

## Course guide

### 270510 - PEGTI - Strategic Planning and IT Governance

**Last modified:** 12/07/2022

**Unit in charge:** Barcelona School of Informatics  
**Teaching unit:** 732 - OE - Department of Management.

**Degree:** MASTER'S DEGREE IN INFORMATICS ENGINEERING (Syllabus 2012). (Compulsory subject).

**Academic year:** 2022    **ECTS Credits:** 4.5    **Languages:** Catalan, Spanish

#### LECTURER

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**Coordinating lecturer:** FERNANDO BARRABES NAVAL

**Others:** Primer quadrimestre:  
FERNANDO BARRABES NAVAL - 10

#### PRIOR SKILLS

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The conditions of MEI master

#### DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

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**Specific:**

CDG1. Capability to integrate technologies, applications, services and systems of Informatics Engineering, in general and in broader and multidisciplinary contexts.

CDG2. Capacity for strategic planning, development, direction, coordination, and technical and economic management in the areas of Informatics Engineering related to: systems, applications, services, networks, infrastructure or computer facilities and software development centers or factories, respecting the implementation of quality and environmental criteria in multidisciplinary working environments .

CDG3. Capability to manage research, development and innovation projects in companies and technology centers, guaranteeing the safety of people and assets, the final quality of products and their homologation.

**Generical:**

CG10. Capacity to apply economics, human resources and projects management principles, as well as legislation, regulation and standardization of Informatics.

CG3. Capability to lead, plan and supervise multidisciplinary teams.

CG5. Capacity for the development, strategic planning, leadership, coordination and technical and financial management of projects in all areas of Informatics Engineering, keeping up with quality and environmental criteria.

CG6. Capacity for general management, technical management and research projects management, development and innovation in companies and technology centers in the area of Computer Science.

#### Transversal:

CTR1. ENTREPRENEURSHIP AND INNOVATION: Capacity for knowing and understanding a business organization and the science that rules its activity, capability to understand the labour rules and the relationships between planning, industrial and commercial strategies, quality and profit. Capacity for developing creativity, entrepreneurship and innovation trend.

CTR3. TEAMWORK: Capacity of being able to work as a team member, either as a regular member or performing directive activities, in order to help the development of projects in a pragmatic manner and with sense of responsibility; capability to take into account the available resources.

CTR4. INFORMATION LITERACY: Capability to manage the acquisition, structuring, analysis and visualization of data and information in the area of informatics engineering, and critically assess the results of this effort.

CTR5. APPROPRIATE ATTITUDE TOWARDS WORK: Capability to be motivated by professional achievement and to face new challenges, to have a broad vision of the possibilities of a career in the field of informatics engineering. Capability to be motivated by quality and continuous improvement, and to act strictly on professional development. Capability to adapt to technological or organizational changes. Capacity for working in absence of information and/or with time and/or resources constraints.

CTR6. REASONING: Capacity for critical, logical and mathematical reasoning. Capability to solve problems in their area of study. Capacity for abstraction: the capability to create and use models that reflect real situations. Capability to design and implement simple experiments, and analyze and interpret their results. Capacity for analysis, synthesis and evaluation.

#### Basic:

CB6. Ability to apply the acquired knowledge and capacity for solving problems in new or unknown environments within broader (or multidisciplinary) contexts related to their area of study.

CB7. Ability to integrate knowledges and handle the complexity of making judgments based on information which, being incomplete or limited, includes considerations on social and ethical responsibilities linked to the application of their knowledge and judgments.

CB8. Capability to communicate their conclusions, and the knowledge and rationale underpinning these, to both skilled and unskilled public in a clear and unambiguous way.

CB9. Possession of the learning skills that enable the students to continue studying in a way that will be mainly self-directed or autonomous.

## TEACHING METHODOLOGY

Lectures will be complemented by class exercises or case method and self-learning by previous readings. Working through these exercises helps students understand and reflect on given themes. An exercise consists of solving a case/problem through the techniques learnt and by using computer tools, discussing situations and/or making presentation in class.

## LEARNING OBJECTIVES OF THE SUBJECT

- 1.Align the IT strategic plan with corporate strategy
  - 2.Study the concept of IT Governance as a system through which it manages and controls the use of IT today and tomorrow
  - 3.Managing IT risk decisions, at a given time, may affect negatively impact on the activities and processes of the organization.
- IT resource management and optimum utilization of the same

## STUDY LOAD

Type	Hours	Percentage
Hours large group	22,5	20.00
Self study	72,0	64.00
Hours medium group	13,5	12.00
Guided activities	4,5	4.00

**Total learning time:** 112.5 h

## CONTENTS

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### Importance of IT Governance and Strategic Planning

**Description:**

The main responsibilities for the governance of IT must fall and be supported directly by the top management

### Current status of IT governance

**Description:**

This chapter will discuss what the current state of IT governance. This will provide the student with an overview of what is the degree of implementation of government IT systems in different international organizations.

The aim is to understand that these systems are used more and starting to be considered as a key element of a government organization.

### What is IT governance?

**Description:**

- 3.1. Government vs Corporate governance of IT
- 3.2. Operation, Administration and Governance of IT
- 3.3. Concept of IT governance
- 3.4. Concept of IT governance according to ISO 38500
- 3.5. Conclusions
- 3.6. references

### Government Areas of IT

**Description:**

- 4.1. Alineación of IT with the business
- 4.2. Value generated by IT
- 4.3. Measuring the performance of IT
- 4.4. Risk management
- 4.5. IT Resource Management
- 4.6. Areas versus Principles
- 4.7. Conclusions
- 4.8. references

### Structures and relationships in the IT governance

**Description:**

- 5.1. Structures, roles and responsibilities
  - 5.1.1. Involve deAdministración Council in IT Governance
  - 5.1.2. The roles of the CEO, the CIO and executives in IT Governance
  - 5.1.3. Create specific committees for strategic IT management
- 5.2. Mechanisms relationship in IT Governance
- 5.3. Main contributions of the ISO 38500
- 5.4. Conclusions
- 5.5. references

### IT-related decisions: what to decide? Who decides?

#### Description:

- 6.1. Supplier Information Services Strategic vs. Aliado IT vs 6.2. Administración. Government IT
- 6.3. Key decisions for IT governance
- 6.4. Decision models
- 6.5. The matrix deWeill and Ross
- 6.6. The matrix for the Spanish University System
- 6.7. Implementing IT governance in an organization
- 6.8. Conclusions
- 6.9. references

### Processes for IT governance

#### Description:

- 7.1. introduction
- 7.2. IT Strategic Planning
- 7.3. Models maturity
- 7.4. IT dashboards
- 7.5. Processes applied to the business
- 7.6. Conclusions

### Tools for the implementation of IT governance: ISO 38500

#### Description:

- 8.1. introduction
- 8.2. Tools for the implementation of IT governance
- 8.3. ISO / IEC 38500:2008
  - 8.3.1. standard definitions
  - 8.3.2. Framework
  - 8.3.3. Guide recommendations
- 8.4. The ISO 38500 in relation to universities
- 8.5. Conclusions
- 8.6. references

### COBIT

#### Description:

- 9.1. introduction
- 9.2. COBIT Product Development
- 9.3. The COBIT Framework
  - 9.3.1. Guidance to business objectives
  - 9.3.2. Definitions
  - 9.3.3. Principles of the framework
- 9.4. references

### Model of Government IT to universities (GTI4U)

#### Description:

- 10.1. introduction
- 10.2. GTI4U model elements
- 10.3. Level 1: Elements of ISO 38500
  - 10.3.1. IT governance model of ISO 38500
  - 10.3.2. Principles of ISO 38500
  - 10.3.3. Governance Guidelines of ISO 38500
- 10.4. Level 2: Maturity Models (MM)
- 10.5. Level 3: Indicators of Government (IG)
  - 10.5.1. Maturity Matters (CM)
  - 10.5.2. Indicators Evidence of Government (IEG)
  - 10.5.3. Quantitative Indicators of Government (ICG)
- 10.6. Conclusions
- 10.7. references

### Self-assessment of the maturity of IT governance by GTI4U

#### Description:

- 11.1. introduction
- 11.2. Phases of the self-assessment process
- 11.3. Example of a self-assessment
  - 11.3.1. Collect values ☐☐ of quantitative indicators of Government (ICG)
  - 11.3.2. Indicators Suggest values ☐☐ for Evidence of Government (IEG)
  - 11.3.3. Agree on a single value for each IEG
  - 11.3.4. Answer questions Maturity (CM)
  - 11.3.5. Agree a unique value for each maturity of IT governance principle
  - 11.3.6. Reports on the maturity of IT governance
- 11.4. Conclusions
- 11.5. references

### How to implement IT governance in a public or private?

#### Description:

- 12.1. introduction
- 12.2. Factors facilitating and hindering implementation
  - 12.2.1. Why implement an IT governance system?
  - 12.2.2. Effectiveness of an IT governance system
  - 12.2.3. Aspectos highlights of the implementation
- 12.3. Steps to implement IT governance in a University
  - 12.3.1. Implementation TOP-DOWN
  - 12.3.2. Main steps of an implementation
- 12.4. Implementation of Model GTI4U
  - 12.4.1. Steps implantation
  - 12.4.2. Key actions recommended
- 12.5. Conclusions
- 12.6. references

## The Government IT Strategy Management System. Examples

### Description:

- 13.1. introduction
- 13.2. Context: Creating UJI 1991 -1996
- 13.3. The information system of the UJI and Systems Plan 1996-2001
- 13.4. 2001-2009 Strategic Steering System
  - 13.4.1 Motivation
  - 13.4.2 Instruments and deployment
  - 13.4.3 Positioning in IT / IS
- 13.5. Technological Framework IT / IT as an instrument of government in the UJI.
  - 13.5.1 usual stages in evolution of the IS / IT
  - 13.5.2 Position of the Government in the SDE IT
  - Result 13.5.3 Process redesign deAnàlitzar and IT / IS
  - 13.5.4 Comparison Framework IT / IS with the governance model of the IT / IS
- 13.6. references

## ACTIVITIES

### Importance of IT Governance and Strategic Planning

**Description:**

The main responsibilities related to the governance of IT must fall and be supported directly by the highest leadership

**Specific objectives:**

1, 2

**Related competencies :**

CG6. Capacity for general management, technical management and research projects management, development and innovation in companies and technology centers in the area of Computer Science.

CG5. Capacity for the development, strategic planning, leadership, coordination and technical and financial management of projects in all areas of Informatics Engineering, keeping up with quality and environmental criteria.

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CDG1. Capability to integrate technologies, applications, services and systems of Informatics Engineering, in general and in broader and multicisciplinary contexts.

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CTR3. TEAMWORK: Capacity of being able to work as a team member, either as a regular member or performing directive activities, in order to help the development of projects in a pragmatic manner and with sense of responsibility; capability to take into account the available resources.

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CB6. Ability to apply the acquired knowledge and capacity for solving problems in new or unknown environments within broader (or multidisciplinary) contexts related to their area of study.

CB7. Ability to integrate knowledges and handle the complexity of making judgments based on information which, being incomplete or limited, includes considerations on social and ethical responsibilities linked to the application of their knowledge and judgments.

**Full-or-part-time:** 2h 18m

Theory classes: 0h 18m

Laboratory classes: 1h

Self study: 1h

### Current status of IT governance

**Description:**

In this chapter we will analyze what is the current status of IT governance. For that provides students with an overview of the degree of implementation of systems of government IT organizations worldwide. The goal is to be understood that such systems are increasingly used and have started to be considered as a key element of a government organization.

**Specific objectives:**

2

**Related competencies :**

CG5. Capacity for the development, strategic planning, leadership, coordination and technical and financial management of projects in all areas of Informatics Engineering, keeping up with quality and environmental criteria.

CDG1. Capability to integrate technologies, applications, services and systems of Informatics Engineering, in general and in broader and multidisciplinary contexts.

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Theory classes: 0h 18m

Laboratory classes: 1h

Self study: 1h

### What is IT governance?

**Description:**

The aim of this chapter is to present a definition of IT governance. To meet this objective, we analyze, first Instead, the relationship between IT governance and corporate governance, to differentiate it from other concepts later as IT management or operation of IT. The bases of differentiation of the concept, analyze key definitions found in the literature, detailing those with greater acceptance.

Because of its importance, special mention is made to the ISO 38500:2008 "Corporate governance of information technology."

This standard, which is complementary to other related systems and information technology, establishes standards for IT governance in any organization.

**Specific objectives:**

2

**Related competencies :**

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CDG1. Capability to integrate technologies, applications, services and systems of Informatics Engineering, in general and in broader and multidisciplinary contexts.

**Full-or-part-time:** 2h 18m

Theory classes: 0h 18m

Laboratory classes: 1h

Self study: 1h



## Government Areas of IT

### Description:

The main purpose of IT governance is to generate business value while minimizing the associated risks. To generate value, it is necessary to align IT strategy with business strategy. Minimizing risk is achieved when responsibility and the principle of accountability for the actions taken permeates all areas and organizational levels. In both cases, it is necessary to have a set of adequate resources and a system measurement to ensure that the desired results are obtained.

### Specific objectives:

1

### Related competencies :

CG6. Capacity for general management, technical management and research projects management, development and innovation in companies and technology centers in the area of Computer Science.

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### Full-or-part-time: 2h 18m

Theory classes: 0h 18m

Laboratory classes: 1h

Self study: 1h

## Structures and relationships in the IT governance

### Description:

IT governance is an important part of the corporate governance framework of any organization and is, in Once, a business system shall be such that its structure, processes, roles and technology that have to be implemented at the strategic, tactical and operational. A specific combination of these elements is called IT Governance Model.

### Specific objectives:

1, 3

### Related competencies :

CG10. Capacity to apply economics, human resources and projects management principles, as well as legislation, regulation and standardization of Informatics.

CG6. Capacity for general management, technical management and research projects management, development and innovation in companies and technology centers in the area of Computer Science.

CG3. Capability to lead, plan and supervise multidisciplinary teams.

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### Full-or-part-time: 10h

Theory classes: 1h

Laboratory classes: 3h

Self study: 6h

### IT-related decisions: what to decide? Who decides?

#### Description:

The design and analysis of IT governance, requires departing from day to day, to identify what are the key decisions to be taken and who is best positioned to take them. This chapter deals with two questions major addresses to which the IT governance:

- What decisions should be made?
- Who should make those decisions?

#### Specific objectives:

3

#### Related competencies :

CG10. Capacity to apply economics, human resources and projects management principles, as well as legislation, regulation and standardization of Informatics.

CG3. Capability to lead, plan and supervise multidisciplinary teams.

CDG3. Capability to manage research, development and innovation projects in companies and technology centers, guaranteeing the safety of people and assets, the final quality of products and their homologation.

#### Full-or-part-time: 10h

Theory classes: 1h

Laboratory classes: 3h

Self study: 6h

## Processes for IT governance

### Description:

In this chapter we will focus on the processes that are related to the strategic decision-making, planning strategic information systems, services management, and monitoring tools, control and process definition (COBIT, ITIL, IT CMI, etc.)

### Specific objectives:

1, 2

### Related competencies :

CG6. Capacity for general management, technical management and research projects management, development and innovation in companies and technology centers in the area of Computer Science.

CG5. Capacity for the development, strategic planning, leadership, coordination and technical and financial management of projects in all areas of Informatics Engineering, keeping up with quality and environmental criteria.

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CB7. Ability to integrate knowledges and handle the complexity of making judgments based on information which, being incomplete or limited, includes considerations on social and ethical responsibilities linked to the application of their knowledge and judgments.

### Full-or-part-time: 10h

Theory classes: 1h

Laboratory classes: 3h

Self study: 6h

### Tools for the implementation of IT governance: ISO 38500

**Description:**

The purpose of this standard is to promote the efficient, effective and acceptable IT across the organization:

- Ensuring stakeholders (including investors, customers and employees) that, if you follow the standard, you can trust in corporate governance IT.
- Informing and guiding managers in government IT in your organization.
- Providing the basis for an objective assessment of the state of Government IT in the organization.

**Specific objectives:**

2, 3

**Related competencies :**

CG10. Capacity to apply economics, human resources and projects management principles, as well as legislation, regulation and standardization of Informatics.

CG3. Capability to lead, plan and supervise multidisciplinary teams.

CG5. Capacity for the development, strategic planning, leadership, coordination and technical and financial management of projects in all areas of Informatics Engineering, keeping up with quality and environmental criteria.

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CDG1. Capability to integrate technologies, applications, services and systems of Informatics Engineering, in general and in broader and multidisciplinary contexts.

**Full-or-part-time:** 10h

Theory classes: 1h

Laboratory classes: 3h

Self study: 6h

## COBIT

### Description:

COBIT ayuda las save brechas between Risks of business, needs Technical Control and traits. Provides "healthy Practices" through a frame of reference and processes your domain and presents activities in a manageable and logical structure. Practice the finest of the COBIT representan Experts Consenso of them, Helping you optimize the investment in information, Still but more important, it representan that you will be evaluated on whether salted the things worse.

### Specific objectives:

2, 3

### Related competencies :

CG10. Capacity to apply economics, human resources and projects management principles, as well as legislation, regulation and standardization of Informatics.

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CDG1. Capability to integrate technologies, applications, services and systems of Informatics Engineering, in general and in broader and multicisciplinary contexts.

### Full-or-part-time: 10h

Theory classes: 1h

Laboratory classes: 3h

Self study: 6h

## Model of Government IT to universities (GTI4U)

### Description:

It is designed and validated a framework of IT Governance for Universities (GTI4U). This framework is based and fully respects the IT governance model proposed by ISO 38500. Yet provides a number of tools to be easily deployed in a university setting.

### Specific objectives:

2

### Related competencies :

CG5. Capacity for the development, strategic planning, leadership, coordination and technical and financial management of projects in all areas of Informatics Engineering, keeping up with quality and environmental criteria.

CDG1. Capability to integrate technologies, applications, services and systems of Informatics Engineering, in general and in broader and multicisciplinary contexts.

### Full-or-part-time: 10h 30m

Theory classes: 1h

Laboratory classes: 3h

Self study: 6h 30m

### Self-assessment of the maturity of IT governance by GTI4U

**Description:**

This chapter will present a case study that will serve as a guide to the assessment process of IT governance maturity in our university, modeled GTI4U

**Specific objectives:**

2

**Related competencies :**

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CDG1. Capability to integrate technologies, applications, services and systems of Informatics Engineering, in general and in broader and multidisciplinary contexts.

**Full-or-part-time:** 10h 30m

Theory classes: 1h

Laboratory classes: 3h

Self study: 6h 30m

## How to implement IT governance in a public or private?

### Description:

This chapter will try to establish what is the process to be followed by a university or company to implement a system government of its Information Technology (IT).

### Specific objectives:

1, 2, 3

### Related competencies :

CG10. Capacity to apply economics, human resources and projects management principles, as well as legislation, regulation and standardization of Informatics.

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CG5. Capacity for the development, strategic planning, leadership, coordination and technical and financial management of projects in all areas of Informatics Engineering, keeping up with quality and environmental criteria.

CDG2. Capacity for strategic planning, development, direction, coordination, and technical and economic management in the areas of Informatics Engineering related to: systems, applications, services, networks, infrastructure or computer facilities and software development centers or factories, respecting the implementation of quality and environmental criteria in multidisciplinary working environments .

CDG3. Capability to manage research, development and innovation projects in companies and technology centers, guaranteeing the safety of people and assets, the final quality of products and their homologation.

CDG1. Capability to integrate technologies, applications, services and systems of Informatics Engineering, in general and in broader and multicisciplinary contexts.

CTR1. ENTREPRENEURSHIP AND INNOVATION: Capacity for knowing and understanding a business organization and the science that rules its activity, capability to understand the labour rules and the relationships between planning, industrial and commercial strategies, quality and profit. Capacity for developping creativity, entrepreneurship and innovation trend.

CTR3. TEAMWORK: Capacity of being able to work as a team member, either as a regular member or performing directive activities, in order to help the development of projects in a pragmatic manner and with sense of responsibility; capability to take into account the available resources.

CTR5. APPROPRIATE ATTITUDE TOWARDS WORK: Capability to be motivated by professional achievement and to face new challenges, to have a broad vision of the possibilities of a career in the field of informatics engineering. Capability to be motivated by quality and continuous improvement, and to act strictly on professional development. Capability to adapt to technological or organizational changes. Capacity for working in absence of information and/or with time and/or resources constraints.

CTR4. INFORMATION LITERACY: Capability to manage the acquisition, structuring, analysis and visualization of data and information in the area of informatics engineering, and critically assess the results of this effort.

CTR6. REASONING: Capacity for critical, logical and mathematical reasoning. Capability to solve problems in their area of study. Capacity for abstraction: the capability to create and use models that reflect real situations. Capability to design and implement simple experiments, and analyze and interpret their results. Capacity for analysis, synthesis and evaluation.

CB9. Possession of the learning skills that enable the students to continue studying in a way that will be mainly self-directed or autonomous.

CB8. Capability to communicate their conclusions, and the knowledge and rationale underpinning these, to both skilled and unskilled public in a clear and unambiguous way.

CB6. Ability to apply the acquired knowledge and capacity for solving problems in new or unknown environments within broader (or multidisciplinary) contexts related to their area of study.

CB7. Ability to integrate knowledges and handle the complexity of making judgments based on information which, being incomplete or limited, includes considerations on social and ethical responsibilities linked to the application of their knowledge and judgments.

### Full-or-part-time: 7h 30m

Theory classes: 0h 30m

Laboratory classes: 2h

Self study: 5h



## The Government IT Strategy Management System. Examples

### Description:

The government IT strategy management system of the Universitat Jaume I

### Specific objectives:

1, 2, 3

### Related competencies :

CG10. Capacity to apply economics, human resources and projects management principles, as well as legislation, regulation and standardization of Informatics.

CG6. Capacity for general management, technical management and research projects management, development and innovation in companies and technology centers in the area of Computer Science.

CG3. Capability to lead, plan and supervise multidisciplinary teams.

CG5. Capacity for the development, strategic planning, leadership, coordination and technical and financial management of projects in all areas of Informatics Engineering, keeping up with quality and environmental criteria.

CDG2. Capacity for strategic planning, development, direction, coordination, and technical and economic management in the areas of Informatics Engineering related to: systems, applications, services, networks, infrastructure or computer facilities and software development centers or factories, respecting the implementation of quality and environmental criteria in multidisciplinary working environments .

CDG3. Capability to manage research, development and innovation projects in companies and technology centers, guaranteeing the safety of people and assets, the final quality of products and their homologation.

CDG1. Capability to integrate technologies, applications, services and systems of Informatics Engineering, in general and in broader and multicisciplinary contexts.

CTR1. ENTREPRENEURSHIP AND INNOVATION: Capacity for knowing and understanding a business organization and the science that rules its activity, capability to understand the labour rules and the relationships between planning, industrial and commercial strategies, quality and profit. Capacity for developing creativity, entrepreneurship and innovation trend.

CTR3. TEAMWORK: Capacity of being able to work as a team member, either as a regular member or performing directive activities, in order to help the development of projects in a pragmatic manner and with sense of responsibility; capability to take into account the available resources.

CTR5. APPROPRIATE ATTITUDE TOWARDS WORK: Capability to be motivated by professional achievement and to face new challenges, to have a broad vision of the possibilities of a career in the field of informatics engineering. Capability to be motivated by quality and continuous improvement, and to act strictly on professional development. Capability to adapt to technological or organizational changes. Capacity for working in absence of information and/or with time and/or resources constraints.

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CB7. Ability to integrate knowledges and handle the complexity of making judgments based on information which, being incomplete or limited, includes considerations on social and ethical responsibilities linked to the application of their knowledge and judgments.

### Full-or-part-time: 7h 30m

Theory classes: 0h 30m

Laboratory classes: 2h

Self study: 5h

## Prova Final

### Description:

Prova Final

### Specific objectives:

1, 2, 3

### Related competencies :

CG10. Capacity to apply economics, human resources and projects management principles, as well as legislation, regulation and standardization of Informatics.

CG6. Capacity for general management, technical management and research projects management, development and innovation in companies and technology centers in the area of Computer Science.

CG3. Capability to lead, plan and supervise multidisciplinary teams.

CG5. Capacity for the development, strategic planning, leadership, coordination and technical and financial management of projects in all areas of Informatics Engineering, keeping up with quality and environmental criteria.

CDG2. Capacity for strategic planning, development, direction, coordination, and technical and economic management in the areas of Informatics Engineering related to: systems, applications, services, networks, infrastructure or computer facilities and software development centers or factories, respecting the implementation of quality and environmental criteria in multidisciplinary working environments .

CDG3. Capability to manage research, development and innovation projects in companies and technology centers, guaranteeing the safety of people and assets, the final quality of products and their homologation.

CDG1. Capability to integrate technologies, applications, services and systems of Informatics Engineering, in general and in broader and multicisciplinary contexts.

CTR1. ENTREPRENEURSHIP AND INNOVATION: Capacity for knowing and understanding a business organization and the science that rules its activity, capability to understand the labour rules and the relationships between planning, industrial and commercial strategies, quality and profit. Capacity for developing creativity, entrepreneurship and innovation trend.

CTR3. TEAMWORK: Capacity of being able to work as a team member, either as a regular member or performing directive activities, in order to help the development of projects in a pragmatic manner and with sense of responsibility; capability to take into account the available resources.

CTR5. APPROPRIATE ATTITUDE TOWARDS WORK: Capability to be motivated by professional achievement and to face new challenges, to have a broad vision of the possibilities of a career in the field of informatics engineering. Capability to be motivated by quality and continuous improvement, and to act strictly on professional development. Capability to adapt to technological or organizational changes. Capacity for working in absence of information and/or with time and/or resources constraints.

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CB9. Possession of the learning skills that enable the students to continue studying in a way that will be mainly self-directed or autonomous.

CB8. Capability to communicate their conclusions, and the knowledge and rationale underpinning these, to both skilled and unskilled public in a clear and unambiguous way.

CB6. Ability to apply the acquired knowledge and capacity for solving problems in new or unknown environments within broader (or multidisciplinary) contexts related to their area of study.

CB7. Ability to integrate knowledges and handle the complexity of making judgments based on information which, being incomplete or limited, includes considerations on social and ethical responsibilities linked to the application of their knowledge and judgments.

**Full-or-part-time:** 17h 18m

Guided activities: 1h 48m

Self study: 15h 30m

## GRADING SYSTEM

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The assessment will be based on the following items:

- A part exam - P1
- A part exam - P2
- Participation in and solution of class exercises - E
- Final exam (F)

$$P=P1*30\%+P2*50\%$$

The grade will be calculated as follows:

$$N=MAX(P,F)*80\%+E*20\%.$$

## BIBLIOGRAPHY

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### Basic:

- De Haes, S.; Van Grembergen, W. Enterprise governance of information technology: achieving alignment and value, featuring COBIT 5. 2nd ed. Springer, 2015. ISBN 9783319374475.