing code", Addison Wesley, 2009.