

SUBJECT TEACHING GUIDE

G664 - Requirements Engineering

Degree in Computer Systems Engineering First Degree in Computer Systems Engineering

Academic year 2024-2025

1. IDENTIFYING DATA					
Degree	Degree in Computer Systems Engineering First Degree in Computer Systems Engineering			Type and Year	Optional. Year 3 Optional. Year 3
Faculty	Faculty of Sciences				
Discipline	Subject Area: Software Engineering Mention in Software Engineering				
Course unit title and code	G664 - Requirements Engineering				
Number of ECTS credits allocated	6	Term	Semester based (2)		
Web	https://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	PABLO SANCHEZ BARREIRO				
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Other lecturers	JUAN RAMON SANTANA MARTINEZ ALFONSO DE LA VEGA RUIZ				

3.1 LEARNING OUTCOMES
- The student will know the different kinds of software requirements.
- The student will be able to use requirements engineering techniques to analyse, model, specify and validate software requirements as well as know their main modelling notations.
- The student will be able to use methods and tools for software requirements management.
- The student will know the main techniques for software analysis and design.
- The student will be able to include security aspects in each stage of a software development process.
- The student will be able to use the most popular techniques and tools for software analysis and design.

4. OBJECTIVES

Use the software requirements terminology properly
Differentiate the different kinds of software requirements.
Manage requirements engineering processes, understanding their stages and the role of each one of their artefacts.
Grasp the role of the context of a system in Requirements Engineering and be able to specify such a context.
Plan and manage requirements elicitation processes using potentially incomplete, imprecise, redundant, inconsistent or ambiguous information.
Use techniques for the specification of functional requirements at different abstraction levels, combining goals and scenarios.
Understand the role of quality assurance in requirements engineering.
Know the interaction of requirements engineering with software project management.
Use techniques for the specification and analysis of non functional requirements, with special focus on security.
Model small business processes.

6. SUBJECT PROGRAM

CONTENTS

1	Unit 1. Requirements Engineering Processes. Relevance and Goals of Requirements Engineering. Terminology. Stages of a Requirements Engineering Processes. Role of Requirements Engineering Processes in Software Development Processes.
2	Unit 2. Requirements Elicitation Introduction. Goals of Requirements Elicitation. Support Techniques for Requirements Elicitation: Brainstorming, KJ Method, Mind Maps, Checklist, 100\$ Test. Structure of the System Context. Requirements Elicitation Strategies: Interviews, Workshops, Focus Groups, Observation, Questionnaires, Perspective-Reading. Kinds of Stakeholders. In/Out List. Identification of Requirements Sources. Requirements Elicitation Planning.
3	Unit 3. Specification and Modelling of Functional Requirements Introduction. Requirements Abstraction Level. Goals. Solution-oriented models. Goal Modelling with GRL. Trade-Offs between Goals. Algorithm of Hao. Scenarios. Positive, Alternative and Exceptional Scenarios. Use Cases. User Stories.
4	Unit 4. Specification and Modelling of Non-Functional Requirements Introduction. Sociotechnical Systems. NFR Catalogues: ISO 25010. Security Requirements. Negotiation Techniques: Plus. Minus, Interesting.
5	Unit 5. Introduction to the Specification and Modelling of Business Processes. Introduction. Workflows and Business Processes. Basic Business Process Modelling with BPMN 2.0: Participants, Tasks, Events and Gateways.

7. ASSESSMENT METHODS AND CRITERIA				
Description	Type	Final Eval.	Reassessn	%
Lab Project	Work	No	Yes	50,00
Final Test	Written exam	Yes	Yes	50,00
TOTAL				100,00
Observations				
<p>When the mark of some qualifiable element is lower than the mandatory minimum, but the weighted average of all qualifiable elements is greater or equal than five, the final mark will be 4.9, i.e., the course will be failed.</p> <p>Instructors might perform some extra checks in order to verify the authority of the assignments delivered by the students. Plagiarism is not allowed and it will imply that the student will fail the course. In addition, the plagiarism will be notified to the Faculty Council so that disciplinary actions can be adopted</p> <p>When the mark for the project to be developed is lower than 5.00, the final mark for the subject will be the mark of the final test.</p>				
Observations for part-time students				
<p>An important goal of this course is that students train skills related to working in teams for gathering and specifying requirements. This implies some activities involving group dynamics, which requires each student become member of a workteam. Therefore, there is no option for developing the full course project individually, so part-time students must participate in work teams, which can be comprised of full-time and part-time students. However, under some circumstances, virtual attendance might be enabled for part-time student if the Faculty Council authorizes it.</p> <p>Additionally, part time students can always choose a evaluation system based on single final test, whose mark will be the final mark for the course.</p>				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Klaus Pohl. "Requirements Engineering: Fundamentals, Principles, and Techniques". Springer, 2011.