Course guide
820426 - FAB - Manufacturing

Last modified: 02/10/2025

Unit in charge: Barcelona East School of Engineering
Teaching unit: 712 - EM - Department of Mechanical Engineering.

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

Academic year: 2025 **ECTS Credits:** 6.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: JOSE ANTONIO TRAVIESO RODRIGUEZ

Others: Primer quadrimestre:
MOHAMMAD TALHA SHARIF RAFIQUE - Grup: T11, Grup: T12, Grup: T13
ADRIAN ALBERTO TRAVIESO DISOTUAR - Grup: T11, Grup: T12, Grup: T13
JOSE ANTONIO TRAVIESO RODRIGUEZ - Grup: M11, Grup: M12, Grup: M13, Grup: M14

REQUIREMENTS

AMPLIACIÓ D'EXPRESSIÓ GRÀFICA. DISSENY MECÀNIC - Prerequisit
CIÈNCIA I ENGINYERIA DE MATERIALS - Precorequisit

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CEMEC-26. Understand manufacturing, metrology and quality assurance systems and processes.
CEMEC-19. Understand and apply graphic engineering techniques.

Transversal:
1. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.

TEACHING METHODOLOGY

In the theory and problems classes we will present the items listed in this subject guide, and we'll propose issues and little exercises to do in the classroom and as homework.
For explanations will be used: the blackboard, transparencies, PowerPoint, CD-ROM, Flash Drive, Video and Multimedia Systems. Also in class we will show samples of parts, components and small tools related to the subject matter.
The students will have notes and documentation in virtual space ATENEA UPC Campus.

LEARNING OBJECTIVES OF THE SUBJECT

General Objectives
1 .- Knowledge of parts manufacturing.
2 .- Create the ability to control and verificate products.
3 .- Develope the ability to solve problems of metrology and manufacturing processes.
4 .- To know the rules to make the parts.
5 .- Ability to select the optimal manufacturing process of a piece.

STUDY LOAD

Type	Hours	Percentage
Hours small group	15,0	10.00
Hours large group	45,0	30.00
Self study	90,0	60.00

Total learning time: 150 h

CONTENTS

(ENG) 2. Fabricació de peces per Formació

Full-or-part-time: 21h 30m
Theory classes: 7h 30m
Self study : 14h

(ENG) 7. Soldadura i Tall de peces

Full-or-part-time: 12h 30m
Theory classes: 4h 30m
Self study : 8h

(ENG) 1. Metrologia i Qualitat

Description:
Technical regulations. Standardization and manufacturing series. Geometric and dimensional tolerances. Positions and qualities of the tolerances. Adjustments of fish. Types of adjustments. Recommended adjustments. Applications Metrology and metronutrients. Measurement errors Measurement, comparison and verification instruments. Measuring machines. Control of the surface state. Production quality control.

Specific objectives:
· Know and identify the instruments and measuring machines used to do the metrology of the pieces.
· Know the most important regulations to take into account in order to make measurements in mechanics.
· Apply to the design of a piece everything related to dimensional and geometric adjustments and tolerances, and to relate these concepts to the processes and operations necessary to manufacture a piece.

Full-or-part-time: 30h 30m
Theory classes: 7h 30m
Laboratory classes: 6h
Self study : 17h

(ENG) 3. Fabricació de peces per arrancament de Ferritja

Full-or-part-time: 40h 30m
Theory classes: 10h 30m
Laboratory classes: 4h
Self study : 26h

(ENG) 4. Màquines de Control Numèric i Fabricació Flexible

Full-or-part-time: 17h
Theory classes: 6h
Laboratory classes: 2h
Self study : 9h

(ENG) 5. Fabricació de peces per Deformació Plàstica

Full-or-part-time: 21h
Theory classes: 6h
Laboratory classes: 2h
Self study : 13h

(ENG) 6. Processos de fabricació de materials plàstics

Full-or-part-time: 7h
Theory classes: 3h
Self study : 4h

GRADING SYSTEM

First parcial test: 25 % / Team-work: 15 % / Individual homeworks: 15% / Laboratories: 15 % / Second parcial tests: 30 %
This subject does not have re-evaluation exam.

EXAMINATION RULES.

There are two parcial test. Each one of them is to evaluate topics 1 and 2 (1s test) and 3 and 4 (2d test). They will be develope in 1:30 hour. There are also a final test to evaluate the other topics, and at the same time you will do the Laboratories test. In this subject there are not re-evaluation exam

BIBLIOGRAPHY

Basic:
- Travieso Rodríguez, José Antonio; Nápoles Alberro, Amelia. Ingeniería de los procesos de fabricación : mediante el arranque de virutas. Madrid: Delta Publicaciones, 2010. ISBN 9788492954032.
- Arias Sanvicente, Héctor; Lasheras Esteban, José Mª. Tecnologia mecánica y metrotecnia. 7ª ed. San Sebastián: Editorial donostiarra, 1978. ISBN 8470630873.

Complementary:
- Larburu Arrizabalaga, Nicolás. Máquinas : prontuario : técnicas, máquinas, herramientas. 4a ed. Madrid: Paraninfo, 1992. ISBN 8428319685.
- Coca Rebollero, Pedro; Rosique Jiménez, Juan. Tecnología mecánica y metrotecnia. Madrid: Pirámide, 1996. ISBN 8436816633.

RESOURCES

Hyperlink:
- Advances in manufacturing [en línia]. Springer. ISSN 2195-3597. http://link.springer.com/journal/volumesAndIssues/40436- CIRP journal of manufacturing science and technology [en línia]. New York, N.Y.: Elsevier Science. ISSN 1755-5817.. http://www.sciencedirect.com/science//journal/17555817- Modern machine shop [en línia]. Cincinnati, OH: Gardner Publications. ISSN 0026-8003. http://search.proquest.com/publication/40497