UNIVERSIDAD DE CASTILLA - LA MANCHA
GUÍA DOCENTE

1. General information

Course: SOFTWARE ENGINEERING I
Type: CORE COURSE
Degree: 405 - DEGREE IN COMPUTER SCIENCE ENGINEERING (TA)
Center: 15 - FACULTY OF SOCIAL SCIENCES AND INFORMATION TECHNOLOGIES
Year: 2
Main language: Spanish
Use of additional languages:
Web site:

Code: 42314
ECTS credits: 6
Academic year: 2022-23
Group(s): 60
Duration: First semester
Second language: English
English Friendly: Y
Bilingual: N

Lecturer: **RICARDO PÉREZ DEL CASTILLO** - Group(s): **60**

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2. Pre-Requisites

It is recommended to have passed Information Systems (1st course) and to have advanced Object-Orientate programming skills, so it is recommended to have passed the Fundamentals of Programming 1 and 2 (1st course).

3. Justification in the curriculum, relation to other subjects and to the profession

This course provides an overview of Software Engineering and the role it plays in the context of Computer Engineering. For this, the basic concepts and the main characteristics and techniques to be applied in the software development stages are presented: requirements, analysis, design and implementation. For this, the Object Orientation paradigm will be adopted.

As a result, it is expected to train the student with the basic skills and knowledge necessary to work as a Software Engineer. This will provide the necessary basis to deepen specific subjects in Software Engineering that can be taken throughout the career.

4. Degree competences achieved in this course

Course competences

Code	Description
BA04	Basic knowledge about the uses and programming of computers, operating systems, data bases, and digital programmes with applications in engineering.
CO01	Ability to design, develop, select, and assess, applications and digital systems, guaranteeing their reliability, security, and quality, according to ethical principles and the current and common laws.
CO02	Ability to conceive, plan, develop and manage projects, services, and digital systems in any context, leading their start and applying continuous improvements, assessing their economic and social impact.
CO03	Ability to understand the important of negotiation, work efficiency, leadership, and communication abilities in every context of software development.
CO08	Ability to analyse, design, build and maintain applications in a strong, safe, and efficient manner by selecting the most appropriate paradigms and programming languages.
CO16	Knowledge and application of principles, methodologies, and life spans of software engineering.
INS01	Analysis, synthesis, and assessment skills.
INS03	Ability to manage information and data.
INS04	Problem solving skills by the application of engineering techniques.
INS05	Argumentative skills to logically justify and explain decisions and opinions.
PER01	Team work abilities.
SIS01	Critical thinking.
SIS03	Autonomous learning.
SIS04	Adaptation to new scenarios.
SIS05	Creativity.
SIS09	Care for quality.
UCLM02	Ability to use Information and Communication Technologies.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Knowledge about tools that support the construction of software systems and the storage and processing of data.

Knowledge of the principles of software engineering and the main methodologies for the construction of quality software.

Identification, modelling, and specifications of software and business requirements for the construction of software systems that implement them.

Building design models, both high leveled and detailed, for the construction of software systems that implement them.

6. Units / Contents

Unit 1: Introduction to Software Engineering
Unit 2: Launching Software Development Project
Unit 3: Object Oriented Software Development
Unit 4: Requirement Analysis
Unit 5: Design
Unit 6: Implementation

ADDITIONAL COMMENTS, REMARKS

Lab practices:

- Practice 1: JDBC and Database access

- Practice 2: Object Orientation, Visual Paradigm and Multilayer Architecture

- Practice 3: Use Case Diagrams

- Practice 4: Class Diagrams

- Practice 5: Interaction Diagrams

- Practice 6: State Transition Diagrams

- Practice 7: Deployment Diagrams

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures	BA04 CO01 CO02 CO03 CO08 CO16 SIS01 SIS09	0.72	18	N	-	
Individual tutoring sessions [ON-SITE]	Collaborative on line international learning (COIL)	BA04 CO01 CO02 CO03 CO08 CO16 UCLM02	0.18	4.5	N	-	
Study and Exam Preparation [OFF-SITE]	Self-study	BA04 CO01 CO02 CO03 CO08 SIS01 SIS09 UCLM02	2.1	52.5	N	-	
Other off-site activity [OFF-SITE]	Practical or hands-on activities	BA04 CO01 CO02 CO03 CO08 INS03 INS04 INS05 PER01 SIS03 SIS04 SIS05 UCLM02	0.6	15	N	-	
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	BA04 CO01 CO02 CO03 CO08 INS01 INS04 PER01 SIS03 SIS09	0.6	15	Y	N	
Writing of reports or projects [OFF-SITE]	project-based learning	BA04 CO01 CO02 CO03 CO08 CO16 INS01 INS04 INS05 PER01 SIS03 SIS04 SIS05	0.9	22.5	Y	N	
Laboratory practice or sessions [ON-SITE]	Practical or hands-on activities	BA04 CO01 CO02 CO03 CO08 CO16 INS01 INS03 INS04 INS05 PER01 SIS03 SIS04 SIS05	0.6	15	Y	Y	
Other on-site activities [ON-SITE]	Assessment tests	BA04 CO01 CO02 CO03 CO08 INS03 INS04 INS05 PER01 SIS03 SIS04 SIS05 UCLM02	0.15	3.75	Y	Y	
Other on-site activities [ON-SITE]	Assessment tests	BA04 CO01 CO02 CO03 CO08 INS03 INS04 INS05 PER01 SIS03 SIS04 SIS05 UCLM02	0.15	3.75	Y	Y	
		Total:	**6**	**150**			
		Total credits of in-class work: 2.4					**Total class time hours: 60**
		Total credits of out of class work: 3.6					**Total hours of out of class work: 90**

As: Assessable training activity
Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

8. Evaluation criteria and Grading System

Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Test	25.00%	25.00%	Partial Test 1. Compulsory activity that can be retaken (rescheduling). To be carried out at the end of the first half of the teaching period.
Test	25.00%	25.00%	Partial Test 2. Compulsory activity that can be retaken. To be carried out within the planned dates of the final exam call. The Partial Test 1 retake will be performed at this date.

Laboratory sessions	25.00%	25.00%	Compulsory activity that can be retaken. To be carried out during lab sessions.
Assessment of active participation	10.00%	0.00%	Non-compulsory activity that can be retaken. To be carried out during the theory/lab sessions in continuous modality. Non-continuous students will be evaluated for this activity through an alternative system in the ordinary call.
Theoretical papers assessment	15.00%	15.00%	Elaboration in group of a theoretical paper. Non-compulsory activity that cannot be retaken. To be carried out before end of teaching period
Total:	**100.00%**	**90.00%**	

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject , an ordinary and an extraordinary one (evaluating 100% of the competences).

Evaluation criteria for the final exam:

Continuous assessment:

In compulsory activities, a minimum mark of 40% is required in order to pass that activity and have the possibility to therefore pass the entire subject. The evaluation of the activities will be global and therefore must be quantified by means of a single mark. If the activity consists of several sections, each section may be evaluated separately provided students are informed in writing of this evaluation criterion at the beginning of the academic year. In the case of the activities that may be retaken (i.e., rescheduling), an alternative activity or test will be offered in the resit/retake exam call (convocatoria extraordinaria).

The partial tests will be common for all the theory/laboratory groups of the subject and will be evaluated by the lecturers of the subject in a serial way, i.e., each part of the final exam will be evaluated by the same lecturer for all the students.

A student is considered to pass the subject if she/he obtains a minimum of 50 points out of 100, taking into account the points obtained in all the evaluable activities, and also has passed all the compulsory activities.
For students who do not pass the subject in the final exam call (convocatoria ordinaria), the marks of activities already passed will be conserved for the resit/retake exam call (convocatoria extraordinaria). In the case of the passed recoverable activities, the student will have the opportunity to receive an alternative evaluation of those activities in the resit/retake exam call and, in that case, the final grade of the activity will correspond to the latter grade obtained.

The qualification of the passed activities in any call, except for the partial tests, will be conserved for the next academic year at the request of the student, provided that it is equal or superior to 5 and the training activities and the evaluation criteria of the subject are not modified in the next academic year.
The failure of a student to attend the partial 1 and partial 2 tests will automatically result in her/him receiving a "Failure to attend" (no presentado). If the student has not passed any compulsory evaluation activity, the maximum final grade will be 40%.

Non-continuous evaluation:

Students who are unable to attend training activities on a regular basis may apply at the beginning of the semester for the non-continuous assessment mode. Similarly, if a student who is undergoing continuous assessment incurs any circumstance that prevents her/him from regularly attending the classroom-based training activities, she/he may renounce the accumulated mark in continuous assessment and apply for the non-continuous assessment mode. In this case, a notification by the student must be given before the date scheduled for the tests in the ordinary call, in accordance with a deadline that will be informed at the beginning of the semester.

Students who take the non-continuous assessment mode will be globally graded, in 2 annual calls per subject , an ordinary and an extraordinary one (evaluating 100% of the competences), through the assessment systems indicated in the column "Non-continuous assessment".

In the "non-continuous assessment" mode, it is not compulsory to keep the mark obtained by the student in the activities or tests (progress test or partial test) taken in the continuous assessment mode.

Specifications for the resit/retake exam:
Evaluation tests will be conducted for all recoverable activities.
Specifications for the second resit / retake exam:
Same characteristics as the resit/retake exam call.

9. Assignments, course calendar and important dates

Not related to the syllabus/contents

Hours	hours

General comments about the planning: The subject is taught in 3 x 1,5 hour sessions per week. The planning can be modified in the event of unforeseen causes.

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	City	ISBN	Year	Description
Piattini, M., Calvo-Manzano, J., Cervera, J. y Fernández, L.	Análisis y diseño de Aplicaciones Informáticas de Gestión. Una perspectiva de Ingeniería del Software	Ra-Ma		847897587X	2003	
Pressman, Roger S.	Ingeniería del software : un enfoque práctico https://catalogobiblioteca.uclm.es/cgi-bin/abnetopac/O7757/ID7fddc513?ACC=161	McGraw-Hill		978-607-15-0314-5	2010	
Arlow, Jim; Neustadt, Ila	UML 2 and the Unified Process: Practical Object-Oriented Analysis and Design	Addison-Wesley		0321321278	2005	
Grady Booch, James Rumbaugh, Ivar Jacobson	El lenguaje unificado de modelado, guía de usuario https://catalogobiblioteca.uclm.es/cgi-bin/abnetopac/O7049/IDa3e0cda5?ACC=161	Addison-Wesley		84-7829-076-1	2010	