



POLITÉCNICA

INTERNATIONAL
CAMPUS OF
EXCELLENCE

COORDINATION PROCESS OF
LEARNING ACTIVITIES
PR/CL/001



E.T.S. de Ingenieros
Informáticos

ANX-PR/CL/001-01

LEARNING GUIDE

SUBJECT

103000547 - Software engineering economics

DEGREE PROGRAMME

10AM - Master Universitario en Ingeniería del Software

ACADEMIC YEAR & SEMESTER

2017/18 - Semester 1

Index

Learning guide

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

1. Description

1.1. Subject details

Name of the subject	103000547 - Software engineering economics
No of credits	6 ECTS
Type	Optional
Academic year of the programme	First year
Semester of tuition	Semester 1
Tuition period	September-January
Tuition languages	English
Degree programme	10AM - Master Universitario en Ingeniería del Software
Centre	Escuela Técnica Superior de Ingenieros Informáticos
Academic year	2017-18

2. Faculty

2.1. Faculty members with subject teaching role

Name and surname	Office/Room	Email	Tutoring hours *
June Amillo Gil (Subject coordinator)	1317	june.amillo@upm.es	M - 16:00 - 17:00 or By appointment

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

3. Skills and learning outcomes *

3.1. Skills to be learned

CG5 - Organización y planificación

3.2. Learning outcomes

RA58 - Development of a business case for a software project

* 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.

4. Brief description of the subject and syllabus

4.1. Brief description of the subject

4.2. Syllabus

1. The Time Value of Money
 - 1.1. Compounding and discounting
 - 1.2. Nominal and effective interest rates
 - 1.3. Composite cash flows
 - 1.4. Bond and stock valuation
2. Value based decision making
 - 2.1. Project analysis and figures of merit
 - 2.2. Net present value
 - 2.3. Mutually exclusive alternatives
 - 2.4. Equivalent annual value
 - 2.5. IRR and incremental analysis
 - 2.6. ROI and Benefit/Cost analysis

3. Generating a project cash flow
 - 3.1. What to discount
 - 3.2. Equity cash flow
 - 3.3. Cash flows and inflation
 - 3.4. Effects of Depreciation and Taxes
 - 3.5. Free cash flow and the cost of capital
 - 3.6. Review case study
4. Project Financing
 - 4.1. Equity Financing
 - 4.2. Debt and Equity Financing
 - 4.3. Adjusted Present Value
 - 4.4. The CAP Model and The Cost of Equity
 - 4.5. Estimating the Cost of Equity
 - 4.6. The Cost of Capital
5. Assessing Project Risk
 - 5.1. Scenario Analysis
 - 5.2. Sensitivity Analysis
 - 5.3. Break-even Analysis
6. Understanding Financial Statements
 - 6.1. The Three Basic Financial Statements
 - 6.2. Using Ratios to Make Business Decisions

5. Schedule

5.1. Subject schedule*

Week	Face-to-face classroom activities	Face-to-face laboratory activities	Other face-to-face activities	Assessment activities
1	Chapter 1 Duration: 02:00 Lecture	Case study Duration: 02:00 Laboratory assignments		
2	Chapter 1 Duration: 02:00 Lecture	Case study Duration: 02:00 Laboratory assignments		
3	Chapter 1 Duration: 02:00 Lecture	Case study Duration: 02:00 Laboratory assignments		
4	Chapter 2 Duration: 02:00 Lecture	Case study Duration: 02:00 Laboratory assignments		Assessment Problem-solving test Continuous assessment and final examination Duration: 02:00
5	Chapter 2 Duration: 02:00 Lecture	Case study Duration: 02:00 Laboratory assignments		
6	Chapter 2 Duration: 02:00 Lecture	Case study Duration: 02:00 Laboratory assignments		
7	Chapter 2 Duration: 02:00 Lecture	Case study Duration: 02:00 Laboratory assignments		
8	Chapter 3 Duration: 02:00 Lecture	Case study Duration: 02:00 Laboratory assignments		Assessment Problem-solving test Continuous assessment and final examination Duration: 02:00
9	Chapter 3 Duration: 02:00 Lecture	Case study Duration: 02:00 Laboratory assignments		
10	Chapter 3 Duration: 02:00 Lecture	Case study Duration: 02:00 Laboratory assignments		
11	Chapter 4 Duration: 02:00 Lecture	Case study Duration: 02:00 Laboratory assignments		
12	Chapter 4 Duration: 02:00 Lecture	Case study Duration: 02:00 Laboratory assignments		Assessment Problem-solving test Continuous assessment and final examination Duration: 02:00

13	Chapter 4 Duration: 02:00 Lecture	Case study Duration: 02:00 Laboratory assignments		
14	Chapter 5 Duration: 02:00 Lecture	Case study Duration: 02:00 Laboratory assignments		
15	Chapter 5 Duration: 02:00 Lecture	Case study Duration: 02:00 Laboratory assignments		
16	Chapter 6 Duration: 02:00 Lecture	Case study Duration: 02:00 Laboratory assignments		Assessment Problem-solving test Continuous assessment and final examination Duration: 02:00
17				

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.

6. Activities and assessment criteria

6.1. Assessment activities

6.1.1. Continuous assessment

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
4	Assessment	Problem-solving test	Face-to-face	02:00	25%	0 / 10	CG5
8	Assessment	Problem-solving test	Face-to-face	02:00	25%	0 / 10	CG5
12	Assessment	Problem-solving test	Face-to-face	02:00	25%	0 / 10	CG5
16	Assessment	Problem-solving test	Face-to-face	02:00	25%	0 / 10	CG5

6.1.2. Final examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
4	Assessment	Problem-solving test	Face-to-face	02:00	25%	0 / 10	CG5
8	Assessment	Problem-solving test	Face-to-face	02:00	25%	0 / 10	CG5
12	Assessment	Problem-solving test	Face-to-face	02:00	25%	0 / 10	CG5
16	Assessment	Problem-solving test	Face-to-face	02:00	25%	0 / 10	CG5

6.1.3. Referred (re-sit) examination

No se ha definido la evaluación extraordinaria.

6.2. Assessment criteria

First assessment 25%second assessment 25%Final assessment 50%

7. Teaching resources

7.1. Teaching resources for the subject

Name	Type	Notes
Tockey, Steve. Return on Software. Addison-Wesley, 2005.	Bibliography	