UNIVERSIDAD PONTIFICIA ICAI ICADE COMILLAS MADRID

ESCUELA TÉCNICA SUPERIOR DE INGENIERÍA

DIM-GITI-202 Mechanics

SEMESTER: Annual (Fall and Spring)

CREDITS: 9 ECTS (3 hrs. per week)

LANGUAGE: Spanish

DEGREES: Degree in Industrial Technology Engineering

Course overview

The objective of this course is to study in depth Rigid Bodies in 2D and 3D motion, and its application to planar mechanisms. The course's scope includes the basic principles, laws and methods of Rigid Bodies Kinematics and Dynamics, and besides the description and analysis of common mechanisms used in Engineering.

Prerequisites

Kinematics and Dynamics of a particle and particle systems. Basic knowledge of plane motion of rigid bodies.

Course contents

1. Rigid Body Statics
2. Relative Position Reference Systems
3. 3D Rigid Body Kinematics and Dynamics
4. Planar Mechanism Concepts and Definitions
5. Kinematic Analysis of Planar Mechanism
6. Dynamic Analysis of Planar Mechanism
7. Principles of Gear Trains and Cams

Textbook

- A. Bedford and W. Fowler. Engineering Mechanics: Statics & Dynamics (5th Edition), Prentice Hall (2007)

Grading

The final grade for this course is based on the following criteria:

- Two End of Term exams (25% each)
- Two Midterm exams (15% each)

- Two short exams (10% each)

The following conditions must be accomplished to pass the course:

- A minimum overall grade of at least 5 over 10.
- A minimum grade in the End of Term exams of 3,5 over 10.