820426 - FAB - Manufacturing

Coordinating unit: 295 - EEBE - Barcelona East School of Engineering
Teaching unit: 712 - EM - Department of Mechanical Engineering
Academic year: 2018
Degree: BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
ECTS credits: 6

Teaching languages: Catalan, Spanish

Teaching staff
Coordinator: JOSE ANTONIO TRAVIESO RODRIGUEZ
Others: Romanillos Delgado, Daniel
Rodríguez Redondo, Juan Vicente

Degree competences to which the subject contributes

Specific:
2. 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 verify products.
3. Develop 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

<table>
<thead>
<tr>
<th></th>
<th>Hours large group:</th>
<th>Hours medium group:</th>
<th>Hours small group:</th>
<th>Guided activities:</th>
<th>Self study:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total learning time:</strong></td>
<td>150h</td>
<td>45h</td>
<td>0h</td>
<td>15h</td>
<td>90h</td>
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## Content

### (ENG) 1. Metrologia i Qualitat

**Learning time:** 30h 30m  
- Theory classes: 7h 30m  
- Laboratory classes: 6h  
- Self study: 17h  

**Description:**  

**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.

### (ENG) 2. Fabricació de peces per Formació

**Learning time:** 21h 30m  
- Theory classes: 7h 30m  
- Self study: 14h  

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

**Learning time:** 40h 30m  
- Theory classes: 10h 30m  
- Laboratory classes: 4h  
- Self study: 26h  

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

**Learning time:** 17h  
- Theory classes: 6h  
- Laboratory classes: 2h  
- Self study: 9h  

### (ENG) 5. Fabricació de peces per Deformació Plàstica

**Learning time:** 21h  
- Theory classes: 6h  
- Laboratory classes: 2h  
- Self study: 13h
Qualification system

Parcial tests 35 % / Generic proficiency (Assessed through final test): 10 % / Laboratories: 20 % / Final Test: 35 %

Regulations for carrying out activities

There are two parcial tests. Each one of them is to evaluate topics 1 and 2 (1st test) and 3 and 4 (2nd test). They will be developed 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:


Complementary:


Others resources:

Hyperlink

Advances in manufacturing [en línia]. Springer. ISSN 2195-3597
http://link.springer.com/journal/volumesAndIssues/40436

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