Universidad Zaragoza

Academic Year/course: 2023/24

30166 - Maintenance Management

Syllabus Information

Academic year: 2023/24
Subject: 30166 - Maintenance Management
Faculty / School: 175 - Escuela Universitaria Politécnica de La Almunia
Degree: 425 - Bachelor's Degree in Industrial Organisational Engineering
ECTS: 6.0
Year: 4
Semester: First semester
Subject type: Optional
Module:

1. General information

Objective: to convey the need for continuous improvement in the Maintenance Departments of all types of companies, integrating multiple techniques that the market and science offer.

This requires the correct use of the most common computer applications to obtain information on power components and their applications, and also the correct interpretation of the technical documentation of the components used, as well as the computer applications for circuit simulation.

Indicators of having achieved the objectives will be: ability to analyze typical maintenance cases, covering its machinery and facilities, cost analysis, productivity improvements and proposals for maintenance plans that improve services.

These objectives are aligned with the following Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda ( ) (https://www.un.org/sustainabledevelopment/es/): 4.4, 4.7, 9.1, 9.4, 12.2, 12.5

2. Learning results

- Identify maintenance as an integrated system that requires planning, design, engineering and control through the use of statistical and optimization techniques.
- Use quantitative techniques for the operation, control and improvement of maintenance systems.
- Select and interpret appropriate information to propose and evaluate solutions to common technical needs and problems in the field of maintenance, with a level of accuracy consistent with that of the different magnitudes involved.
- Establish criteria to determine the most appropriate conditions for outsourcing maintenance services.
- Know how to use the general methodology and the appropriate software tools to work in maintenance management.

3. Syllabus

Theoretical contents

Block 0:INTRODUCTION

Block 1: GENERAL INFORMATION ON MAINTENANCE TECHNOLOGY

1-. Evolution and structure of maintenance

2-. Management software

Block 2. OPTIMIZATION OF MAINTENANCE MANAGEMENT

3-. Reliability and Quality

4-. Warehouse and maintenance material

5-. Optimization of economic management

Block 3: MAINTENANCE PLANNING AND PROCESSES

6-. Organization of preventive maintenance.

7-. Predictive Maintenance

8-. Energy and environmental maintenance

Block 4: CASE STUDIES ON MACHINES AND SYSTEMS

9-. Case studies on machines

10-. Case studies in installations

Practical contents

Practice 1: GENERAL INFORMATION ON MAINTENANCE TECHNOLOGY

Practice 2: OPTIMIZATION OF MAINTENANCE MANAGEMENT

Practice 3: MAINTENANCE PLANNING AND PROCESSES

Practice 4: CASE STUDIES ON MACHINES AND SYSTEMS

4. Academic activities

Generic face-to-face activities:

- Theoretical classes: Explain theoretical concepts and develop practical examples.
- Practical classes: Carry out problems and case studies.
- Practical classes: Students will be divided into groups, guided by the teacher's tutorial action.
- Defense and presentation of topics: On specific contents assigned to each group.

Generic non face-to-face activities:

- Study and assimilation of theory.
- Understanding and assimilation of solved cases.
- Preparation of seminars, solving proposed problems...
- Participate in Forums/Moodle.
- Prepare and prepare scripts and reports.
- Prepare continuous and global evaluation tests.

Tutored autonomous activities: Seminars and tutorials under the supervision of the teacher.

Reinforcement activities: Through Moodle, activities will be conducted to reinforce basic content.

5. Assessment system

To pass the subject by continuous assessment, students must submit at least 80% of the assignments (problems, work, practices). The final continuous assessment grade is calculated as the weighted sum of the grade obtained in each block of the subject:

FINAL SCORE = 20% Block 1 + 20% Block 2 + 20% Block 3 + 40% Block 4

The subject is passed with a score equal to or higher than 5, with a minimum grade of 3 for each block. A grade lower than 3 in a block means that the student will have to pass the content in the next session.

If the student does not pass in this way, the student will have two additional exams to do so (global assessment test). The student who has passed the subject by continuous assessment, may also opt for the global test of assessment, in the first call, to raise the grade. The subject of the blocks that have not exceeded the minimum scorewill be compulsory , and the subject with a higher score will be optional, always under the student's responsibility.

The activities and weighting of each block are as follows:

BLOCKS 1, 2 and 3:

- Class activities, exercises and assignments, Moodle activities: maximum 20%.
- Laboratory practices: maximum 20%.
- Defense of papers: 60%-100%.

BLOCK 4

- Activity report: 30%.
- Public defense of activity: 70%.
- Mutual evaluation (compulsory): in case of not being present at the other students' defenses, the teacher can apply a correction factor of up to 50% of the marks obtained in the previous activities.