

SUBJECT TEACHING GUIDE

G658 - Software Engineering I

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	G658 - Software Engineering I				
Number of ECTS credits allocated	6	Term	Semester based (1)		
Web					
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. INGENIERÍA INFORMÁTICA Y ELECTRÓNICA				
Name of lecturer	CARLOS BLANCO BUENO				
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Office					
Other lecturers					

3.1 LEARNING OUTCOMES
- Acquire the principles and foundations of software engineering and its main concepts: life cycle, methodology, process.
- Know and apply a methodology for software development.
- Gather, specify and model user and system software requirements.
- Build design models (high-level design and detailed) for a software system.
- Know how to use tools that support modelling for software systems.

4. OBJECTIVES

Understand and know the importance and role of the discipline of software engineering, in order to correctly apply the general principles of engineering to develop software.

Know how to apply the software development process, including the steps and models that are useful for every kind of application, according to its domain.

Model software using UML.

6. COURSE ORGANIZATION

CONTENTS

1	FUNDAMENTALS OF SOFTWARE ENGINEERING. Body of Knowledge SWEBOK. Main areas. Modeling in Software Engineering. Modeling Languages: UML. Development methods. Software life cycle and processes.
2	SOFTWARE SYSTEM REQUIREMENTS. Introduction. Concept and characteristics. Stages of Software Requirements Specification: gathering, analysis, specification and validation. Modeling and specification using Use Case Models, Templates and Domain Class Diagrams. Non functional requirements.
3	SOFTWARE SYSTEMS ARCHITECTURE. Software Architecture. Component concept. 3-tier architectures. Modelling architectures by using component and deployment diagrams. Modelling architectural scenarios by using sequence diagrams.
4	DESIGN SOFTWARE. Structural description. Design patterns. Modelling structural design by using class diagrams. Procedural behaviour and modelling by using activity diagrams. Reactive behaviour and modelling by using statechart diagrams.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Theoretical Examination	Activity evaluation with Virtual Media	No	No	20,00
Project Development	Work	No	Yes	80,00
TOTAL				100,00
Observations				
Observations for part-time students				
Part-time students can achieve all the theoretical and practical activities by distance working. In this way, they can establish their working hours according to their professional and personal constraints.				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC
Sommerville, 2012. Ingeniería del Software. 9ª Edición, Addison-Wesley. 2012.
J.Arlow e I.Neustadt. UML 2 and the Unified Process: Practical Object-Oriented Analysis and Design. Addison-Wesley. 2005.
D.Pilone. UML 2.0 in a Nutshell. O'Reilly. 2005.

