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E.T.S. de Ingenieros
Informaticos

ANX-PR/CL/001-01

LEARNING GUIDE

SUBJECT

103000380 - Management Strategies And Non-classical Software Development Methodologies

DEGREE PROGRAMME

10AK - Master Universitario En Software Y Sistemas

ACADEMIC YEAR & SEMESTER

2024/25 - Semester 1

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1. Description

1.1. Subject details

Name of the subject	103000380 - Management Strategies And Non-Classical Software Development Methodologies
No of credits	4 ECTS
Type	Optional
Academic year of the programme	First year
Semester of tuition	Semester 1
Tuition period	September-January
Tuition languages	English
Degree programme	10AK - Master Universitario en Software y Sistemas
Centre	10 - Escuela Tecnica Superior De Ingenieros Informaticos
Academic year	2024-25

2. Faculty

2.1. Faculty members with subject teaching role

Name and surname	Office/Room	Email	Tutoring hours *
Ana Maria Moreno Sanchez-Capuchino (Subject coordinator)	5102	anamaria.moreno@upm.es	M - 15:00 - 21:00
Jose Antonio Calvo-Manzano Villalon	D5103	joseantonio.calvomanzano@upm.es	Tu - 10:00 - 13:00 W - 10:00 - 13:00

* 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

CEM3 - Aplicar métodos de investigación relevantes a problemas abiertos en el área de la Ingeniería del Software, relacionados tanto con las características peculiares del producto software como con la gestión del desarrollo del mismo

CEM4 - Analizar y evaluar los diferentes paradigmas y enfoques de ingeniería de construcción y gestión de sistemas basados en software.

CG12 - Comprensión amplia de las técnicas y métodos aplicables en una especialización concreta, así como de sus límites

CG13 - Apreciación de los límites del conocimiento actual y de la aplicación práctica de la tecnología más reciente.

CG14 - Conocimiento y comprensión de la informática necesaria para la creación de modelos de información, y de los sistemas y procesos complejos

CG17 - Habilidades de gestión y capacidad de liderar un equipo que puede estar integrado por disciplinas y niveles distintos.

CG4 - Que los estudiantes posean las habilidades de aprendizaje que les permitan continuar estudiando de un modo que habrá de ser en gran medida autodirigido o autónomo.

CG7 - Especificación y realización de tareas informáticas complejas, poco definidas o no familiares

CG8 - Planteamiento y resolución de problemas también en áreas nuevas y emergentes de su disciplina

CG9 - Aplicación de los métodos de resolución de problemas más recientes o innovadores y que puedan implicar el uso de otras disciplinas

CGI20 - Adquirir conocimientos científicos avanzados del campo de la informática que le permitan generar nuevas ideas dentro de una línea de investigación.

CGI23 - Capacidad de leer y comprender publicaciones dentro de su ámbito de estudio/investigación, así como su catalogación y valor científico

3.2. Learning outcomes

RA30 - Analizar investigaciones pioneras que pretendan cubrir debilidades en las actividades de requisitos y diseño de proyectos llevados a cabo con metodologías no clásicas

RA27 - Identificar debilidades en las actividades de estimación y planificación de proyectos llevados a cabo con metodologías no clásicas.

RA28 - Analizar investigaciones pioneras que pretendan cubrir debilidades en las actividades de estimación y planificación de proyectos llevados a cabo con metodologías no clásicas

RA29 - Identificar debilidades en las actividades de análisis y diseño de proyectos llevados a cabo con metodologías no clásicas.

* 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

This subjects provides an overview of the agile development process. We will review the main differences with traditional development and how agile practices can be used to solve some important lacks in classical methods.

We will pay special attention to agile usability as a new approximation to improve the user experience in agile developments

We will work in agile teams to build a software product according to the previous practices and methods.

4.2. Syllabus

1. Fundamentals of Agile Development
2. Agile Artifacts
3. Description of Agile Methods
4. Agile Usability - Lean UX
5. Agile UX Project

5. Schedule

5.1. Subject schedule*

Week	Type 1 activities	Type 2 activities	Distant / On-line	Assessment activities
1	Unit 1. Agile Fundamentals Duration: 02:00 Cooperative activities			
2	Unit 2. Agile Artifacts Duration: 02:00 Cooperative activities			
3	Unit 3. Description of Agile Methods Duration: 02:00 Inverted classroom			
4	Unit 3. Description of Agile Methods Duration: 02:00 Inverted classroom			
5	Unit 3. Description of Agile Methods (Serious Game) Duration: 02:00 Gamification			
6	Unit 4. Agile Usability - Lean UX Duration: 02:00 Inverted classroom			
7	Unit 4. Agile Usability - Lean UX Duration: 02:00 Inverted classroom			
8	Unit 4. Agile Usability Duration: 02:00 Problem-solving class			
9	Unit 4. Agile Usability Duration: 02:00 Problem-solving class			
10	Unit 4. Agile Usability Duration: 02:00 Problem-solving class			
11	Unit 5. Agile UX Project Duration: 02:00 Cooperative activities			
12	Unit 5. Agile UX Project Duration: 02:00 Cooperative activities			Presentation of Project Group work Progressive assessment Presential Duration: 02:00
13	Unit 5. Agile UX Project Duration: 02:00 Cooperative activities			Presentation of Project Group work Progressive assessment Presential Duration: 02:00

14	Unit 5. Agile UX Project Duration: 02:00 Cooperative activities			Presentation of Project Group work Progressive assessment Presential Duration: 02:00
15	Unit 5. Agile UX Project Duration: 02:00 Cooperative activities			Presentation of Project Group work Progressive assessment Presential Duration: 02:00 Description of the Project Report Individual work Progressive assessment Not Presential Duration: 00:00 Active participation of students Other assessment Progressive assessment and Global Examination Presential Duration: 00:00
16	Seminar Duration: 02:00 Additional activities			
17				Description of the Project Report Individual presentation Global examination Not Presential Duration: 00:00 Presentation of Project Individual work Global examination Presential Duration: 02:00

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.

6. Activities and assessment criteria

6.1. Assessment activities

6.1.1. Assessment

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
12	Presentation of Project	Group work	Face-to-face	02:00	10%	0 / 10	CG4 CG7 CG8 CG9 CG12 CG13 CG14 CG17 CGI20 CEM3 CEM4
13	Presentation of Project	Group work	Face-to-face	02:00	10%	0 / 10	CG4 CG7 CG8 CG9 CG17 CGI20 CEM3 CEM4
14	Presentation of Project	Group work	Face-to-face	02:00	10%	0 / 10	CG4 CG7 CG8 CG9 CG12 CG13 CG14 CG17 CGI20 CEM3 CEM4
15	Presentation of Project	Group work	Face-to-face	02:00	10%	0 / 10	CG4 CG7 CG8 CG9 CG12 CG13 CG14 CG17 CGI20 CEM3

							CEM4
15	Description of the Project Report	Individual work	No Presential	00:00	50%	5 / 10	CG4 CG7 CG8 CG9 CG12 CG13 CG14 CG17 CGI20 CEM3 CEM4
15	Active participation of students	Other assessment	Face-to-face	00:00	10%	0 / 10	CG7 CG8 CG9 CG14 CG17 CEM3

6.1.2. Global examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
15	Active participation of students	Other assessment	Face-to-face	00:00	10%	0 / 10	CG7 CG8 CG9 CG14 CG17 CEM3
17	Description of the Project Report	Individual presentation	No Presential	00:00	50%	5 / 10	CG4 CG7 CG8 CG9 CG12 CG13 CG14 CG17 CGI20 CEM3 CEM4
17	Presentation of Project	Individual work	Face-to-face	02:00	40%	5 / 10	CG4 CG7 CG8 CG9 CG17 CGI20 CEM4

6.1.3. Referred (re-sit) examination

Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
Description of Project Report	Individual presentation	Face-to-face	00:30	90%	5 / 10	CG4 CG7 CG9 CG12 CG13 CG14 CG17 CGI20 CGI23 CEM4
Active Participation of Students	Other assessment	Face-to-face	00:00	10%	0 / 10	CG8 CG13 CG14 CGI20

6.2. Assessment criteria

During the progressive evaluation, the final grade of students will be calculated according to their performance in the project and their class participation.

- Active participation of students (10%)
- Content of report (50%)
- Presentations (10% each)

Students must get a minimum of 5 points in the assessment of the report in order to pass the matter.

Students must get a minimum of 5 points (over 10) as final grade in order to pass the matter.

During the global evaluation, the final grade of the students will be calculated according to their performance in the project and their class participation. If students have attended to the lecturers during the course, they will be evaluated accordingly in the "Active participation" activity. If not, their grade in the "Active participation" activity will be 0

- Active participation of students (10%)

- Content of report (50%)
- Presentation (40%)

Students must get a minimum of 5 points in the assessment of the report (content and presentation) in order to pass the matter.

Students must get a minimum of 5 points (over 10) as final grade in order to pass the matter.

During the extraordinary evaluation the final grade of the students will be calculated according to their performance in the project and their class participation. If students have attended to the lecturers during the course, they will be evaluated accordingly in the "Active participation" activity. If not, their grade in the "Active participation" activity will be 0

- Active participation of students (10%)
- Content of report (90%)

Students must get a minimum of 5 points in the assessment of the report (content and presentation) in order to pass the matter.

Students must get a minimum of 5 points (over 10) as final grade in order to pass the matter.

7. Teaching resources

7.1. Teaching resources for the subject

Name	Type	Notes
Bibliography Agile	Bibliography	A. Cockburn. Agile Software Development, Addison Wesley, 2002
Bibliography Scrum	Web resource	http://scrumtraininginstitute.com/library
Process Agility and Software Usability	Web resource	http://citeseer.ist.psu.edu/465732.html
Agile Ecosystems	Bibliography	J. Higsmith. Agile Software Development Ecosystems. Addison-Wesley, 2005

Lean UX. Designing great products with agile teams	Bibliography	Book by Lean UX authors
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