Machine maintenance and safety

Academic Year: (2020 / 2021) **Review date: 13/07/2020 19:20:20**

Department assigned to the subject: Mechanical Engineering Department

Coordinating teacher: RAMIREZ BERASATEGUI, MARIA BEATRIZ

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 2

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Students should be familiar with the general functioning of machines

OBJECTIVES

SPECIFIC
- Know the basic concepts of maintenance and its application
- Develop a maintenance plan for a machine or set of machines
- Develop a risk assessment of a machine
- Manage existing legislation and armonised standards ruling the CE marking of machinery
- Conduct technical study of a machine CE marking

GENERAL
- Apply the acquired knowledge and solve problems in new or unfamiliar environments within broader and multidisciplinary contexts environments.
- Knowledge, understanding and ability to apply the necessary legislation in the engineering field specialized in machine engineering and transport
- Direct, plan and supervise multidisciplinary teams.
- Capacity for analysis and synthesis , organization and planning , abstraction and deduction .

DESCRIPTION OF CONTENTS: PROGRAMME

This course studies the maintenance of industrial plants and machines. After presenting the different maintenance philosophies, its advantages, disadvantages and cost-effectiveness, it focuses on the conditional reactive, preventive and predictive or preventive maintenance. The application of diagnostic techniques used in this type of maintenance is analyzed.

From the point of view of machinery safety regulations and current regulations and techniques used for compliance and further obtaining the CE marking of it are analyzed. Students will perform work group application of this process on a real machine, evaluating whether there are gaps in its marking.

LEARNING ACTIVITIES AND METHODOLOGY

The training activities include:
Theoretical master-classes, contain the knowledge that students should acquire. To facilitate their development the students receive lecture notes and key reference texts in order to follow the classes and develop further work.

Master-classes of exercises in which they will see practical cases in order to apply concepts taught in lectures. They will be used as examples for the work that students have to make.

The lectures cover a total of 2 ECTS credits
- Completion of a work in which the working group, composed of a maximum of 4 students must develop a maintenance plan from one machine and carry out the technical study for CE marking of the same.
The explanation and evaluation work exhibition covers 1 credit ECTS

ASSESSMENT SYSTEM

% end-of-term-examination/test:	35
% of continuous assessment (assigments, laboratory, practicals…):	65

The evaluation of the course will be made by:
- Final exam
- Presentation of work developed along the course on maintenance and safety plan for a specific machine.
- Percentage Weight Final Exam: 35%
- Weight percentage of the rest of the evaluation: 65%

It is required that the grade of the exam is superior to 3,5/10 in order to pass.
The evaluation of the subject in the extraordinary evaluation will be only with a final exam that will count 100% of the grade.

BASIC BIBLIOGRAPHY

- González Fernández, Francisco Javier Teoría y práctica del mantenimiento industrial avanzado, Confemetal, 2009

- Kelly, Anthony, M Gestión del mantenimiento industrial, Fundación Repsol, 1998

- Roldán Viloria, José Manual de mantenimiento de instalaciones, Paraninfo, 1999

- Souris, Jean-Paul El mantenimiento, fuente de beneficios, Díaz de Santos, 1992

- Tsuchiya, Seiji Mantenimiento de calidad: cero defectos a través de la gestión del equipo, TGP Hoshin, 1995