220235 - Theory of Machines

When finishing the subject the students must know the concepts, principles and basic fundamentals of kinematics and the dynamics of the multi-body mechanical systems.

Learning objectives of the subject

When finishing the subject the students must know in the concepts, principles and basic fundamentals of kinematics and the dynamics of the multi-body mechanical systems.

Study load

<table>
<thead>
<tr>
<th>Total learning time: 75h</th>
<th>Hours large group:</th>
<th>27h</th>
<th>36.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Self study:</td>
<td>48h</td>
<td>64.00%</td>
</tr>
</tbody>
</table>
# Module 1: Mechanisms-Degrees of freedom

**Learning time:** 18h  
Theory classes: 6h  
Self study: 12h

**Description:**
How to determine the degrees of freedom of the mechanisms.

**Related activities:**
1, 2, 3

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# Module 2: Kinematics

**Learning time:** 31h  
Theory classes: 20h  
Self study: 11h

**Description:**
Calculation of speeds and accelerations

**Related activities:**
1, 2, 3

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# Module 3: Transmissions-Epicyloid Trains

**Learning time:** 26h  
Theory classes: 10h  
Self study: 16h

**Description:**
Study of mechanical transmissions

**Related activities:**
1, 2, 3
### Planning of activities

| Activity 1: Large group sessions | Hours: 43h  
Theory classes: 19h  
Self study: 24h |
|----------------------------------|------------------|
| Activity 2: Laboratory           | Hours: 8h  
Theory classes: 2h  
Self study: 6h |
| Activity 3: Controls in class    | Hours: 12h  
Theory classes: 3h  
Self study: 9h |
| Activity 4: Final exam           | Hours: 12h  
Theory classes: 3h  
Self study: 9h |

### Qualification system

- 25% Laboratory
- 25% Controls in class
- 50% Final exam at the end of the course

### Bibliography

**Basic:**


**Others resources:**

- ATENEA documents