Course guide
320060 - ACN - Adjustments and Numerical Control

Last modified: 19/04/2023

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 712 - EM - Department of Mechanical Engineering.

Degree: BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Optional subject).

Academic year: 2023 **ECTS Credits:** 6.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: Jordi Sans García

Others:

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Transversal:
1. SELF-DIRECTED LEARNING - Level 2: Completing set tasks based on the guidelines set by lecturers. Devoting the time needed to complete each task, including personal contributions and expanding on the recommended information sources.
2. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 2. Using strategies for preparing and giving oral presentations. Writing texts and documents whose content is coherent, well structured and free of spelling and grammatical errors.
3. TEAMWORK - Level 2. Contributing to the consolidation of a team by planning targets and working efficiently to favor communication, task assignment and cohesion.

TEACHING METHODOLOGY

- Theoretical sessions and resolution of exercises.
- Practical sessions in the laboratory (in groups).
- Independent work and study exercises.

LEARNING OBJECTIVES OF THE SUBJECT

· Introduce concepts, techniques and methodologies in the area of conventional and computerized manufacturing

· Familiarization and use technical language typical of industrial environment

STUDY LOAD

Type	Hours	Percentage
Hours large group	30,0	20.00
Hours small group	30,0	20.00
Self study	90,0	60.00

Total learning time: 150 h

CONTENTS

miLling CNC in two axes and half

Description:
MILLING CNC
TOOLS
WORK PLANS
CASHIER AND ISLANDS
BORING

Full-or-part-time: 16h
Theory classes: 16h

MILLING IN THREE AXES

Description:
SPHERICAL AND TOROIDAL TOOLS
PLANNING STRATEGIES
DIFFERENT TYPES OF FINISH

Full-or-part-time: 16h
Theory classes: 16h

CNC TURNING

Description:
WORK PLANS
TOOLS
PLANNING
FINISHING
BORING
INTERIOR TURNING

Full-or-part-time: 16h
Theory classes: 16h

3D PRINTING

Description:
HOW TO PROPERLY DESIGN A PIECE INTENDED TO PRINT
IMPORTANT PARAMETERS TO PRINT
USING CAM PROGRAMS
PRINTING

Full-or-part-time: 8h
Theory classes: 8h

GRADING SYSTEM

During the course will be given five practices, three of milling machine and two of lathe, in case of being delivered, will give access to a test for each one of them to deliver in the term marked by the professor. Each test will have a weight of 20% of the final mark
It is possible that some other non-evaluable practice has to be delivered in order to obtain the final mark

BIBLIOGRAPHY

Basic:
- Sans Garcia, Jordi. Heidenhain: aplicaciones de control numérico para fresadora [on line]. Barcelona: Edicions UPC, 2008 [Consultation: 06/05/2020]. Available on: http://hdl.handle.net/2099.3/36791. ISBN 9788483017623.

Complementary:
- Echepare, R.; López de Lacalle, L. N. Control numérico: conceptos y programación. Bilbao: Ediciones Técnicas Izaro, 1990.
- Vivancos Calvet, J. Control numèric, vol. 2, Programació. 3ª ed. Barcelona: Edicions UPC, 1997. ISBN 8483012189.

RESOURCES

Computer material:
- PROGRAMA CAM. CAM 'ROGRAM