

## SUBJECT TEACHING GUIDE

G659 - Software Engineering II

Degree in Computer Systems Engineering

Academic year 2022-2023

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	<a href="https://moodle.unican.es">https://moodle.unican.es</a>				
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	JUAN MARIA RIVAS CONCEPCION				

### 3.1 LEARNING OUTCOMES

- Knowledge about the main principles, foundations and good practices applied to the verification and validation of software systems.
- Knowledge about software systems development tools.
- Implementation and management of applications, according to the previously addressed analysis and design activities.
- Knowledge of the main concepts related with project management.
- Knowledge of the main principles and techniques related to project management.

#### 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 get basic knowledge about software configuration management and about how to use tools for that purpose.
- To get basic knowledge and skills about software project management.

#### 6. COURSE ORGANIZATION

##### CONTENTS

1	<b>SOFTWARE CONFIGURATION MANAGEMENT</b> <ul style="list-style-type: none"> <li>- Terminology, basic concepts and SCM areas.</li> <li>- Version control tools.</li> <li>- Software building tools.</li> </ul>
2	<b>SOFTWARE SYSTEMS CONSTRUCTION</b> <ul style="list-style-type: none"> <li>- Construction phase inside the lifecycle of software systems.</li> <li>- Concepts and principles related to software construction.</li> <li>- Software development environments and frameworks.</li> </ul>
3	<b>SOFTWARE SYSTEMS TESTING</b> <ul style="list-style-type: none"> <li>- Software Verification and Validation (V&amp;V).</li> <li>- Testing phase inside the lifecycle of software systems .</li> <li>- Testing levels and testing types.</li> <li>- Techniques and frameworks for the design and implementation of unit tests .</li> </ul>
4	<b>SOFTWARE MAINTENANCE</b> <ul style="list-style-type: none"> <li>- Terminology and basic concepts.</li> <li>- Maintenance types.</li> <li>- Software maintenance management.</li> <li>- Maintenance techniques and tools.</li> </ul>
5	<b>SOFTWARE SYSTEMS AND SOFTWARE PROCESS QUALITY</b> <ul style="list-style-type: none"> <li>- Concept of Software quality.</li> <li>- Product quality vs process quality</li> </ul>
6	<b>SOFTWARE PROJECT MANAGEMENT</b> <ul style="list-style-type: none"> <li>- Introduction to project management.</li> <li>- Cost management.</li> <li>- Time management.</li> <li>- Risk management.</li> </ul>

## 7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
The final exam consists in a set of short questions and exercises. The students can bring notes, books or any other type of written material but cannot use any kind of electronic devices.	Written exam	Yes	Yes	40,00
The students will have a number of lab assignments. All of them must be delivered to pass the subject, although the final qualification will be obtained as the weighted average of a subset of them	Work	No	Yes	60,00
<b>TOTAL</b>				<b>100,00</b>
<b>Observations</b>				
<p>To pass the subject is necessary to score a minimum mark of 4.5 in both the final exam and the lab assignments. The qualification of those students that pass only one of the parts in the ordinary examination session will be calculated as the minimum of 4.5 and the obtained average qualification. In the extraordinary session those students can address only the reassessment of the previously failed part.</p> <p>In the case of the practice part, reassessment in the extraordinary session will consist in a detailed presentation of the lab assignments qualified with a mark less than 4.0.</p>				
<b>Observations for part-time students</b>				
Part-time students can follow the same rules than regular students, since assistance to the classes is not mandatory.				

## 8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC
Ian Sommerville, "Ingeniería del Software", 9ª Edición, Addison-Wesley, 2011.
Glenford J. Myers, Corey Sandler and Tom Badgett, "The Art of Software Testing", 3ª Edición, Wiley, 2011.
M. Piattini, F. García, I. García-Rodríguez de Guzmán, F. Pino, "Calidad de Sistemas de Información", 4ª Ed., Ra-Ma, 2018.