Universitat de Lleida

DEGREE CURRICULUM

PROCESS MODELS

Coordination: GARCIA GONZALEZ, ROBERTO

Academic year 2018-19

PROCESS MODELS 2018-19

Subject's general information

Subject name	PROCESS MODELS
Code	102054
Semester	2nd Q(SEMESTER) CONTINUED EVALUATION
Typology	

Degree	Course	Character	Modality
Bachelor's Degree in Computer Engineering	3	COMPULSORY	Attendance-based

Course number of credits (ECTS)	6
Type of activity, credits, and groups	

Activity type	PRALAB	TEORIA
Number of credits	3	3
Number of groups	1	1

Coordination	GARCIA GONZALEZ, ROBERTO
Department	COMPUTER SCIENCE AND INDUSTRIAL ENGINEERING
Teaching load distribution between lectures and independent student work	6 ECTS x 25h = 150h 40% -> 60h classroom hours (4h per week) 60% -> 90h autonomous work
Important information on data processing	Consult this link for more information.
Language	Catalan and English. The materials and resources will be provided in English, but the lectures will be in Catalan. (In English if there are foreign students).
Office and hour of attention	Make an appointment by email.

PROCESS MODELS 2018-19

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
CORCHERO RODRÍGUEZ, AITOR	acorchero@diei.udl.cat	3	
GARCIA GONZALEZ, ROBERTO	roberto.garcia@udl.cat	0	
VIRGILI GOMÀ, JORDI	jvirgili@diei.udl.cat	3	

Subject's extra information

Course taught during the 2nd semester of 3rd year of the degree. Part of the specialization module in "Software Engineering". To develop good software different techniques and methodologies of project management and software development models should be used. We focus on agile methodologies.

A **Joint Project** is developed together with other subjects in the 3rd course of the "Software Engineering" specialization:

- Quality Management and Improvement*
- Process Models*
- Requirements Engineering*

(*) These three subjects must be enrolled simultaneously because they work together on a Joint Project.The only exception is if any of them is approved.

Each subject focuses on the corresponding aspects of project development. In the case of this subject, project development process. The aim of this **Joint Project** is to bring the students with what would be a real-world project of Software Engineering and at the same time, we see that results of the aspects studied in the contexts of a course serve to meet the challenges presented in other courses.

To follow this subject properly some previous knowledge/skills on programming are recommended. It's not necessary know Python/Django (the language used), but it is necessary previous experience in programming.

Learning objectives

- Learn the basics of Project management.

- Develop a Project charter to plan, execute and monitor a Project.

- Know different models to develop software, specially the agile model.

- Carry out a software development Project following an agile methodology.

Competences

Strategic competences of the UdL

- CT2. Mastering a foreign language, especially English.
- CT3. Training Experience in the use of the new technologies and the information and communication technologies.

Cross-disciplinary competences

- EPS11. Capacity to understand the needs of the user expressed in a no technical language..

Specific competences

- GII-IS1. Capacity to develop, maintain and evaluate services and software systems that satisfy all the requirements of the user and behave in a reliable and efficient way, they can develop, keep and fulfil quality requirements, applying the theories, principles, methods and uses of the software engineering.
- GII-IS3. Capacity to give solution to problems of integration taking into account the strategies, standards and available technologies.
- GII-IS4. Capacity to identify and analyse problems and design, develop, implement, verify and find software solutions on the base of a suitable knowledge of the theories, models and current techniques.

Subject contents

- 1 - Project Management
  - Basics
  - Projects within organizations
  - Restrictions
  - Request and project proposals
  - PMI

- 2 - Process Models on software engineering
  - Introduction
  - Models and methodologies
  - Existing models (features, comparisons...)
  - Introduction to agile methods

- 3 - Xtreme Programming
  - Definition and features

    - *Pair programming*
    - *Pair review*
    - *Stories*
    - Continuous Integration
    - Test-Driven Development
    - Tests

- 4 - Agile project management
    - Definition and features
    - Agile methodologies.
    - User Case to User Stories
    - Scrum, Lean IT, Kanban...

- 5 - Organizations and negotiation with agile projects
    - Organizational maturity
    - Contracts in agile projects

- 6 - Software project development
    - Project charter
    - Budget
    - Kanban
    - Work planification with Scrum
    - Project closure
    - Speech

Methodology

Classes for the course include sessions in which the contents are introduced, through support of educational materials prepared or compiled by lecturers, and group work sessions.

In group work sessions, we use project-based learning methodology. So, students must apply several techniques on the subject under the common project to the three courses in the third year of Software Engineering module.

Theory

- Presentation of the contents of the course.
- Discussion with the students.

Laboratory

- Laboratory. Demo and tutorial projects.

Joint Project

- Sprint 1. Initial implementation.
- Sprint 2. Iteration over previous work.
- Sprint 3. Iteration over previous work.
- Sprint 4. Iteration over previous work.
- Sprint 5. Final iteration.
- Oral presentation of the project to a committee involving the professors of all 3 subjects. The presentation, common to these subjects, addresses the overall project development.

A note about Joint Project: Every *Sprint* is conducted within the context of a software engineering project developed in three courses (Requirements Engineering, Process Models and Quality Management). Given that each course addresses important aspects of Software Engineering (e.g. requirements, agile methodologies and quality), the project aims to encourage students to deal with them in a real-life scenario, which is simulated in this project.

Development plan

Setmana	Activitats Curs	Activitat Projecte Conjunt	Treball A
1	Presentació, Demo Project	Project Presentation	
2	PMI, Tutorial Project Design	Project Planning	Intial project planning & Github (theory lab 1)
3	Estructura d'un Projecte, Version Control Systems	Project Design	Initial project design & Model Kanban (theory
4	Models de Procès, Test Driven Development	1st Sprint	Continous Integration Process
5	Metodologíes Àgils, Tutorial Project Development	1st Sprint	Deliver initial prototype (practice 1)
6	Scrum, Tutorial Project Development	2nd Sprint	
7	-	2nd Sprint	Deliver second prototype (practice 2)
8	-	-	-
9	Evaluacions Parcials	-	Study
10	-	-	-
11	-	3rd Sprint	-
12	-	3rd Sprint	Deliver third prototype (practice 3)
13	-	4th Sprint	-
14	-	4th Sprint	Deliver four prototype (practice 4)
15	-	5th Sprint	-
16-17	Evaluacions Parcials	-	Study
18	-	Presentació del projecte	Joint Project Presentation
19	Recuperació	-	Study

Evaluation

Acr.	Evaluation Activity	Rate	Minimum Qualification	Group Activicty	Mandatory	Remedial Exam
VP	Tutorial Project (Practice)	10%	NO	2 to 3	NO	NO
VT	Tutorial Project (Theory)	10%	NO	2 to 3	NO	NO
P1	1st Midterm Exam	30%	4	NO	YES	YES
E1	1st Project Deliverable	6%	NO	4 to 6	YES	NO
E2	2a Project Deliverable	6%	NO	4 to 6	YES	NO
E3	3a Project Deliverable	6%	NO	4 to 6	YES	NO
E4	4a Project Deliverable	6%	NO	4 to 6	YES	NO
E5	5a Project Deliverable	6%	NO	4 to 6	YES	NO
DVQ	Project Technical quality Analysis	10%	NO	4 to 6	YES	NO
FP	Final Presentation	10%	NO	4 to 6	YES	NO
Final Qualification = 0,1*VP + 0,1*VT + 0,3*P1 + 0,06*E1 + 0,06*E2 + 0,06*E3 +0,06*E4 +0,06*E5 + 0,1*DVQ + 0,1*FP						

Bibliography

Project Management Institute, *A Guide to the Project Management Body of Knowledge 5ª Edición*. PMI, 2013. ISBN: 978-1-62825-009-1

Project Management Institute, *Software Extension to the PMBoK Guide 5th Edition*, PMI, 2013.

Henrik Kniberg: *Scrum y XP desde las trincheras*. C4Media, editor de InfoQ.com, 2007. (Traducció al castellà). ISBN: 978-1-4303-2264-1

Henrik Kniberg y Mattias Skarin: Kanban y *Scrum. Obteniendo lo mejor de ambos.*. C4Media, editor de InfoQ.com, 2010. ISBN: 978-0-557-13832-6

K. Beck: *Extreme Programming explained. Second edition*. Addison Wesley, 2005. ISBN: 0-321-27865-8.

Pete Deemer; Gabrielle Benefield; Craig Larman; Bas Vodde. *The Scrum Primer. A Lightweight Guide to the Theory and PracBce of Scrum*. 2012

During the course more materials will be delivered.