



INTERNATIONAL
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PR/CL/001



E.T.S. de Ingenieros
Informáticos

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

2021/22 - Semester 1

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Learning guide

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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 | 2021-22 |

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 |
| Tomas San Feliu Gilabert | D5105 | tomas.sanfeliu@upm.es | Tu - 10:00 - 14:00 Th - 10:00 - 14:00 |

* 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

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.

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.

* 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 | Face-to-face classroom activities | Face-to-face laboratory activities | Distant / On-line | Assessment activities |
|------|---|------------------------------------|--|--|
| 1 | Unit 1. Agile Fundamentals Duration: 02:00 Cooperative activities | | Unit 1. Agile Fundamentals Duration: 02:00 Cooperative activities | |
| 2 | Unit 2. Agile Artifacts Duration: 02:00 Cooperative activities | | Unit 2. Agile Artifacts Duration: 02:00 Cooperative activities | |
| 3 | Unit 3. Description of Agile Methods Duration: 02:00 Cooperative activities | | Unit 2. Agile Artifacts Duration: 02:00 Cooperative activities | |
| 4 | Unit 3. Description of Agile Methods (Serious Game) Duration: 02:00 Cooperative activities | | Serious Game Duration: 02:00 Cooperative activities | |
| 5 | Unit 3. Description of Agile Methods Duration: 02:00 Cooperative activities | | Unit 3. Description of Agile Methods Duration: 02:00 Cooperative activities | |
| 6 | Unit 4. Agile Usability - Lean UX Duration: 02:00 Cooperative activities | | Unit 4. Agile Usability - Lean UX Duration: 02:00 Cooperative activities | |
| 7 | Unit 4. Agile Usability - Lean UX Duration: 02:00 Cooperative activities | | Unit 4. Agile Usability - Lean UX Duration: 02:00 Cooperative activities | |
| 8 | Unit 4. Agile Usability Duration: 02:00 Cooperative activities | | Unit 4. Agile Usability Duration: 02:00 Cooperative activities | |
| 9 | Unit 4. Agile Usability Duration: 02:00 Cooperative activities | | Unit 4. Agile Usability Duration: 02:00 Cooperative activities | |
| 10 | Unit 4. Agile Usability Duration: 02:00 Cooperative activities | | Unit 4. Agile Usability Duration: 02:00 Cooperative activities | |
| 11 | Unit 5. Agile UX Project Duration: 02:00 Cooperative activities | | Unit 5. Agile UX Project Duration: 02:00 Cooperative activities | |
| 12 | Unit 5. Agile UX Project Duration: 02:00 Cooperative activities | | Unit 5. Agile UX Project Duration: 02:00 Cooperative activities | Presentation of Project Group work Continuous assessment Presential Duration: 00:30 |
| 13 | Unit 5. Agile UX Project Duration: 02:00 Cooperative activities | | Unit 5. Agile UX Project Duration: 02:00 Cooperative activities | Presentation of Project Group work Continuous assessment Presential Duration: 00:30 |

| | | | | |
|----|---|--|---|---|
| 14 | Unit 5. Agile UX Project Duration: 02:00 Cooperative activities | | Unit 5. Agile UX Project Duration: 02:00 Cooperative activities | Presentation of Project Group work Continuous assessment Presential Duration: 00:30 |
| 15 | Unit 5. Agile UX Project Duration: 02:00 Cooperative activities | | Unit 5. Agile UX Project Duration: 02:00 Cooperative activities | Presentation of Project Individual presentation Final examination Presential Duration: 00:30 Presentation of Project Group work Continuous assessment Presential Duration: 00:30 |
| 16 | | | | Description of the Project Report Group work Continuous assessment and final examination Not Presential Duration: 00:00 Active Participation of Students Other assessment Continuous assessment and final examination Not Presential Duration: 00:00 |
| 17 | | | | |

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 schedule is based on an a priori planning of the subject; it might be modified during the academic year, especially considering the COVID19 evolution.

6. Activities and assessment criteria

6.1. Assessment activities

6.1.1. Continuous assessment

| Week | Description | Modality | Type | Duration | Weight | Minimum grade | Evaluated skills |
|------|-------------------------|------------|--------------|----------|--------|---------------|---|
| 12 | Presentation of Project | Group work | Face-to-face | 00:30 | 10% | 5 / 10 | CG4 CG8 CG9 CEM3 CG7 CG12 CG13 CG14 CG17 CGI20 CEM4 |
| 13 | Presentation of Project | Group work | Face-to-face | 00:30 | 10% | 5 / 10 | CG4 CG8 CG9 CEM3 CG7 CG12 CG13 CG14 CG17 CGI20 CEM4 |
| 14 | Presentation of Project | Group work | Face-to-face | 00:30 | 10% | 5 / 10 | CG4 CG8 CG9 CEM3 CG7 CG12 CG13 CG14 CG17 CGI20 CEM4 |

| | | | | | | | |
|----|-----------------------------------|------------------|---------------|-------|-----|--------|---|
| 15 | Presentation of Project | Group work | Face-to-face | 00:30 | 10% | 5 / 10 | CG4 CG8 CG9 CEM3 CG7 CG12 CG13 CG14 CG17 CGI20 CEM4 |
| 16 | Description of the Project Report | Group work | No Presential | 00:00 | 50% | 5 / 10 | CG4 CG8 CG9 CEM3 CG7 CG12 CG13 CG14 CG17 CGI20 CEM4 |
| 16 | Active Participation of Students | Other assessment | No Presential | 00:00 | 10% | 0 / 10 | CG8 CG13 CG14 CGI20 |

6.1.2. Final examination

| Week | Description | Modality | Type | Duration | Weight | Minimum grade | Evaluated skills |
|------|-----------------------------------|-------------------------|---------------|----------|--------|---------------|---|
| 15 | Presentation of Project | Individual presentation | Face-to-face | 00:30 | 40% | 5 / 10 | CG8 CG9 CEM3 CG7 CG12 CG13 CG14 CG17 CGI20 CEM4 CG4 |
| 16 | Description of the Project Report | Group work | No Presential | 00:00 | 50% | 5 / 10 | CG4 CG8 CG9 CEM3 CG7 CG12 CG13 CG14 CG17 CGI20 CEM4 |

| | | | | | | | |
|----|----------------------------------|------------------|---------------|-------|-----|--------|------------------------------|
| 16 | Active Participation of Students | Other assessment | No Presential | 00:00 | 10% | 0 / 10 | CG8 CG13 CG14 CGI20 |
|----|----------------------------------|------------------|---------------|-------|-----|--------|------------------------------|

6.1.3. Referred (re-sit) examination

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

6.2. Assessment criteria

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 each of the two reports 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 |