



PERSONA CIÈNCIA EMPRESA  
UNIVERSITAT RAMON LLULL

## COURSE: INDUSTRIAL HEALTH AND SAFETY

**SUBJECT MATTER:** Elective

**MODULE:** Professional Supplements

**STUDIES:** Degree in Chemical Engineering

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### GENERAL CHARACTERISTICS

**Type:**  Basic Formation,  Compulsory,  Elective

Final Degree Project,  Internship

**Duration:** Semestral

**Semester/s:** 8

**Number of ECTS credits:** 6

**Language/s:** Spanish, Catalan

### DESCRIPTION

#### SHORT DESCRIPTION AND JUSTIFICATION

This course will provide to future graduates in Chemical Engineering the ability to identify hazards, to evaluate risks and to establish prevention and protection measures in industrial environments. The main topics covered are: Introduction to the prevention of occupational hazards; Qualitative methods for risk identification; semi-quantitative and quantitative methods, human factors, industrial hygiene...

#### COMPETENCES

- Be able to understand and apply general knowledge of Technical English, Ethics and Industrial Safety for application in the field of Chemical Engineering. (CB1, E3)
- Be able to identify, formulate and solve problems in the fields of Chemical Engineering and Chemistry. (CB2, E7)
- Be able to analyze, integrate and interpret data and information from the field of Chemical Engineering. (CB3, E8)
- To be able to assess the risks in the use of chemical and biological substances and the processes in which they are involved. (E11)
- Be able to assess the impact of their professional activity on the sustainable development of society. (T3)
- Ability to identify hazards, assess risks and establish prevention measures in industrial environments. (CP4)

#### PREREQUISITES

According to the program planning and academic regulations.

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### CONTENTS

1. Introduction and definitions.
2. Accidents at work.
3. Industrial Safety.
4. Methodology of industrial safety.
5. Accident Investigation.
6. Implementation of OSH
7. Risk assessment. Risk identification.
8. Risks related to chemical agents.
9. Industrial Hygiene.
10. Analysis of accidents in the chemical industry.
11. The safety of chemical synthesis processes

### METODOLOGY

### LEARNING ACTIVITIES

Learning Activities	Hours	ECTS Credits	Competences
Lectures	35	1,3	CB1, E3, E11, T3, CP4
Case and Problem-Solving Sessions	11	0,4	CB2, E7, CB3, E8, E11, T3, CP4
Seminars			
Practical & Lab Work			
Presentations	14	0,5	CB2, E7, T3, CP4
Personal study	95	3,5	CB2, E7, CB3, E8, E11, T3, CP4
Assessment Tasks (Exams, Continuous Assessment...)	8	0,3	CB2, E7, CB3, E8, E11, T3, CP4
<b>TOTAL</b>	<b>163</b>	<b>6,0</b>	

### TEACHING METHODOLOGY

Concept Sessions: presentation or explanation of concepts (possibly including demonstrations) by the professor.

Sessions for solving exercises, problems and cases: Resolution of exercises, problem solving and presentation / discussion of cases by the professor with the active participation of students.

Presentations: Oral presentation of the student's reports, accompanied by the necessary graphic support, content and duration depending on each case.

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Personal study activities: Student Personal work required to acquire the skills of each matter and assimilate the concepts involved in conducting laboratory activities, using when necessary, the recommended material for consultation.

Evaluation activities (testing, monitoring controls) oral and / or written tests made during the course.

### ASSESSMENT

#### ASSESSMENT METHODS

Assessment Methods	Weight (%)	Competences
Final Exam	40	CB1, E3, CB3, E8, E11, CP4
Follow-up Activities	20	CB3, E8, E11, CP4
Reports and Presentations	30	CB3, E8, E11, T3, CP4
Participation	10	CB2, E7, CB3, E8, T3, CP4

#### LEARNING OUTCOMES

The student will have acquired:

- The capacity to demonstrate that they possess and understand knowledge in an area of study that is based on general secondary education, and is usually found at a level that, while supported by advanced textbooks, also includes some aspects that involve knowledge from the cutting edge of their field of study. (CB1, E3, CP4)
- The capacity to know how to apply their knowledge to their work or vocation in a professional manner and possess the competences that are usually demonstrated through the elaboration and defending of arguments and the resolution of problems within their area of study. (CB2, E7, CP4)
- The capacity to collect and interpret relevant data (usually within their area of study) to make judgments that include reflection on relevant social, scientific or ethical issues. (CB3, E8, CP4)
- The capacity to assess the risks in the use of chemical and biological substances and the processes in which they are involved. (E11, CP4)
- The capacity to assess the impact of their professional activity on the sustainable development of society. (T3, CP4)



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### **QUALIFICATION**

The rating is given by the weighted average of the different assessment methods indicated in the corresponding table above:

Final exam	40%
Monitoring activities	20%
Participation	10%
Reports and presentations	30%

To average, all notes must be equal to or greater than 4.0 and the weighted average of the notes must be equal to or greater than 5.0.

### **ASSESSMENT OF THE COMPETENCES**

The assessment of the competences will be carried out as indicated in the table of Evaluation Methods.

When two competences are evaluated by two evaluation methods, the rating assigned to each competence is the weighted average of the grade obtained by each evaluation method.

### **BIBLIOGRAPHY**

#### **DOCUMENT HISTORY**

##### **PREVIOUS REVISIONS**

September 2015, Dr. Eduard Serra

##### **CURRENT REVISION**

January 2019, Dr. Eduard Serra