



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

103000842 - Introduction To Innovation And Entrepreneurship Management

DEGREE PROGRAMME

10AZ - Master Universitario En Innovación Digital

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 | 103000842 - Introduction To Innovation And Entrepreneurship Management |
| No of credits | 6 ECTS |
| Type | Compulsory |
| Academic year of the programme | First year |
| Semester of tuition | Semester 1 |
| Tuition period | September-January |
| Tuition languages | English |
| Degree programme | 10AZ - Master Universitario en Innovación Digital |
| 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 * |
|-------------------------|--------------------|-------------------------|--|
| Roberto Martinez Gamero | CAIT | roberto.martinez@upm.es | W - 10:00 - 12:00 The tutoring schedule is indicative and subject to possible changes. Please check tutoring times with the faculty member in charge. |

| | | | |
|---|--------------|-----------------------|--------------------|
| Alberto Tejero Lopez (Subject coordinator) | Office D5215 | alberto.tejero@upm.es | Tu - 10:00 - 12:00 |
|---|--------------|-----------------------|--------------------|

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

2.3. External faculty

| Name and surname | Email | Institution |
|------------------|---------------------|-------------|
| Gonzalo Leon | gonzalo.leon@upm.es | CAIT |

3. Prior knowledge recommended to take the subject

3.1. Recommended (passed) subjects

The subject - recommended (passed), are not defined.

3.2. Other recommended learning outcomes

- According to general prerequisites for EIT Digital master program this is the first course for all enrolled students in the Master Degree. Students should have finished their Engineering Degree Project (240 ECTS), accepted in the Master and formally regis

4. Skills and learning outcomes *

4.1. Skills to be learned

CB07 - Que los estudiantes sepan aplicar los conocimientos adquiridos y su capacidad de resolución de problemas en entornos nuevos o poco conocidos dentro de contextos más amplios (o multidisciplinares) relacionados con su área de estudio

CB08 - Que los estudiantes sean capaces de integrar conocimientos y enfrentarse a la complejidad de formular juicios a partir de una información que, siendo incompleta o limitada, incluya reflexiones sobre las responsabilidades sociales y éticas vinculadas a la aplicación de sus conocimientos y juicios

CB09 - Que los estudiantes sepan comunicar sus conclusiones y los conocimientos y razones últimas que las sustentan a públicos especializados y no especializados de un modo claro y sin ambigüedades

CE-EIT01 - Capacidad para seguir y aplicar los procesos y actividades del emprendimiento para lanzar un empresa de base tecnológica basada en actividades previas de I+D e identificar diferentes fuentes de financiación de emprendimiento e innovación, y seleccionar la más apropiada para el modelo de negocio y la tecnología consideradas.

CE-EIT02 - Capacidad para diseñar las actividades y la estructura de gestión adecuadas para un proyecto de innovación, desde su concepción a la explotación de los resultados, usando un modelo de gestión adaptado al tipo de proyecto.

CG01 - Que los estudiantes sean capaces de predecir y controlar la evolución de situaciones complejas mediante el desarrollo de nuevas e innovadoras metodologías de trabajo adaptadas al ámbito científico/investigador, tecnológico o profesional concreto, en general multidisciplinar, en el que se desarrolle su actividad.

CG03 - La capacidad de usar la lengua inglesa de manera competente, es decir, con capacitación para tareas complejas de trabajo y estudio.

CG07 - Capacidad de trabajar y comunicarse también en contextos internacionales.

CG08 - La capacidad de traducir innovaciones en soluciones comerciales factibles.

CG09 - La capacidad de transformar las experiencias prácticas en problemas y desafíos de investigación.

4.2. Learning outcomes

RA104 - - In depth understanding the basics of technology watch and transfer

RA105 - - In depth understanding of the general process and roles involved in developing an idea and starting up a new technology-based company

RA107 - -- In depth understanding of the important elements in managing companies and developing its human resources

* 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

Introduction to innovation and entrepreneurship management: Introductory course to offer all EIT Digital Master students a general understanding on innovation processes, models and tools applied in the ICT sector.

5.2. Syllabus

1. Welcome session
 - 1.1. Contents and grading processes
 - 1.2. Students' preferences and group allocation
 - 1.3. Tour de table
2. Concepts and types of innovation
 - 2.1. Types of innovation
 - 2.2. Technology, organizational, commercial innovation
3. Innovation processes (focused on the ICT sector)
 - 3.1. From the idea to the market: along and risky way towards innovation
 - 3.2. Relationship of innovation to research and development
 - 3.3. Integrated view within the knowledge triangle paradigm
4. Open innovation (OI)
 - 4.1. Introduction to Open Innovation
 - 4.2. Open Innovation models and examples
 - 4.3. IMTs for Open Innovation
 - 4.4. Management of open activities at international level
5. Digital transformation
 - 5.1. Digital transformation
 - 5.2. Digital Innovation Hubs

6. Organizational structures
 - 6.1. Organization of R&D and innovation
 - 6.2. Approaches for private and public entities
 - 6.3. Organizational models to accommodate innovation processes
 - 6.4. Case study of spin-off evolution
7. Funding innovation (e.g. H2020)
8. Creativity as a source of innovation
 - 8.1. Creativity importance in innovation
 - 8.2. Creativity techniques
9. Protection and commercialization of knowledge
 - 9.1. Rationale
 - 9.2. Protection schemes (Patents vs Industrial secret & Other schemes)
 - 9.3. Software patents (legislation approaches)
 - 9.4. Examples of UPM patents
10. Strategic definition for entrepreneurs
 - 10.1. Strategic definition of startups for entrepreneurs
 - 10.2. Strategic competitive analysis

6. Schedule

6.1. Subject schedule*

| Week | Face-to-face classroom activities | Face-to-face laboratory activities | Distant / On-line | Assessment activities |
|------|---|------------------------------------|-------------------|---|
| 1 | Welcome session Duration: 04:00 | | | |
| 2 | Concepts and types of innovation Duration: 04:00 | | | |
| 3 | Innovation processes (focused on the ICT sector) Duration: 04:00 | | | |
| 4 | Introduction to innovation management Duration: 04:00 | | | |
| 5 | OI - Introduction to Open Innovation Duration: 04:00 | | | |
| 6 | OI - Open Innovation models and examples Duration: 04:00 | | | |
| 7 | OI - IMTs for Open Innovation Duration: 04:00 | | | |
| 8 | OI - Management of open activities at international level Duration: 04:00 | | | |
| 9 | Digital transformation Duration: 02:30 | | | QUIZ 1 Continuous assessment Presential Duration: 01:30 |
| 10 | Organizational structures Duration: 04:00 | | | |
| 11 | Funding innovation (e.g. H2020) Duration: 04:00 | | | |
| 12 | Creativity as a source of innovation Duration: 04:00 | | | |

| | | | | |
|----|---|--|--|---|
| 13 | Protection and commercialization of knowledge Duration: 04:00 | | | |
| 14 | Strategic definition for entrepreneurs Duration: 04:00 | | | |
| 15 | Strategic competitive analysis Duration: 02:30 | | | QUIZ 2 Continuous assessment Presential Duration: 02:30 |
| 16 | | | | Final group presentations Continuous assessment Presential Duration: 04:00 |
| 17 | | | | Final individual exam Continuous assessment Presential Duration: 04:00 FINAL EXAM Final 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.

* 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.

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 | QUIZ 1 | | Face-to-face | 01:30 | 15% | 5 / 10 | CG09 CG03 CB07 CB08 CE-EIT01 CG08 CG01 |
| 15 | QUIZ 2 | | Face-to-face | 02:30 | 15% | 5 / 10 | CG09 CG03 CB07 CE-EIT02 CB08 CE-EIT01 CG08 CG01 |
| 16 | Final group presentations | | Face-to-face | 04:00 | 40% | 5 / 10 | CG09 CG03 CG07 CB07 CB09 CE-EIT02 CB08 CE-EIT01 CG08 CG01 |
| 17 | Final individual exam | | Face-to-face | 04:00 | 30% | 5 / 10 | CG09 CG03 CG07 CB07 CB09 CE-EIT02 CB08 CE-EIT01 CG08 CG01 |

7.1.2. Final examination

| Week | Description | Modality | Type | Duration | Weight | Minimum grade | Evaluated skills |
|------|-------------|----------|--------------|----------|--------|---------------|--|
| 17 | FINAL EXAM | | Face-to-face | 02:00 | 100% | 5 / 10 | CG09 CG03 CG07 CB07 CB09 CE-EIT02 CB08 CE-EIT01 CG08 CG01 |

7.1.3. Referred (re-sit) examination

| Description | Modality | Type | Duration | Weight | Minimum grade | Evaluated skills |
|-------------|----------|--------------|----------|--------|---------------|------------------|
| FINAL EXAM | | Face-to-face | 02:00 | 100% | 5 / 10 | |

7.2. Assessment criteria

(Continuous assessment) The evaluation of the students will be based on four main sources:

? Quizzes (30%): activities during lectures (quizzes, etc.)

? Group work (40%): development and final presentation of the group work (30%) + attendance and participation (10%)

? Final exam (30%)

(Evaluation only by Final Test) The evaluation of the students will be based on 1 Final exam (100%)

8. Teaching resources

8.1. Teaching resources for the subject

| Name | Type | Notes |
|---|--------------|-------|
| . James M. Utterback (1994). Mastering the dynamics of innovation. Harvard Business School Press. | Bibliography | |
| . Alexander Osterwalder & Yves Pigneur (2010). Business model generation. John Wiley & Sons. New Jersey 2010. | Bibliography | |
| . Eric Ries (2011): The Lean Startup. Crown Business New York. 2011 | Bibliography | |
| W. Chan Kim and Renée Mauborgne (2015). Blue Ocean Strategy. Harvard Business Review Press. 2015. ISBN: 978-1-62527-449-6 | Bibliography | |
| Henry Chesbrough. Open Innovation: The New Imperative for Creating and Profiting from Technology (HBS Press, 2003). | Bibliography | |
| Henry Chesbrough (2011). Open Services Innovation. Rethinking your business to grow and compete in a new era. Ed. Jossey-Bass. 2011. ISBN 978-0-470-90574-6 | Bibliography | |
| Geoffrey A. Moore, ?CrossingtheChasm?1991, revised1999 and 2014 | Bibliography | |

| | | |
|--|--------------|--|
| Richard Foster & Sarah Kaplan, ?Creative Destruction: Why Companies that Are Built to Last Underperform the Market?, 2001 | Bibliography | |
| Henry Chesbrough. Open Innovation: The New Imperative for Creating and Profiting from Technology, 2003 | Bibliography | |
| Eric von Hippel, Open User Innovation, 2013 | Bibliography | |
| Steve Blank, ?The Four Steps to the Epiphany? 2005, 2nd Ed. 2013 | Bibliography | |
| Steve Blank & Bob Dorf, ?The Startup Owner?s Manual?, 2012 | Bibliography | |
| Madeleine I. G. Daepf, Marcus J. Hamilton, Geoffrey B. West, Luís M. A. Bettencourt, ?The Mortality of Companies.? 2015 | Bibliography | |
| Simon Sinek, ?How great leaders inspire action?, TED Talk, https://www.ted.com/talks/simon_sinek_how_great_leaders_inspire_action | Bibliography | |
| Brynjolfsson, Erik, and Andrew McAfee. ?Race Against the Machine? Lexington, Mass: Digital Frontier Press, 2012. | Bibliography | |
| Gordon, Robert J. ?Is U.S. Economic Growth Over? Faltering Innovation Confronts the Six Headwinds?, NBER Working Papers 2012. | Bibliography | |
| Chad Syverson, ?Challenges to Mis measurement Explanations for the U.S. Productivity Slowdown? NBER WorkingPapers2016 | Bibliography | |

| | | |
|--|--------------|--|
| Cowen, Tyler, ?The Great Stagnation: How America Ate Allthe Low-Hanging Fruit of Modern History, GotSickand Will (Eventually) Feel Better. New York: Dutton Adult, 2011. | Bibliography | |
| Course slides and material | Bibliography | Available in Moodle platform of EIT Digital during the course. |

9. Other information

9.1. Other information about the subject

In this subject, the United Nations SDG "4. Quality education" is worked through the case study.