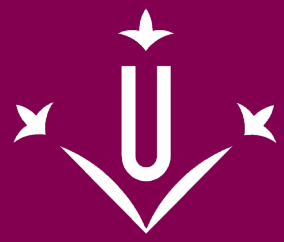

Universitat de Lleida

DEGREE CURRICULUM

THEORY OF MECHANISMS

Academic year 2015-16

THEORY OF MECHANISMS 2015-16

Subject's general information

Subject name	Theory of Mechanisms
Code	102110
Semester	1st semester
Typology	Mandatory
ECTS credits	6
Theoretical credits	3
Practical credits	3
Office and hour of attention	Joan Roca Enrich Monday, 12 to 13. Wednesday, 17 to 18 Martí Comellas Andrés Monday, 17 to 18. Thursday, 12 to 13 Xavier Terribas Sala
Department	Informàtica i Enginyeria Industrial
Teaching load distribution between lectures and independent student work	Face to face: 40 % Autonomous work: 60 %
Modality	Presencial
Important information on data processing	Consult this link for more information.
Language	Catalan
Degree	Degree in Mechanical Engineering and Degree in Industrial Electronics and Automation Engineering
Office and hour of attention	Joan Roca Enrich Monday, 12 to 13. Wednesday, 17 to 18 Martí Comellas Andrés Monday, 17 to 18. Thursday, 12 to 13 Xavier Terribas Sala
E-mail addresses	jroca@diei.udl.cat mcomellas@diei.udl.cat xterribas@diei.udl.cat

THEORY OF MECHANISMS 2015-16

Joan Roca Enrich
Martí Comellas Andrés
Xavier Terribas Sala

Subject's extra information

The main background needed to take advantatge of the subject are: operations with vectors, trigonometry, derivatives and integrals of one variable, graphical representation of multi-body systems, dynamics of a mass particle

It is essential to have studied previously, and it is advisable to have passed the following subjects:

- Linear Algebra

- Calculus

- Physics I

- Graphics Expression I

Learning objectives

See competences.

Competences

Degree specific competences

- Knowledge of the principles of theory of machines and mechanisms.

Cross-disciplinary competences

- Capacity to gather and interpret relevant data, within the area of study, to judge and think about relevant subjects of social, scientific and ethical nature..
- Capacity to solve problems and prepare and defence arguments inside the area of studies.
- Capacity to work in situations with a lack of information and/or under pressure.

Subject contents

1. Rigid body kinematics

2. Rigid body dynamics: momentum and angular momentum

3. Introduction to mechanisms

4. Mobility of mechanisms

5. Mechanism kinematics

6. Mechanism dynamics: vectorial theorems

7. Energy theorem apllied to mechanism dynamics

Methodology

Theory classes: Presentacions are available in SAKAI before class starts.

Problems classes: Solving problems, questions and exercises. Som solved exercises are available in SAKAI

3 laboratory sessions will take place during the semester, one using a CAD software and two at the mechanica laboratory, in the CREA building. Attendance at laboratory practices is mandatory.

Throughout the semester, student will have to carry out 2 works in groups of 3 or 4 students. They will consist in the kinematic o dynamic analysis of a mechanical system.

Evaluation

There will be some different evaluation activities:

- 1st individual written exam
- Reports from the laboratory sessions
- Works in group
- 2nd individual written exam, with a minimum mark of 3 over 10 to be able to pass the subject
- Make-up exam of the 2nd individual one, with the same minimum mark

The percentage assigned to each evaluation activity, of total of 100, is as follows:

Activity	**Percentatge**
1st individual exam	20
Laboratory sessions	10
Work in group	10+10
2nd individual exam	50
Make-up exam of the 2nd individual one	50

Bibliography

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CARDONA, S. et al. (1998) *Teoria de Màquines*. Ed. CPDA-ETSEIB.Barcelona.

MABIE, H & REINHOLTZ, C. (1998) *Mecanismos y Dinámica de Maquinaria*. Limusa.México.

RIBA, C. (1995) *Dissenyde Màquines I. Mecanismes*. Edicions UPC. Barcelona.

NORTON, R.L. (1995) *Diseño de Maquinaria*. McGraw Hill. México.

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