ESCUELA TÉCNICA SUPERIOR DE INGENIERÍA

Course Guide
Year 2018-2019

GENERAL INFORMATION

Course information	
Name	Smart Industry II
Code	DOI-MIC-527
Degree	MIC
Year	1
Semester	Fall
ECTS credits	3 ECTS
Type	
Department	Department of Industrial Organization
Area	
Coordinator	Bernardo Villazán Gil

Lecturer	
Name	Bernardo Villazán Gil
Department	Department of Industrial Organization
Area	
Office	Chair of Smart Industry
e-mail	villazan@comillas.edu
Phone	
Office hours	Ask for an appointment by email.

DETAILED INFORMATION

Contextualization of the course

Contribution to the professional profile of the master

The purpose of the course is to provide students with a comprehensive understanding of the benefits, risks and implications of the smart industry concept, in real industrial environments.

By the end of the course, students will:

- **Know the benefits, risks and implications of smart industry.**
- **Visit plant references of smart industries in different sectors.**
- **Learn from leading industrial companies the roadmap to become smart industries, opportunities and challenges.**

Prerequisites

CONTENTS

COMPETENCES AND LEARNING OUTCOMES

Competences and Learning Outcomes

Competences

General Competences

CG3. The capability of adapting to new theories, methods and changing engineering situations based on a sound technical training.

CG4. The capability of solving problems with personal initiative, efficient decision making, critical reasoning and transmitting technical information in the engineering world.

CG5. The capability of conducting measurements, calculations, assessments, studies, reports, planning, etc.

CG10. The ability to work in a multilingual and multidisciplinary environment.

Basic Competences

Specific Competences

Learning outcomes

RA1. The student understands the benefits, risks and implications of Smart Industry.

RA2. The student has a basic and practical experience in researching about Smart Industry.

RA3. The student attends professional forums on smart industry

RA4. The student participate in encounters with leading industrial companies.

RA5. The student has practical experience in team working.

RA6. The student has a practical experience in developing initiative, creativity and autonomy skills identify Smart Industry levers and industrial value drivers.

TEACHING METHODOLOGY

General methodological aspects
Theory and practice will be combined along the course. The teacher will explain the basics of the subject and will go in depth in the more important issues with illustrative examples. The students will be grouped in pairs in order to put in practice the proposed methods and techniques in a collaborative way.
In-class activities
1. **Lectures and problem-solving sessions :**The lecturer will introduce the fundamental concepts of each chapter, along with some practical recommendations, and will go through worked examples to support the explanation. Active participation will be encouraged by raising open questions to foster discussion and by proposing short application exercises to be solved in class either on paper or using a software package. 2. **Assessment**
Off-class activities
1. **Personal study** of the course material and resolution of the proposed exercises

ASSESSMENT AND GRADING CRITERIA

Assessment activities	Grading criteria	Share
Continuous evaluation	• Understanding of the theoretical concepts. • Application of these concepts to problem-solving.	10%
Final exam	• Understanding of the theoretical concepts. • Application of these concepts to problem-solving.	30%
Lab sessions and reports	• Application of theoretical concepts to real problem-solving. • Ability to program. • Attitude and effort: Initiative and proactive work will be encouraged. • Written communication skills. There will be an intra-group evaluation method to differentiate among team members.	30%
Final project development	• Quality of the project design. • Quality of the project implementation.	30%

GRADING AND COURSE RULES

Grading

Regular assessment

- **Theory** will account for 40%, of which:
    - Continuous evaluation: 10%
    - Final exam: 30%
- **Lab** will account for the remaining 60%

In order to pass the course, the mark of the Lab must be greater or equal to 5 out of 10 points and the mark of the Theory must be greater or equal to 5 out of 10 points. Otherwise, the final grade will be the lower of the two marks.

Retakes

There will be only a final exam which will be the 100% of the grade. It will include both practical questions and theoretical concepts.

Course rules

- Class attendance is mandatory according to Article 93 of the General Regulations (Reglamento General) of Comillas Pontifical University and Article 6 of the Academic Rules (Normas Académicas) of the ICAI School of Engineering. Not complying with this requirement may have the following consequences:
    - Students who fail to attend more than 15% of the lectures may be denied the right to take the final exam during the regular assessment period.
    - Regarding laboratory, absence to more than 15% of the sessions can result in losing the right to take the final exam of the regular assessment period and the retake. Missed sessions must be made up for credit.
- Students who commit an irregularity in any graded activity will receive a mark of zero in the activity and disciplinary procedure will follow (cf. Article 168 of the General Regulations (Reglamento General) of Comillas Pontifical University).

WORK PLAN AND SCHEDULE[1]

In- and out-of-class activities	Date/Periodicity	Deadline
• Continuous evaluation activities to review and self-study of the concepts covered in the lectures	Periodically on demand.	-
• Final exam	Last week	-
• Lectures and lab sessions	Weekly	-
• Review and self-study of the concepts covered in the lectures	Weekly	-
• Project preparation	Weekly	-

STUDENT WORK TIME SUMMARY			
IN-CLASS HOURS			
Lectures	**Lab sessions**	**Assessment**	
28	28	4	
OFF-CLASS HOURS			
Self-study	**Lab preparation and reporting**	**Project development**	
30	30	60	
		ECTS CREDITS:	**6 (180 hours)**

BIBLIOGRAPHY

Basic
• Presentations prepared by the lecturer (available in Moodle).
Complementary

[1] A detailed work plan of the subject can be found in the course summary sheet (see following page). Nevertheless, this schedule is tentative and may vary to accommodate the rhythm of the class.