Course guide
270084 - GPS - Software Project Management

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Unit in charge: Barcelona School of Informatics
Teaching unit: 747 - ESSI - Department of Service and Information System Engineering.

Degree: BACHELOR'S DEGREE IN INFORMATICS ENGINEERING (Syllabus 2010). (Optional subject).

Academic year: 2023 **ECTS Credits:** 6.0 **Languages:** Catalan

LECTURER

Coordinating lecturer: MARIA DOLORS COSTAL COSTA

Others:

Primer quadrimestre:
MARIA DOLORS COSTAL COSTA - 12, 22
RAIMON LAPUENTE FERRAN - 11, 12, 13
MANUEL RELLO SALTOR - 11, 12, 13
ALBERT RENOM VILARO - 21, 22

Segon quadrimestre:
MARIA DOLORS COSTAL COSTA - 11, 12, 13
ALBERT RENOM VILARO - 11, 12, 13
MAX ROS I MOREJON - 13

PRIOR SKILLS

Knowledge of programming and software engineering fundamentals.

REQUIREMENTS

- Prerequisite EEE
- Prerequisite IES

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CES1.3. To identify, evaluate and manage potential risks related to software building which could arise.
CES1.7. To control the quality and design tests in the software production
CES2.1. To define and manage the requirements of a software system.
CES2.2. To design adequate solutions in one or more application domains, using software engineering methods which integrate ethical, social, legal and economical aspects.
CT2.1. To demonstrate knowledge and capacity to apply the principles, methodologies and life cycles of software engineering.
CT2.3. To design, develop, select and evaluate computer applications, systems and services and, at the same time, ensure its reliability, security and quality in function of ethical principles and the current legislation and normative.
CT8.1. To identify current and emerging technologies and evaluate if they are applicable, to satisfy the users needs.
CT8.2. To assume the roles and functions of the project manager and apply, in the organizations field, the techniques for managing the timing, cost, financial aspects, human resources and risk.
CT8.6. To demonstrate the comprehension of the importance of the negotiation, effective working habits, leadership and communication skills in all the software development environments.
CT8.7. To control project versions and configurations.

Generical:
G1. ENTREPRENEURSHIP AND INNOVATION: to know and understand the organization of a company and the sciences which govern its activity; capacity to understand the labour rules and the relation between planning, industrial and business strategies, quality and benefit. To develop creativity, entrepreneur spirit and innovation tendency.
G2. SUSTAINABILITY AND SOCIAL COMPROMISE: to know and understand the complexity of the economic and social phenomena typical of the welfare society. To be capable of analyse and evaluate the social and environmental impact.

TEACHING METHODOLOGY

Theory classes:
* The teacher will present the contents of the course, using audiovisual material (slides and videos) to complement the explanation.
* Teachers will discuss with students about issues raised in previous classes and readings proposed.

Lab classes.
Work with project-based learning in projects that will be simulations of real activities and interpretation of roles.

LEARNING OBJECTIVES OF THE SUBJECT

1.Overview: Have an overview of what Software Projects are, and what are the complexities associated with their management.
2.Types of projects: Knowing the different types of software projects, what are their characteristics, advantages and disadvantages associated. Have criteria to identify what type of project is going to be managed.
3.Factors: Knowing what factors affect the cost structure in a Software Project. Knowing what are the risk factors and the viability of a project. Being able to produce a budget.
4.Estimation: Being able to estimate the resources required to perform an activity belonging to the software development process.
5.Plan: Being able to develop the plan of a Software Project.
6.Priorization: Being able to prioritize the requirements of a Software Project in order to maximize the value they provide to its stakeholders.
7.Methods: Understand different methods of Software Project management. Knowing their advantages and disadvantages. Have criteria for selecting a method based on the project type, equipment and other contextual factors.
8.Management: Being able to perform the management and monitoring of a Software Project.
9.Project leader: Understand the role of a project leader as a human team leader and the different ways to manage teams.
10.Quality: Knowing what are the models of quality management in Software Project management, their applicability and in which cases are relevant.
11.Testing: Being able to design and implement a strategy of testing a Software Project.
12.Tools: Knowing and using software tools to support Software Project management
14.Social and environmental aspects: Being able to consider the social and environmental aspects in Software Projects.

STUDY LOAD

Type	Hours	Percentage
Hours small group	30,0	20.00
Self study	84,0	56.00
Hours large group	30,0	20.00
Guided activities	6,0	4.00

Total learning time: 150 h

CONTENTS

Introduction to Software Projects

Description:
Introduces the problem of managing projects, stakeholders, the complexities associated and the tasks involved; the project context, project types, project life cycle, software construction activities (management, requirements, analysis, software building, testing, quality, maintenance, reengineering), etc.

Classic Software Project management

Description:
The activities, roles and methodologies of classic Software Project management are explained. These are based on developing a predictive project plan that will guide the software development process. Rational Unified Process will be used as an example of such a methodology.

Agile Software Project management

Description:
The agile approach to Software Project management is explained. It is based on the Manifesto for Agile Software Development, that proposes an adaptive approach focused on value contributed to the project stakeholders and people involved in it. Scrum, XP and Kanban are used as examples of agile methodologies.

Other Software Project contexts

Description:
There are contexts that are quite specific and require particular considerations and techniques. We will discuss the following cases: open source; start-ups (lean); call for tenders; outsourcing and offshoring.

ACTIVITIES

Study of Introduction to Software Projects

Description:
The student will participate in the classroom raising questions, giving opinions and discussing the topics proposed for discussion

Specific objectives:
1

Full-or-part-time: 6h
Theory classes: 4h
Self study: 2h

Study of classic Software Project management

Description:
The student will participate in the classroom raising questions, giving opinions and discussing the topics proposed for discussion

Specific objectives:
3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14

Related competencies :
G2. SUSTAINABILITY AND SOCIAL COMPROMISE: to know and understand the complexity of the economic and social phenomena typical of the welfare society. To be capable of analyse and evaluate the social and environmental impact.
G1. ENTREPRENEURSHIP AND INNOVATION: to know and understand the organization of a company and the sciences which govern its activity; capacity to understand the labour rules and the relation between planning, industrial and business strategies, quality and benefit. To develop creativity, entrepreneur spirit and innovation tendency.

Full-or-part-time: 15h
Theory classes: 10h
Self study: 5h

Study of agile Project management

Description:
The student will participate in the classroom raising questions, giving opinions and discussing the topics proposed for discussion

Specific objectives:
3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14

Related competencies :
G2. SUSTAINABILITY AND SOCIAL COMPROMISE: to know and understand the complexity of the economic and social phenomena typical of the welfare society. To be capable of analyse and evaluate the social and environmental impact.
G1. ENTREPRENEURSHIP AND INNOVATION: to know and understand the organization of a company and the sciences which govern its activity; capacity to understand the labour rules and the relation between planning, industrial and business strategies, quality and benefit. To develop creativity, entrepreneur spirit and innovation tendency.

Full-or-part-time: 18h
Theory classes: 12h
Self study: 6h

Study of other Software Project contexts

Description:
The student will participate in the classroom raising questions, giving opinions and discussing the topics proposed for discussion

Specific objectives:
3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14

Related competencies :
G2. SUSTAINABILITY AND SOCIAL COMPROMISE: to know and understand the complexity of the economic and social phenomena typical of the welfare society. To be capable of analyse and evaluate the social and environmental impact.
G1. ENTREPRENEURSHIP AND INNOVATION: to know and understand the organization of a company and the sciences which govern its activity; capacity to understand the labour rules and the relation between planning, industrial and business strategies, quality and benefit. To develop creativity, entrepreneur spirit and innovation tendency.

Full-or-part-time: 5h
Theory classes: 3h
Self study: 2h

Project of classic Software Project management

Description:
The student will form a team (4-5 students). The student will carry out the project with the other team members and will deliver it to the teacher.

Specific objectives:
3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14

Related competencies :
G2. SUSTAINABILITY AND SOCIAL COMPROMISE: to know and understand the complexity of the economic and social phenomena typical of the welfare society. To be capable of analyse and evaluate the social and environmental impact.
G1. ENTREPRENEURSHIP AND INNOVATION: to know and understand the organization of a company and the sciences which govern its activity; capacity to understand the labour rules and the relation between planning, industrial and business strategies, quality and benefit. To develop creativity, entrepreneur spirit and innovation tendency.

Full-or-part-time: 48h
Laboratory classes: 14h
Self study: 34h

Project of agile Software Project management

Description:
The student will carry out the project with the other team members and will deliver it to the teacher.

Specific objectives:
3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14

Related competencies :
G2. SUSTAINABILITY AND SOCIAL COMPROMISE: to know and understand the complexity of the economic and social phenomena typical of the welfare society. To be capable of analyse and evaluate the social and environmental impact.
G1. ENTREPRENEURSHIP AND INNOVATION: to know and understand the organization of a company and the sciences which govern its activity; capacity to understand the labour rules and the relation between planning, industrial and business strategies, quality and benefit. To develop creativity, entrepreneur spirit and innovation tendency.

Full-or-part-time: 51h
Laboratory classes: 16h
Self study: 35h

Delivery of the project on classic Software Project management

Description:
The team of students deliver the project at due time. The teacher evaluates it according to the established criteria.

Specific objectives:
3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14

Related competencies :
G2. SUSTAINABILITY AND SOCIAL COMPROMISE: to know and understand the complexity of the economic and social phenomena typical of the welfare society. To be capable of analyse and evaluate the social and environmental impact.
G1. ENTREPRENEURSHIP AND INNOVATION: to know and understand the organization of a company and the sciences which govern its activity; capacity to understand the labour rules and the relation between planning, industrial and business strategies, quality and benefit. To develop creativity, entrepreneur spirit and innovation tendency.

Delivery of the project on agile Software Project management

Description:
The team of students deliver the project at due time. The teacher evaluates it according to the established criteria.

Specific objectives:
3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14

Related competencies :
G2. SUSTAINABILITY AND SOCIAL COMPROMISE: to know and understand the complexity of the economic and social phenomena typical of the welfare society. To be capable of analyse and evaluate the social and environmental impact.
G1. ENTREPRENEURSHIP AND INNOVATION: to know and understand the organization of a company and the sciences which govern its activity; capacity to understand the labour rules and the relation between planning, industrial and business strategies, quality and benefit. To develop creativity, entrepreneur spirit and innovation tendency.

Course exam

Description:
Exam in the last course's hour with the aim of validating the knowledge taught along the course

Specific objectives:
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14

Related competencies :
G2. SUSTAINABILITY AND SOCIAL COMPROMISE: to know and understand the complexity of the economic and social phenomena typical of the welfare society. To be capable of analyse and evaluate the social and environmental impact.
G1. ENTREPRENEURSHIP AND INNOVATION: to know and understand the organization of a company and the sciences which govern its activity; capacity to understand the labour rules and the relation between planning, industrial and business strategies, quality and benefit. To develop creativity, entrepreneur spirit and innovation tendency.

Full-or-part-time: 7h
Guided activities: 1h
Self study: 6h

GRADING SYSTEM

TO-DO

BIBLIOGRAPHY

Basic:
- Pressman, R.S.; Maxim, B.R. Software engineering: a practitioner's approach. 9th ed. New York: McGraw Hill Higher Education, 2020. ISBN 9781260548006.
- Kruchten, P. The rational unified process: an introduction. 3rd ed. Addison-Wesley, 2007. ISBN 0321197704.
- Rasmusson, J. The Agile samurai: how agile masters deliver great software. The Pragmatic Bookshelf, 2010. ISBN 9781934356586.
- Cohn, M. Agile estimating and planning. Prentice Hall Professional Technical Reference, 2006. ISBN 0131479415.

Complementary:
- Cohn, M. User stories applied: for agile software development. Addison-Wesley, 2004. ISBN 9780321205681.
- Diapositives de GPS.

RESOURCES

Hyperlink:
- https://www.scrum.org/scrum-guide- http://agilemanifesto.org