DEGREE CURRICULUM

MANUFACTURING TECHNOLOGIES

Academic year 2015-16

MANUFACTURING TECHNOLOGIES 2015-16

Subject's general information

Subject name	Manufacturing Technologies
Code	102309
Semester	2nd
Typology	Mandatory
ECTS credits	6
Groups	1 GG, 2 GM and 5 GP
Theoretical credits	3
Practical credits	3
Office and hour of attention	Miquel Nogués, Tuesday from 19:00 to 20:30 and Thursday from 10 to 11:30 Juan José González, Thursday from 18:00 to 20:00
Department	Informàtica i Enginyeria Industrial
Teaching load distribution between lectures and independent student work	40% lectures in class 60% independent student work
Modality	Presencial
Important information on data processing	Consult this link for more information.
Language	Catalan
Degree	Degree in Engineering Mechanics
Distribution of credits	Miquel Nogués Aymamí 3 Juan Jose Gonzalez Fabra 7,2
Office and hour of attention	Miquel Nogués, Tuesday from 19:00 to 20:30 and Thursday from 10 to 11:30 Juan José González, Thursday from 18:00 to 20:00
E-mail addresses	mnogues@diei.udl.cat jgonza@diei.udl.cat

MANUFACTURING TECHNOLOGIES 2015-16

Miquel Nogués Aymamí
Juan Jose Gonzalez Fabra

Subject's extra information

It is esential to have studied previously, and its advisable to hve passed the following subjects:
- GRAPHICS EXPRESSION I.
- MATERIALS SCIENCE.
- THEORY OF MECHANISMS.
- ELASTICITY AND STRENGH OF MATERIALS I.
- MATERIALS FOR MECHANICAL MANUFACTURING.

Learning objectives

To show different systems and manufacturing processes of parts, especially metal parts, due to its great importance in the industrial world.

Competences

Degree-specific competences

- Applied knowledge of manufacturing, metrology and quality control systems and processes.
- Knowledge and ability to apply mechanical engineering.

Degree-transversal competences

- Ability to resolve problems and elaborate and defend arguments inside their field of study.
- Ability to analyse and synthesize

Subject contents

Topic 1 - METROLOGY

Topic 2 - METAL FORMING PROCESSES.

Topic 3 - METAL CUTTING AND MACHINING PROCESSES.

Topic 4 - NUMERICAL CONTROL.

Topic 5 - WELDING TECNOLOGIES

Topic 6 - RAPID PROTOTYPING

Topic 7 - UNCONVENCIONAL MACHINING PROCESSES.

Methodology

Theory class: Presentacions are available in SAKAI before class starts.

Problems class: Solving problems, questions and exercises. Solved exercises are available in SAKAI

Lab Practices: Assistance and adequate attendence in all the lab exercecis is mandatory to pass the course

MANUFACTURING TECHNOLOGIES 2015-16

Development plan

Week 1 and 2 - METROLOGY

Week 3 and 4 - METAL FORMING PROCESSES

Week 5, 6, 7 and 8 - METAL CUTTING AND MACHINING PROCESSES.

Week 9, 10 and 11 - NUMERICAL CONTROL

Week 12 and 13 - WELDING TECNOLOGIES

Week 14 - RAPID PROTOTYPING

Week 15 - UNCONVENCIONAL MACHINING PROCESSES.

WORKSHOP EXCERCISES

- METROLOGY (calipers, micrometres, dial indicators, protactors, ...)
- SHEETMETAL FORMING (punching and bending machines)
- LATHE AND MILLLING MACHINES
- NUMERICAL CONTROL (CIMCO software)
- CAD/CAM (MASTERCAM software)
- WELDING TECNOLOGIES (shielded arc, TIG, MIG/MAG, soldering, brazing and resistance spot welding)

Evaluation

The evaluation will consist of one theoretical part and one practical part.

The theoretical part will by divided in two exams which are indicated in the academic calendar, and each exam will have two parts: a multiple test and exercises. The theory grade (NT) obtained will be calculated by:

NT = + 0,5xE1 0,5xE2

In the practical part (NP) must be remarked that assistance and adequate attendence in all the lab exercecis is mandatory to pass the course

The mark of the practical part will be obtained by:

NP = + 0,4xPR 0,6xTR

where:

PR: Reports delivered in lab and practical problems in class

TR: Exercices done in a teamwork

Final course grade (NF)

NF = + 0,7xNT 0,3xNP

If the final score is not greater than or equal to 5, students can do the extraordinary exam which will contain all the extraordinary syllabus of the course to rise his mark. The practice mark is not recoverable.

Bibliography

GROOVER, M.P. "Fundamentos de manufacturamoderna". Ed. Mc GrawHill 2007

KALPAKJIAN, S. "Manufactura: Ingeniería y Tecnología". Ed. PearsonEducación 2002

SCHEY, J."Introduction to manufacturing processes".Ed. Mc GrawHill 2000

Singh, R."Applied Welding Engineering". Ed. Elsevier Inc. 2012

SALUEÑA X. i NÁPOLES A. " Tecnología Mecánica". Ed.CPDA-ETSEIB. 2000

VIVANCOS, J."Procesos mecanizado". Tomo I. Ed.CPDA-ETSEIB. 1999.

VIVANCOS, J."Control Numèric". Ed. UPCBarcelona 1996.

COMPLEMENTARY BIBLIOGRAPHY

COCA, P. i ROSIQUE, J. "Tecnología Mecánica i Metrotécnia". Ed. Pirámide1984.

LASHERAS ESTEBAN,J.M. "Tecnologia mecánica i Metrotécnia". Ed.Donostiarra. 1987.

Falk, D. i Gockel, H."Metrotècnia Fundamental". Ed. Reverté, 1986.