30120 - Manufacturing Technology

Información del Plan Docente

Academic Year	2017/18
Faculty / School	175 - Escuela Universitaria Politécnica de La Almunia
Degree	425 - Bachelor's Degree in Industrial Organisational Engineering
ECTS	6.0
Year	2
Semester	Second semester
Subject Type	Compulsory
Module	---

1.General information

1.1.Introduction

1.2.Recommendations to take this course

1.3.Context and importance of this course in the degree

1.4.Activities and key dates

2.Learning goals

2.1.Learning goals

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

4.1.Assessment tasks (description of tasks, marking system and assessment criteria)

5.Methodology, learning tasks, syllabus and resources

5.1.Methodological overview

The organization of teaching will be carried out using the following steps:

- **Theory Classes** : Theoretical activities carried out mainly through exposition by the teacher, where the theoretical supports of the subject are displayed, highlighting the fundamental, structuring them in topics and or sections, interrelating them.
- **Practical Classes** : The teacher resolves practical problems or cases for demonstrative purposes. This type of

teaching complements the theory shown in the lectures with practical aspects.
- **Laboratory Workshop** : The lecture group is divided up into various groups, according to the number of registered students, but never with more than 20 students, in order to make up smaller sized groups.
- **Individual Tutorials** : Those carried out giving individual, personalized attention with a teacher from the department. Said tutorials may be in person or online.

5.2.Learning tasks

- 38 hours of lectures, with 50% theoretical demonstration and 50% solving type problems.
- 14 hours of laboratory workshop, in 1 or 2 hour sessions.
- 6 hours of written assessment tests, two hours per test.
- 2 hours of PPT presentations.
- 90 hours of personal study, divided up over the 15 weeks of the 2 nd semester.

There is a tutorial calendar timetable set by the teacher that can be requested by the students who want a tutorial.

5.3.Syllabus

Contents:

Topic 1. Metrology.

Introduction. Measuring instruments. Direct and indirect measurements. Tolerances. Metrology Practices.

Topic 2. Process Control.

Process Capability Studies. Control Chart.

Topic 3. Casting Process.

Introduction to casting process. Types of Casting Process. Economical and Technical considerations.

Topic 4. Plastic Deformation Processes.

Metal Rolling. Metal Forging. Metal Extrusion and Stretching. Operations in metal sheets.

Topic 5. Welding and Joining Processes.

Joining Processes. Welding metallurgy.

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Topic 6. Machining Processes.

Metal Processing Theory. Cutting tools.

Practising contents:

Practice 1. Thread control.

Practice 2. Gear control.

Practice 3. Measurement of angles and conicity.

Practice 4. Verification of roughness, tolerance control on axis, depth measurement, distance between holes.

Practice 5. Measurement and sketching of a mechanical component.

5.4.Course planning and calendar

The dates of the final exams will be those that are officially published at http://www.eupla.es/secretaria/academica/examenes.html.

The written assessment tests will be related to the following topics:

- **Test 1** : Topic 1.
- **Test 2** : Topic 2 and 3.
- **Test 3** : Topic 4, 5 and 6.

The topics used for the PPT presentations will be proposed before Week 8.

5.5.Bibliography and recommended resources

BIBLIOGRAFHY

THE UPDATED BIBLIOGRAPHY OF THE SUBJECT IS CONSULTED VIA THE LIBRARY'S WEB PAGE http://psfunizar7.unizar.es/br13/egAsignaturas.php?codigo=30120&Identificador=13301

BB Kalpakjian, Serope. Manufactura, ingeniería y tecnología / Serope Kalpakjian, Steven R. Schmid ; traducción Jaime Espinosa Limón ; revisión técnica Francisco Sandoval Palafox, Ulises Figueroa López, Roberto Hernández Cárdenas . -

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5ª ed. Naucalpan de Juárez (México) : Pearson Educación, 2008

BC Domingo Acinas, José de. Calidad y mejora continua / José de Domingo Acinas, Alberto Arranz Molinero San Sebastian : Donostiarra, D.L. 1997

BC Gerling, Heinrich. Alrededor de las máquinas-herramienta : máquinas- herramienta para arranque de viruta y herramientas... / Heinrich Gerling . - 3a. ed., [reimpr.] Barcelona [etc.] : Reverté, D. L. 1987

BC Groover, Mikell P.. Fundamentos de manufactura moderna : Materiales, procesos y sistemas / Mikell P. Groover . - 1a ed. México : Prentice-Hall Hispanoamericana, cop. 1997

RESOURCES:

- Metrology laboratory
- Materials laboratory
- Machining laboratory
- Desing room