

Academic Year/course: 2021/22

## 29639 - Industrial Maintenance and Auxiliary Installations

### Syllabus Information

**Academic Year:** 2021/22

**Subject:** 29639 - Mantenimiento industrial y de instalaciones auxiliares

**Faculty / School:** 110 - Escuela de Ingeniería y Arquitectura

**Degree:** 430 - Bachelor's Degree in Electrical Engineering

**ECTS:** 6.0

**Year:** 4

**Semester:** Second semester

**Subject Type:** Optional

**Module:**

### 1. General information

### 2. Learning goals

### 3. Assessment (1st and 2nd call)

### 4. Methodology, learning tasks, syllabus and resources

#### 4.1. Methodological overview

The results programmed for this course include achieving theoretical, cases and laboratory in the field of the maintenance. In the lectures will present the theoretical and practical foundations, learn with numerous examples. In the case-based classes will develop specific cases.

Laboratory practices will be carried out in small groups, where the student will learn to handle equipment specially oriented to predictive maintenance. These practices can be on line

#### 4.2. Learning tasks

**The course includes the following learning tasks:**

##### **Lecture (45 hours)**

The course is case-based, sessions of exposure and explanation of contents. Cases, technical notes, and readings will be assigned for each session. The teacher will be introduced to the concepts and fundamentals illustrated with real examples. Encourage the participation of the student through questions and discussions brief.

##### **Laboratory (15 hours)**

The student will have the resources necessary for the implementation of the practice, which will have to prepare in advance.

##### **Other activities**

You will be able to count on an off-site (personal work of the student) and a classroom portion (whose hours are already accounted for in paragraphs practical classes, problems and Laboratory)

##### **Evaluation**

In addition to the rating function, the evaluation is also a learning tool with which the student verifies the degree of understanding and assimilation that has reached.

##### **Mentoring**

Direct attention to the student, identification of learning problems, guidance on the subject, attention to exercises and works.

##### **Personal Work (20 hours)**

Periodically will be proposed to the student exercises and cases to develop for his personal work. This section also includes the preparation of laboratory practices and additional activities

#### **Individual study (70 hours).**

It will encourage the continuous work of the student through the homogeneous distribution along the half of the various learning activities.

All of these hours can be on line.

### **4.3. Syllabus**

The course will address the following topics:

- 1. Industrial maintenance
- 2. Planning and Scheduling in Industrial Maintenance
- 3. Management of Industrial Maintenance
- 4. Scope of application of electrical maintenance
- 5. Measurement techniques used in electrical maintenance
- 6. Electrical risks and safety in electrical installations
- 7. Corrective Maintenance in electrical systems.
- 8. Preventive maintenance in electrical systems.
- 9. Predictive maintenance in electrical systems.
- 10. Regulatory maintenance in electrical systems.
- 11. Maintenance 4.0
- 12. Monitoring, maintenance and energetic management

### **4.4. Course planning and calendar**

The lecture and problems classes and the practice sessions in the laboratory are taught according to the schedule established by the Center and it's published prior to the start date of the course (eina.unizar.es).

Each teacher will inform of their hours of tutoring attention.

The other activities will be planned based on the number of students and will be released with sufficient advance.

All of these hours can be on line.

### **4.5. Bibliography and recommended resources**

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=29639&Identificador=15365>