

Course Unit	Health and Safety at Work		Field of study	Management	
Bachelor in	Industrial Management and Engineering		School	School of Technology and Management	
Academic Year	2023/2024	Year of study	3	Level	1-3
Type	Semestral	Semester	2	ECTS credits	6.0
			Code	9104-754-3202-00-23	
Workload (hours)	162	Contact hours	T -	TP 60	PL -
			TC -	S -	E -
			OT -	O -	

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Rui Alexandre Figueiredo de Oliveira

### Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. Recognize the importance of safety, hygiene and health in work environment.
2. Know the legal framework, regulatory, social and economic activities in Occupational Safety and Health in work environment.
3. Identify parameters of the workplace which can be occupational hazard.
4. Define occupational health and to understand the importance of prevention of occupational hazards by using personal protection equipment and appropriate protective solutions.
5. Understand the concept of ergonomics in the design of the workplace.
6. Assimilate and interpret the different types of safety signalization.
7. Understand the importance of statistical tools for risk assessment and know the devices and means for assessing these parameters.
8. Acquire the ability to propose solid prevention strategies to eliminate and/or reduce the occupational hazards.

### Prerequisites

Before the course unit the learner is expected to be able to:

1. Understand and apply the basic fundamentals of computer and statistical sciences.
2. Have the ability to interpret the European and Portuguese Legislation.

### Course contents

Strategies and Policies on the Protection and Promotion of Health. Analysis of Risks associated to safety conditions and to physical, chemical and biological contaminants. General Principles of Prevention. Implementation of Management Systems of Prevention. The culture of prevention. Development of Occupational risk prevention plans. The concept of ergonomics and aspects that minimize workloads.

### Course contents (extended version)

1. PREVENTION OF MANAGEMENT
  - Concepts of work, health, risk, accident, occupational disease, risk assessment.
  - Occupational medicine: concepts, objectives and functions.
  - Occupational Health: framework in organizations.
  - Indicators of safety, hygiene and health at work.
  - Cost / benefit analysis.
2. CONTROL OF OCCUPATIONAL RISKS
  - General principles of prevention.
  - Methodologies and techniques for identification hazards.
  - Different techniques for estimate risk.
3. LAWS AND REGULATIONS
  - The prevention of occupational risk on the management of a system of prevention.
  - Organisation and operation of safety services, hygiene and health at work.
  - Legislation concerning the preparation of detailed plans for prevention and protection.
4. STATISTICS AND RELIABILITY
  - General concepts.
  - Collection, analysis and classification of samples.
  - Statistical analysis of samples.
  - Definition of reliability.
5. SOCIAL PSYCHOLOGY OF WORK
  - The work.
  - The organization.
  - Organizational Behavior.
  - Ergonomic perspective Vs Psychological .
6. OCCUPATIONAL HYGIENE
  - Principles of Occupational Hygiene.
  - Concepts of toxicology.
  - Evaluation and monitoring of exposure to: Physical, Chemicals and Biological.
  - Legislation and internal rules.
7. SAFETY AT WORK
  - Organization of Work Safety activities.
  - Legal framework and regulations.
  - Safety Management.
  - Fields of work safety.
  - Causes and consequences of accidents at work.
8. ERGONOMICS
  - Concept, objectives and methodology of the study.
  - Ergonomic work analysis.
  - Understanding of Physiology and Anthropometry.
9. EMERGENCY ORGANIZATION
  - Methodologies, tools and equipments needed for the structuring of emergency plans.
  - Personal protection equipment.
  - Entities and organizations responsible.

### Recommended reading

1. Bamber, L. , Coote, N. , Granger, S. , Oates, A. & Tyler, M. (Eds). (2019). Tolley's Health & Safety at Work. (31st Ed). UK: LexisNexis.
2. Hughes, P. , Ferret, Ed. (2020). Introduction to Health and Safety at Work for the NEBOSH National General Certificate in Occupational Health and Safety (7th edition). Taylor & Francis
3. Brauer, R. L. (2022). Safety and Health for Engineers. (4th Ed). Willey-Interscience. Disponível em: <http://iums.ac>.

**Recommended reading**

ir/uploads/SafetyandHealthforEngineers\_Second\_\_95726.pdf

4. Kjellén, U. , Albrechtsen, E. , (2017). Prevention of Accidents and Unwanted Occurrences: Theory, Methods, and Tools in Safety Management. (2nd Ed). CRC Press.
5. Miguel, A. S. (2014). Manual de Higiene e Segurança do Trabalho. (13ªed). Porto: Porto Editora.

**Teaching and learning methods**

The pedagogical design is organized into theoretical and practical classes, using the audiovisual devices, and practical classes in work environment. In the methodological guidelines, the proposed activities will be complemented with the development of group training and practical exercises to implement the continuous learning procedures.

**Assessment methods**

1. Scientific work - 40%; Final Written Exam - 60% - (Regular, Student Worker) (Final, Supplementary, Special)
  - Presentations - 10% (Work presentation)
  - Development Topics - 30% (Quality of scientific work developed)
  - Final Written Exam - 60% (Final written exam (Minimal mark of 6 in 20))
2. Final Written Exam - 100% - (Regular) (Supplementary, Special)
3. Final Written Exam - 100% - (Student Worker) (Supplementary, Special)

**Language of instruction**

Portuguese, with additional English support for foreign students.

**Electronic validation**

Rui Alexandre Figueiredo de Oliveira	Carla Alexandra Soares Gerales	António Jorge da Silva Trindade Duarte	José Carlos Rufino Amaro
19-02-2024	02-03-2024	13-03-2024	16-03-2024