

Course Unit	Maintenance Management	Field of study	Industrial Management
Master in	Industrial Engineering - Mechanical Engineering	School	School of Technology and Management
Academic Year	2022/2023	Year of study	2
Type	Semestral	Semester	1
Level	2-2	ECTS credits	6.0
Code	9572-356-2101-00-22		
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) **Francisco José Basílio Pimentel Pires Peito**

#### Learning outcomes and competences

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

1. Have an integrated overall view of concepts, techniques and strategies most common used in Maintenance Management.
2. A decision support system for maintenance is presented in order to allow student to solve the main maintenance management problems and to help him making the best decisions.

#### Prerequisites

Before the course unit the learner is expected to be able to:  
To apply deductive and inductive Statistical techniques and master the basic tools of Excel.

#### Course contents

ORGANISATION OF MAINTENANCE: Planning maintenance activities. Maintenance costs and stoppage costs. Maintenance indicators. Terotechnology e TPM approach. MAINTENANCE POLICIES: Preventive, corrective and conditional maintenance. CONCEPTS OF RELIABILITY: Underlying statistical concepts. Reliability of components and repairable systems. Replacement policy of components and equipment. Spare parts and stock management of spare equipment.

#### Course contents (extended version)

- Maintenance management
- ORGANISATION OF MAINTENANCE: Planning maintenance activities.
- Maintenance costs and stoppage costs. Maintenance indicators. Terotechnology and TPM approach.
- MAINTENANCE POLICIES: Preventive, corrective and conditional maintenance.
- CONCEPTS OF RELIABILITY: Statistical concepts. Reliability of components and repairable systems.
- Replacement policy of components and equipment.
- Spare parts and stock management of spare equipment.

#### Recommended reading

1. "Equipamentos", Bernardo Calafate (1990) FEUP
2. "Manutenção Industrial" Armando Leitão (1991), FEUP
3. "Management of Industrial Maintenance" A. Kelly, M. J. Harris; (Newnes-Butterworths)
4. "Maintenance Management Techniques" A. S. Corder; (Mcgraw Hill)
5. "Maintenance, Replacement, and Reliability" A. K. S. Jardine; (Pitman Publishing)

#### Teaching and learning methods

The concepts and techniques will be exemplified through problems and cases. It will also be used, as means of support, overhead projector, data show, videos and some informatics tools. The students must solve practical problems using or developing it tools.

#### Assessment methods

1. Alternative 1 - (Regular, Student Worker) (Final, Supplementary, Special)
  - Final Written Exam - 100%
2. Alternative 2 - (Regular, Student Worker) (Final)
  - Practical Work - 50% (The practical work will be presented and discussed in class in the middle of the semester.)
  - Practical Work - 50% (The practical work will be presented and discussed in class at the end of the semester.)

#### Language of instruction

Portuguese, with additional English support for foreign students.

#### Electronic validation

Francisco José Basílio Pimentel Pires Peito	António Jorge da Silva Trindade Duarte	José Alexandre de Carvalho Gonçalves	Paulo Alexandre Vara Alves
05-10-2022	11-10-2022	11-10-2022	04-11-2022