



POLITÉCNICA

INTERNATIONAL
CAMPUS OF
EXCELLENCE

COORDINATION PROCESS OF
LEARNING ACTIVITIES
PR/CL/001



E.T.S. de Ingenieros
Informaticos

ANX-PR/CL/001-01

LEARNING GUIDE

SUBJECT

103000379 - Experimentation in software engineering

DEGREE PROGRAMME

10AK - Master Universitario en Software y Sistemas

ACADEMIC YEAR & SEMESTER

2017/18 - Semester 2

Index

Learning guide

1. Description.....	1
2. Faculty.....	1
3. Prior knowledge recommended to take the subject.....	2
4. Skills and learning outcomes	2
5. Brief description of the subject and syllabus.....	3
6. Schedule.....	5
7. Activities and assessment criteria.....	7
8. Teaching resources.....	8

1. Description

1.1. Subject details

Name of the subject	103000379 - Experimentation in software engineering
No of credits	4 ECTS
Type	Optional
Academic year of the programme	First year
Semester of tuition	Semester 2
Tuition period	February-June
Tuition languages	English
Degree programme	10AK - Master Universitario en Software y Sistemas
Centre	Escuela Tecnica Superior de Ingenieros Informaticos
Academic year	2017-18

2. Faculty

2.1. Faculty members with subject teaching role

Name and surname	Office/Room	Email	Tutoring hours *
Natalia Juristo Juzgado	D-5104	natalia.juristo@upm.es	Sin horario.
Sira Vegas Hernandez (Subject coordinator)	D-5105	sira.vegas@upm.es	Tu - 14:00 - 17:00 Th - 12:00 - 15:00

* The tutoring schedule is indicative and subject to possible changes. Please check tutoring times with the faculty member in charge.

3. Prior knowledge recommended to take the subject

3.1. Recommended (passed) subjects

El plan de estudios Master Universitario en Software y Sistemas no tiene definidas asignaturas previas recomendadas para esta asignatura.

3.2. Other recommended learning outcomes

- Conocimientos básicos de estadística.

4. Skills and learning outcomes *

4.1. Skills to be learned

CEM1 - Identificar, a partir del estado de la cuestión, la presencia de problemas de investigación relacionados con la concepción, la construcción, el uso y la evaluación de sistemas sociotécnicos complejos que hagan un uso intensivo de software

4.2. Learning outcomes

RA23 - Comprender la aplicación del paradigma experimental en ingeniería del software

RA24 - Diseñar experimentos en ingeniería del software, incluyendo replicas experimentales

* The Learning Guides should reflect the Skills and Learning Outcomes in the same way as indicated in the Degree Verification Memory. For this reason, they have not been translated into English and appear in Spanish.

5. Brief description of the subject and syllabus

5.1. Brief description of the subject

No hay descripción de la asignatura.

5.2. Syllabus

1. Introduction to Experimental Software Engineering
 - 1.1. Basics of experimentalism
 - 1.2. The scientific method
 - 1.3. Scientific rules: cause-effect relationships
 - 1.4. Scientific immaturity of software engineering
2. Laboratory and Experiment
 - 2.1. The concept of laboratory
 - 2.2. The concept of experiment
 - 2.3. A lab for software engineering
 - 2.4. An experiment for software engineering
3. Elements of an Experiment
 - 3.1. Response variables
 - 3.2. Factors and levels
 - 3.3. Types of empirical studies
4. Designing Experiments
 - 4.1. Types of variables
 - 4.2. Types of control
 - 4.3. Validity
5. Data Analysis
 - 5.1. Basics of inferential statistics
 - 5.2. Parametric tests for independent samples
 - 5.3. Parametric tests for related samples

5.4. Non parametric tests

6. Schedule

6.1. Subject schedule*

Week	Face-to-face classroom activities	Face-to-face laboratory activities	Other face-to-face activities	Assessment activities
1	Lecture: Chapter 1 Duration: 04:00 Lecture			
2	Lecture: Chapter 2 Duration: 02:00 Lecture Problem-solving activity: Chapter 3 Duration: 02:00 Problem-solving class			
3	Lecture: Chapter 3 Duration: 01:00 Lecture Problem-solving activity: Chapter 3 Duration: 01:00 Problem-solving class	Lecture: Chapter 5 Duration: 02:00 Laboratory assignments		
4	Lecture: Chapter 4 Duration: 02:00 Lecture Problem-solving activity: Chapter 4 Duration: 02:00 Problem-solving class			
5	Brainstorming and group discussion of assignment 1 Duration: 02:00 Problem-solving class	Lecture: Chapter 5 Duration: 02:00 Laboratory assignments		
6	Brainstorming and group discussion of assignment 1 Duration: 02:00 Problem-solving class	Lecture: Chapter 5 Duration: 02:00 Laboratory assignments		
7				
8		Lecture: Chapter 5 Duration: 04:00 Laboratory assignments		
9				Presentation of assignments 1-3 Group presentation Continuous assessment Duration: 04:00
10				

11				
12				
13				
14				
15				
16				
17				Examen final Written test Final examination Duration: 04:00

The independent study hours are training activities during which students should spend time on individual study or individual assignments.

Depending on the programme study plan, total values will be calculated according to the ECTS credit unit as 26/27 hours of student face-to-face contact and independent study time.

* The subject schedule is based on a previous theoretical planning of the subject plan and might go through experience some unexpected changes along throughout the academic year.

7. Activities and assessment criteria

7.1. Assessment activities

7.1.1. Continuous assessment

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
9	Presentation of assignments 1-3	Group presentation	Face-to-face	04:00	100%	5 / 10	CEM1

7.1.2. Final examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
17	Examen final	Written test	Face-to-face	04:00	100%	5 / 10	CEM1

7.1.3. Referred (re-sit) examination

No se ha definido la evaluación extraordinaria.

7.2. Assessment criteria

- Students will be evaluated using the assignments only. No examination will be made.
- The assessment of assignments will depend on (1) presentation made by the students and (2) the correctness of the results
- The final grade will be calculated using a weighted average as described before.

8. Teaching resources

8.1. Teaching resources for the subject

Name	Type	Notes
Natalia Juristo, Ana Moreno. Basics of software engineering experimentation. Kluwer 2001	Bibliography	
Claes Wohlin et al. Experimentation in software engineering: an introduction. Kluwer 2000.	Bibliography	
Course Moodle site	Web resource	www.moodle.upm.es
Laboratory	Equipment	TBD
Room	Equipment	MUIS room