Course guide
240819 - 240819 - Workplace Safety II

Last modified: 15/05/2023

Unit in charge: Barcelona School of Building Construction
Teaching unit: 1004 - UB - (ENG)Universitat de Barcelona.

Degree: MASTER'S DEGREE IN OCCUPATIONAL HEALTH AND SAFETY (Syllabus 2016). (Compulsory subject).

Academic year: 2023 **ECTS Credits:** 6.0 **Languages:** Spanish

LECTURER

Coordinating lecturer: XAVIER POY QUINTANA

Others: Óscar Ballesteros

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
1. Identify and distinguish the different integration models for the prevention in the management of the company.
2. Recognise the structure of the prevention system: public organisms and competences and benefit societies, recognise and explain the legislation and specific technical regulations regarding to the occupational security and dispose the sufficient technical knowledge to carry out risk evaluations and set corrective measures in front of general threats related to the work, installations, working devices, fire risk and explosion. Recognise some techniques similar to the prevention: security in the product, management of assets and road security, and recognise the communication techniques regarding to the prevention of occupational risks.
3. Know to develop emergency and security plans, make training and information plans assigned to workers, including the detection of needs and establish the evaluating systems and monitoring measures, lay out corrective measures in front of risks of chemical nature, physical or biological; carry out risk evaluations and set out corrective measures related to the physical and mental load at work; make the epidemiologic study design to identify risk factors of occupational nature, apply its basics and manipulation and applications of the main chemical analysis techniques in the hygienic world.

TEACHING METHODOLOGY

In the tutoring sessions from 6.30 pm to 7 pm, the subject coordinator will be at the disposal of the students who request it, contacting him directly.

It will be proposed to make a visit to a company in the logistics sector to assess the risk in machines and the handling of materials on site and another to a company for the storage and distribution of chemical products.

LEARNING OBJECTIVES OF THE SUBJECT

In the subject Safety at Work I the techniques of identification, evaluation and control of the risks that can commonly occur in the world of work were developed. In this subject of specialization it is essential to delve into the procedures for evaluation and control of those situations that generate accidents with serious consequences and therefore require rigorous control systems. Such is the case of the chemical risk with serious consequences in industrial processes and in transport, including fires and explosions, on which there is specific regulation in our community, which due to its special impact on management aspects is also instructive in other sectors in which precise control of the reliability of facilities and processes is required.

Risks in the Construction sector, in electrical installations, gas installations, pressure equipment, and dangerous mechanical maintenance machines and equipment, will have a specific treatment. With all this, it is intended to be able to develop the corresponding preventive plans with the appropriate strategies, according to the specificity of the risk and the severity of its consequences, as well as the type of company and sector to which it belongs.

Specific knowledge and skills

a) The student will be able to apply the most appropriate legal, technical and managerial preventive measures for the evaluation and control of certain risks of accidents with serious consequences that usually occur in industrial facilities, in construction and in service activities.

b) Based on the foregoing, the knowledge of solutions to specific risks will be deepened: mechanical, electrical, fire, explosion and high chemical risk, generating serious accidents, as well as the development of the corresponding preventive planning.

STUDY LOAD

Type	Hours	Percentage
Self study	96,0	64.00
Hours large group	54,0	36.00

Total learning time: 150 h

CONTENTS

-WORK PLACES

Description:
Structural safety. I work in confined spaces. Floors and openings. circulation network. Doors and gates. Ramps, service stairs. Work platforms.

Full-or-part-time: 1h
Theory classes: 1h

-HANDLING OF MATERIALS

Description:
Equipment for lifting and transporting materials. Conveyor belts. Elevators and freight elevators. cranes slings Forklift trucks and internal transport vehicles. Storage and palletizing of products. Automated systems. Storage buildings. Loading and unloading areas.

Full-or-part-time: 1h
Theory classes: 1h

-MACHINES

Description:
Community and Spanish health and safety regulations relating to machines: the new Directive 2006/42/EC. RD 1215/97. Risk assessment in machines. intrinsic prevention. Selection of security measures: prevention, protection and supplementary. The instruction manual. Controls and manoeuvres, intrinsically safe circuits. Adaptation of old machinery.
Machine protection. Fixed and mobile guards. Safety distances. Protection devices.
Interlocking and validation devices. Sensitive command. Two-hand command. Sensitive devices and limiting devices. Residual movement protection devices. Emergency stops. Practical applications to commonly used machine tools and machines included in Annex IV of the Machine Safety Regulation: presses, band and circular saws, plastic injectors, offset printers, guillotines, etc.

Full-or-part-time: 1h
Theory classes: 1h

-FIRE AND EXPLOSIONS, CHEMICAL RISK

Description:
Identification of dangerous products: labeling and safety data sheets. Packaging: standardization and homologation tests. Storage of dangerous products: specific regulations. Handling of dangerous products. Transfers. Electrostatic discharge hazards in flammable environments. Transport of dangerous goods.

Serious accidents of chemical origin in facilities and processes. Hazop methodology. Basic prevention and protection measures in process facilities. The Seveo regulation. Thermal radiation. pressure waves. Flammable and toxic concentration. Types of accidents, flare and fire dart. Type of explosions: unconfined, confined, physical BLEVE and runaway reactions. Vulnerability: estimation of data from limit values. probit method. Practical applications.

Related activities:
Exercise

Full-or-part-time: 1h
Theory classes: 1h

-SAFETY IN CONSTRUCTION

Description:
General security conditions in the Sector. Royal Decree 1627/1997: Promoter. Builder. Coordinator in the project phase and/or in the execution phase of the work. Study or basic security study. Security Plan Risks in the different construction phases. Excavations. Foundations. structures. Roof work. Finishes. Preventive measures and Collective Protection Systems. scaffolding Personal Protection Equipment most characteristic of the Construction sector

Full-or-part-time: 1h
Theory classes: 1h

-EMERGENCY PLAN. PRACTICAL APPLICATIONS.

Description:
Self-protection plans. Current regulations. Documentation. Practical applications of emergency plans to specific activities. Drills. Practical applications.

Full-or-part-time: 1h
Theory classes: 1h

-ELECTRIC RISK

Description:
Electric energy: analysis of variables and fundamental laws. Regulatory framework for the safety of facilities, equipment and people. Factors that influence the electrical effect: The intensity and duration of the current, the electrical resistance of the human body, the voltage, the frequency, the path of the current. Type of electrical contacts: direct and indirect. Protection against direct electrical contacts. Measures to protect facilities and equipment. Interposition of obstacles. Coating of active parts. Degrees of switchgear protection against access to dangerous parts, foreign solid bodies and water. Receiver classification. The five golden rules for working on electrical installations and in the vicinity. Protection against indirect electrical contacts: Class A and class B protection systems. Double insulation. circuit separation. Use of small safety voltages. Grounding of masses and breaking devices due to fault intensity, differentials. Periodic checks. Practical applications.

Full-or-part-time: 1h
Theory classes: 1h

GRADING SYSTEM

La evaluación final de la asignatura será el resultado de la evaluación continuada en el transcurso del cuatrimestre, teniendo en cuenta: los conocimientos y habilidades adquiridas, los ejercicios resueltos y las actitudes mostradas.

EXAMINATION RULES.

The exercises will have to be delivered solved, immediately before the corresponding evaluation test.

BIBLIOGRAPHY

Basic:
- Bestratén Belloví, Manuel; Mitjans Talon, Enric. Seguridad en el trabajo. 2011. Madrid: Instituto Nacional de Seguridad e Higiene en el Trabajo, DL 2011. ISBN 9788474257908.
- Aguilar Franco, Josefa. Riesgo químico : sistemática para la evaluación higiénica. [Madrid]: Instituto Nacional de Seguridad e Higiene en el Trabajo, DL 2010. ISBN 9788474257861.
- Guía técnica para la evaluación y prevención de los riesgos relativos a la utilización de los equipos de trabajo : Real Decreto 1215/1997, de 18 de julio B.O.E. nº 188, de 7 de agosto [on line]. Madrid: Instituto Nacional de Seguridad e Higiene en el Trabajo, DL 2000 [Consultation: 21/03/2014]. Available on: http://www.insht.es/InshtWeb/Contenidos/Normativa/GuiasTecnicas/Ficheros/equipo1.pdf. ISBN 8474255600.
- Guía técnica para la evaluación y prevención de los riesgos relativos a las obras de construcción [Recurs electrònic] : Real Decreto 1627/1997, de 24 de octubre BOE nº 256, de 25 d'octubre [on line]. Madrid: Ministerio de Trabajo y Asuntos Sociales. Instituto Nacional de Seguridad e Higiene en el Trabajo, 2003 [Consultation: 21/03/2014]. Available on: http://www.insht.es/InshtWeb/Contenidos/Normativa/GuiasTecnicas/Ficheros/g_obras.pdf. ISBN 8474256577.
- Guía técnica para la evaluacion y prevención de los riesgos relacionados con los agentes químicos presentes en los lugares de trabajo [Recurs electrònic] : Real Decreto 374/2001, de 6 de abril BOE nº 104, de 1 de mayo 2001 [on line]. Madrid: Instituto Nacional de Seguridad e Higiene en el Trabajo, 2013 [Consultation: 21/03/2014]. Available on: http://www.insht.es/InshtWeb/Contenidos/Normativa/GuiasTecnicas/Ficheros/g_AQ.pdf. ISBN 9788474258103.
- Espanya. Ministerio de Trabajo e Inmigración. Para la evaluación y prevención del riesgo eléctrico: Real Dedreto 614/2001, de 8 de junio BOE nº 148, de 21 de junio / Ministerio de Trabajo e Inmigración. Instituto Nacional de Seguridad e Higiene en el Trabajo [on line]. Madrid: Ministerio de Trabajo e Inmigración : Instituto Nacional de Seguridad e Higiene en el Trabajo, 2002 [Consultation: 02/12/2013]. Available on: http://www.insht.es/InshtWeb/Contenidos/Normativa/GuiasTecnicas/Ficheros/g_electr.pdf.

RESOURCES

Other resources:
Regulatory Disclosure Sheet, FDNDN of RD 379/2001 of RD 1254/1999
Prevention Technical Notes, NTP, various.
http://www.insht.es/portal/site/Insht/menuitem.a82abc159115c8090128ca10060961ca/?vgnextoid=db2c46a815c83110VgnVCM1000

00dc0ca8c0RCRD />Teaching aids for various oral presentations will be provided