340083 - DIME-D6O12 - Mechanism Design

Coordinating unit: 340 - EPSEVG - Vilanova i la Geltrú School of Engineering
Teaching unit: 712 - EM - Department of Mechanical Engineering
Academic year: 2015
Degree: BACHELOR'S DEGREE IN INDUSTRIAL DESIGN AND PRODUCT DEVELOPMENT ENGINEERING
(2009). (Teaching unit Compulsory)
ECTS credits: 6

Teaching languages: Catalan

Coordinator: JUAN SOLE ROVIRA
Others: JUAN SOLE ROVIRA - JORDI PONS SEGALÀ

Degree competences to which the subject contributes

Specific:
1. D6. Ability to analyze and model kinematics and dynamic behavior of mechanical systems.
2. D7. Ability to simulate and design mechanisms as a solution for specific mechanical problems.
3. D8. Ability to dimension and to select machines and structure elements.

Transversal:
5. EFFECTIVE USE OF INFORMATION RESOURCES - Level 3. Planning and using the information necessary for an academic assignment (a final thesis, for example) based on a critical appraisal of the information resources used.

Teaching methodology

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Learning objectives of the subject

When finishing the subject, the student has to be able to:

- Analyze and relate the solicitations, efforts and motion in mechanical systems.
- Analyze and design mechanisms as a result of a specific problem of motion.
- Design resistant machine parts.
- Analyze and design mechanisms with the help of CAE programs.
## Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group: 45h 30.00%</th>
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<tr>
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<td>Hours medium group: 0h 0.00%</td>
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<td>Hours small group: 15h 10.00%</td>
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<td>Guided activities: 0h 0.00%</td>
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<td>Self study: 90h 60.00%</td>
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## Content

### Kinematic and dynamic analysis of mechanisms.

**Learning time:** 36h  
Theory classes: 11h 15m  
Laboratory classes: 3h 45m  
Self study: 21h

### Synthesis of Mechanisms.

**Learning time:** 36h  
Theory classes: 11h 15m  
Laboratory classes: 3h 45m  
Self study: 21h

### Design of machine elements: flywheel (or balance wheel), brakes, clutches, shafts, belts, chains, cams, gears and gear trains.

**Learning time:** 36h  
Theory classes: 11h 15m  
Laboratory classes: 3h 45m  
Self study: 21h

### Computer aided study of mechanisms.

**Learning time:** 36h  
Theory classes: 11h 15m  
Laboratory classes: 3h 45m  
Self study: 21h

### (ENG) Proves d’avaluació individual

**Learning time:** 6h  
Guided activities: 6h
### Planning of activities

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<tr>
<th>(ENG) A1. AVALUACIÓ DE L'APRENENTATGE</th>
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<tbody>
<tr>
<td>(ENG) A2. PRÀCTIQUES</td>
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<tr>
<td>(ENG) A3. PRESENTACIÓ D'INFORMES</td>
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### Qualification system

- Individual written exams throughout the semester: 80%
- Assessment of reports of laboratory practice: 15%
- Preparation and presentation of papers and reports issued in group: 5%

### Bibliography

**Basic:**


**Complementary:**