

## Course guide

### 240E0319 - 240E0319 - Ergonomics and Human Factors

**Last modified:** 13/03/2025

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

**Degree:** MASTER'S DEGREE IN MANAGEMENT ENGINEERING (Syllabus 2012). (Optional subject).  
MASTER'S DEGREE IN MANAGEMENT ENGINEERING (Syllabus 2021). (Optional subject).

**Academic year:** 2025    **ECTS Credits:** 3.0    **Languages:** Spanish

#### LECTURER

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**Coordinating lecturer:** Pedro Rodriguez Mondelo

**Others:** Pedro Rodriguez Mondelo

#### DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

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**Specific:**

4. Analyze the risks and consequences of proposed solutions in various business subsystems and their social and environmental.

**Generical:**

3. Learn and master the analytical tools necessary for decision making in the organizational context more efficient.

**Transversal:**

1. TEAMWORK: Being able to work in an interdisciplinary team, whether as a member or as a leader, with the aim of contributing to projects pragmatically and responsibly and making commitments in view of the resources that are available.

2. ENTREPRENEURSHIP AND INNOVATION: Being aware of and understanding how companies are organised and the principles that govern their activity, and being able to understand employment regulations and the relationships between planning, industrial and commercial strategies, quality and profit.

#### TEACHING METHODOLOGY

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Participative master classes

Learning based on problems, exercises and case studies

#### LEARNING OBJECTIVES OF THE SUBJECT

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This course aims to provide basic knowledge in occupational risk prevention and ergonomics. Once the student has passed the course, he/she will have to be able to:

- Know the basic roles of an expert in Occupational Risk Prevention (PRL)
- Know the legal and ethical principles in PRL
- Learn to coordinate the PRL activities
- Know to develop global projects
- Know and analyse ergonomics problems
- Train the ergonomics tools



## STUDY LOAD

Type	Hours	Percentage
Hours large group	27,0	36.00
Self study	48,0	64.00

Total learning time: 75 h

## CONTENTS

Unit 1. Work, health and quality of working life

Unit 2. Damages derived from the job

Unit 3. Basic regulatory Framework in Occupational Risk Prevention(PRL): Duties, Obligations and Responsibilities

Unit 4. General risks and its prevention: Risks related to the Security conditions and Risks related to the environmental conditions

Unit 5. Basic systems in risk control

Unit 6. Control of the workers health

Unit 7. Ergonomy: Basic concepts

unit 8. Dimensional relations in the machine-person systems

Unit 9. Physical work

Unit 10. Risks related to the physical load: repetitive traumas

Unit 11. Total design of the job descriptions and products



## Unit 12. Global methodology analysis in Ergonomics

**Full-or-part-time:** 3h

Theory classes: 1h

Practical classes: 1h

Self study : 1h

## ACTIVITIES

### WRITTEN EXERCISES

### WRITTEN EXAMINATION

## GRADING SYSTEM

Final mark = 0,3\* Mark of the exercises + 0,7\* Mark of the theory evaluation

## EXAMINATION RULES.

The realization of the exercises is compulsory

## BIBLIOGRAPHY

### Basic:

- Mondelo, P; Gregori E; de Pedro, O; Gomez, M. Ergonomia 4: El Trabajo en oficinas [on line]. Barcelona: Edicions UPC, 2001 [Consultation: 04/12/2015]. Available on: <http://hdl.handle.net/2099.3/36777>. ISBN 848301484X.
- Mondelo, P.; Gregori Torada, E.; Barrau Bombardo, P. Ergonomía 1: fundamentos [on line]. Barcelona: Edicions UPC, Universitat Politècnica de Catalunya, 2001 [Consultation: 27/11/2025]. Available on: <https://upcommons.upc.edu/handle/2099.3/36854>. ISBN 8483014815.
- Mondelo, P; Gregori,E; Comas, S; Castejon, E. Ergonomía 2 : Confort i Estrés Térmico [on line]. Barcelona: Edicions UPC, 2001 [Consultation: 04/12/2015]. Available on: <http://hdl.handle.net/2099.3/36777>. ISBN 8483014823.
- Bestraten, M. y otros. Seguridad en el Trabajo. Madrid: Instituto Nacional de Seguridad e Higiene en el Trabajo, 2011. ISBN 9788474257908.
- Bernal, F ; Castejon, E ; Cavalle, N ; Hernandez, A. Higiene Industrial. 5a ed. Madrid: Instituto Nacional de Seguridad e Higiene en el Trabajo, 2008. ISBN 9788474257571.

## RESOURCES

### Audiovisual material:

- [www.insht.es](http://www.insht.es)

### Hyperlink:

- [www. Prevencionintegral.com](http://www.Preencionintegral.com)