SUBJECT TEACHING GUIDE

G670 - Software Engineering Processes

Degree in Computer Systems Engineering

Academic year 2018-2019

1. IDENTIFYING DATA					
Degree	Degree in Computer Systems Engineering			Type and Year	Optional. Year 4
Faculty	Faculty of Sciences				
Discipline	Subject Area: Software Engineering Mention in Software Engineering				
Course unit title and code	G670 - Software Engineering Processes				
Number of ECTS credits allocated	6	Term		Semester based (1)	
Web	http://moodle.unican.es				
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
E-mail	patricia.lopez@unican.es
Office	Facultad de Ciencias. Planta: + 3. DESPACHO PROFESOR (3051)
Other lecturers	JULIO LUIS MEDINA PASAJE

3.1 LEARNING OUTCOMES
- Knowing and applying the component-based software development paradigm, as well as the concepts of component, container, application server, etc.
- Knowing how to develop enterprise applications using a distributed component model.
- Managing security aspects in the development of component-based enterprise applications.
- Applying techniques, methods and tools for software systems testing, focusing on integration, system and aceptance testing levels.
- Designing and applying model-based testing.
- Design of testing plans for software systems.
- Using advanced automated tools for managing software building.
- Understanding the concept of software continuous integration.

4. OBJECTIVES
To review and go deep into concepts related to software testing, focusing in integration, system and acceptance testing.
To address the concept of model-based testing and design and apply tests following it.
To address the basic principles of component-based development and apply them in the implementation of enterprise applications.
To learn how to automate the software systems building process.

6. COURSE ORGANIZATION	
CONTENTS	
1	TESTING METHODS: - Review of Software Verification and Validation. - Model-based Testing. - Review of Unit Testing. - Integration Testing. - System Testing. - Acceptance Testing. - Design of testing plans.
2	AUTOMATIC BUILDING OF SOFTWARE SYSTEMS: - Advanced concepts and tools for automatic building of software systems. - Continuous Integration.
3	COMPONENTS TECHNOLOGIES AND ENTERPRISE APPLICATIONS: - Characteristics of enterprise applications. - Evolution of middleware for enterprise applications: Application servers. - Component-based software development. - Components and containers.
4	JAVA SUPPORT FOR COMPONENT-BASED ENTERPRISE APPLICATIONS - Introduction to Java EE. - Business layer in Java EE: EJB Components. - Persistence layer in Java EE: Java Persistence API. - Presentation layer in Java EE: Java Server Faces. - Management of security and other non functional aspects in Java EE applications.

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	30,00
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	70,00
TOTAL				100,00

Observations

The mark of those students that pass only one of the parts (theory or practice) in the ordinary examination session will be calculated as the minimun of 4.5 and the average mark obtained. In the extraordinary examination session those students will need to address only the reassesment of the previously failed part.
Along the course some additional exercises may be proposed. Students that voluntarily present them correctly solved may rise their mark up to 1 point in the final mark of the subject.
One of the more important practical experiences of the subject is performed in the framework of a development project coordinated with other subjects of the specialization. For this reason it is highly recommended to take the subjects Métodos de Desarrollo (G668), Procesos de la ingeniería Software (G670) and Calidad y Auditoría (G671) in the same semester.

Observations for part-time students

Part-time students are to follow the same rules than regular students, since, except for written examinations, attendance to class is not mandatory. The written examinations are not supposed to be a problem for part-rime students since they are scheduled at quite well in advanced dessignated dates. Nevertheless, participation at least in the practical sessions is highly recommended.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

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

Eric Jendrock et al., "The Java EE 7 Tutorial", Sun Microsystems, 2014.

Andrew Lee Rubinger and Bill Burke, “Enterprise Java Beans 3.1”, 6th Edition, O’ Reilly, 2010.

Antonio Goncalves, "Beggining Java EE 7", APress, 2013.