VNIVERSITAT ID VALÈNCIA

COURSE DATA

Data Subject	
Code	44834
Name	Software Production Methods
Cycle	Master's degree
ECTS Credits	4.0
Academic year	2018 - 2019

Study (s)			
Degree	**Center**	**Acad. year**	**Period**
2234 - M.D. in Web Technology, Cloud Computing and Mobile Apps	School of Engineering	1	First term

Subject-matter		
Degree	**Subject-matter**	**Character**
2234 - M.D. in Web Technology, Cloud Computing and Mobile Apps	5 - Production of software, security and profession	Obligatory

Coordination	
Name	**Department**
PANACH NAVARRETE, JOSE IGNACIO	240 - Computer Science

SUMMARY

The software development involves the use of different methodologies throughout the whole development circle. Int this subjects we will tackle the most used methods in each step of the software development process. First, we will see methods to manage projects. The project management is composed of several items: the customer that needs a software product, the workers who participate in a project, the delivery dates, the requirements to satisfy, the resources, etc. Some of these items involve limitations and restrictions for the project, for example, legal rules, budget restrictions, staff restrictions, etc. The subject is oriented to teach the knowledge to combine all these items successfully. Moreover, the subject aims to show how to prevent risks in order to avoid them.

In second term we will tackle method to test the software to assess the quality of the system. The subject includes concepts and basics tasks that compose the testing step in the circle development process. The goal of the tests is to define a test case suite with high probabilities to find mistakes in the code. We will see testing techniques related both with functional requirements and with non-functional requirements.

In third term we will tackle methods to analyze and design software. Web Engineering is the part of the Software Engineering that gathers and proposes development models specific for the area: incremental implementation, continuous and frequent changes, development stages very short. The subject will also tackle design patterns used in the development of Web sites and good practices

The work for the students in this subject aims to be as practical as possible. Theoretical concepts will be applied to solve practical problems. To solve these problems, the students will use tools for project management widely used in the industry.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

Knowledge of the tasks that compose a software development cycle
Knowledge of techniques to capture requirements
Basic knowledge of management
Basic knowledge of Java
Knowledge of UML
Basic knowledge to prepare budgets

OUTCOMES

2234 - M.D. in Web Technology, Cloud Computing and Mobile Apps

- Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.

- Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.

- Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.

- Students should demonstrate self-directed learning skills for continued academic growth.

- Students should possess and understand foundational knowledge that enables original thinking and research in the field.

- Ability to apply acquired knowledge and solve problems in new or little-known environments within broader and multidisciplinary contexts, being able to integrate this knowledge.

- Capacity for the elaboration, planning, direction, coordination, technical and economic management and the implantation of Web projects.

- Ability to understand and apply ethical responsibility, legislation and professional ethics in the professional practice.

- To foster, in academic and professional contexts, technological, social or cultural advancement within a society based on In knowledge and respect for: a) fundamental rights and equal opportunities between men and women; b) principles of equal opportunities and universal accessibility of persons with disabilities; and, c) the values of a culture of peace and democratic values.

- Ability to apply Software Engineering methodologies in the development and management of a project.

LEARNING OUTCOMES

- To specify and complete informative tasks that re complex, defined incompletely or not familiar.

- To describe and explain techniques and method applicable to her/his particular field of study and to identify her/his limitations.

- To organize the own work independently, showing initiative and exercising personal responsibility.

- To conduct bibliographic searches and reviews using data bases and other information sources.

- To learn and improve the personal capacity as the basis for learning throughout the life and the professional development.

- To communicate effectively both verbally and through other communication media preferably in a second language.

- To appreciate required abilities to work and to lead a team that can be composed of different disciplines and different levels of qualification.

- To control techniques and tools to define, manage and estimate resources and project costs.

- To plan and to follow activities involved in a project.

- To know challenges in the management of human resources that involves a project and to know applicable approaches.

- To apply methodologies to develop, implement and maintain a system.

- To plan and to conduct processes to develop iterative software successfully.

- To apply design patterns in each situation according to the needs of the project.

- To apply the modular structure of a system using and evaluating design patterns oriented to the solution of a problem, assessing the advantages, disadvantages and alternatives.

- To define validity tests and to verify requirements to test applications in a systematic way defining exhaustive test cases.

DESCRIPTION OF CONTENTS

1. Project planning and risk management

Range of a project
Structure and task diagram
Evaluation of task length
Establish dependency among tasks
Assign resources to tasks
ISO 9000
Identification of risks
Evaluation of risks
Management skills
Types of contracts

2. Time management and tasks

Identification of the critical path and the critical string
PERT tehcnique
Optimization of time/cost
Limitations of the Exchange time/cost

3. Projects evaluation

Function points
Cosmic
Expert judgemenet

4. Cost management

Measurement of the progress and curve S
Measurement of the Project activities

5. Tools of testing, collaborative and continuous integration

Unitary testing: JUnit
ANT
Unitary tasks in isolation:JMock
Data base testing: DBUnit

6. Agile methodologies

Web engineering components.
WebE Framework
Web modelling

7. Design considerations and good practices

Design considerations for presentation layer
Bad practices for the presentation layer
Considerations of design for the business layer
Bad practices for the business and integration layers

8. Design patterns for the different layers

Patterns in the presentation layer
Patterns in the business layer
Patterns in the integration layer

WORKLOAD

ACTIVITY	Hours	% To be attended
Theoretical and practical classes	40,00	100
Development of group work	6,00	0
Study and independent work	35,00	0
Preparation of practical classes and problem	16,00	0
Resolution of online questionnaires	3,00	0
TOTAL	100,00	

TEACHING METHODOLOGY

- Theory class
- Problem resolution
- Project-oriented learning

EVALUATION

The learning results are evaluated through the following criteria:

SE1: Continuous evaluation of the student based on the participation and the degree of implication in the process of teaching-learning, taking into account the class assistance and the resolution of the proposed problems. This mark can only be obtained in the first call, being constant for the second one.

SE2: Evaluation of the problems proposed in class hours. The students can submit these problems in both calls. The submission in the first call will be done continuously through all the lessons. The teacher will establish the submission periods. The submission in the second call will be including all the problems all together. The teacher will also establish the period for this submission.

SE6: Evaluation of the project to develop incrementally throughout the lessons. The project can be submitted in both calls in a unique period established by the teacher

SE4: Public exhibition of the project. The exhibition can be done in both calls only if the project has been submitted in the period established by the teacher.

The final mark is calculated as follows:

Final mark=SE1*0,1+SE2*0,3+SE6*0,4+SE4*0,2

If SE2, SE6 or SE4 get the mark of "Non-Presented", the final mark of the subject will be "Non-Presented".

If SE2 and SE6 is different to "Non-Presented" and the mark of SE2 or SE6 is less than 5, the final mark will be calculated as:

Final mark= Minimum(4,SE2, SE6)

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The system of qualifications is explained in the next URL :

http://www.uv.es/uvweb/universidad/es/estudios-postgrado/informacion-administrativa-postgrado/permanencia-calificaciones/calificaciones-1285897761928.html

Rules can be found in the nest URL:

http://www.uv.es/uvweb/universidad/es/estudios-grado/informacion-academica-administrativa/normativas/normativas-universidad-valencia-1285850677111.html

REFERENCES

Basic

- Cuadernos de Ingeniería de Proyectos III: Dirección, Gestión y Organización de Proyectos. Salvador Capuz, Eliseo Gómez, Álvaro Torrealba et al. Servicio de la publicaciones de la Universidad Politécnica de Valencia, 2000.
- El Arte de Dirigir Proyectos. Ángel Díaz, 3ª Edición. Editorial RA-MA, 2010
- Gestión Integral de Proyectos. Luis Guerra, Adriano Coronel, Luis Martínez de Irujo, et al. Editorial FC, 2002
- COSMIC Function Points: Theory and Advanced Practices, Reiner Dumke, Alain Abran, 2011.
- Pruebas de Software y JUnit. Daniel Bolaños, Almudena Sierra, Miren Alarcón, Editorial Pearson Prentice-Hall, 2007
- Core J2EE patterns: best practices and design strategies. Deepak Alur, John Crupi, Dan Malks, Boston, MA : ProQuest Information and Learning Company, 2003
- Java Extreme Programming cookbook. Eric M. Burke and Brian M. Coyner, Beijing; Sebastopol, CA : O'Reilly, 2003
- Extreme programming explained: embrace change. Kent Beck with Cynthia Andres, Boston, MA :Addison-Wesley, 2005

Additional

- Dirección y Gestión de Proyectos. Alberto Domingo. RA-MA. 2000
- Desarrollo y Gestión de proyectos Informáticos. Steve McConnell, Editorial McGraw-Hill, 1997.

- Microsoft Project 2000. Paso a Paso, Carl S. Chatfield, Timothy D. Johnson, Editorial McGraw-Hill, 2000

- Microsoft Project para Dummies, Nancy Stevenson, Editorial WILEY, 2004

- Professional Java tools for extreme programming: Ant, Xdoclet, JUnit, Cactus, and Maven. Richard Hightower et al. Indianapolis, IN : Wiley, 2004

- Sams teach yourself extreme programming in 24 hours. Stewart Baird, Indianapolis, IN : Sams, 2003

- TortoiseSVN 1.7: beginner's guide. Lesley Harrison, Birmingham, U.K. : Packt Pub., 2011