

## SUBJECT TEACHING GUIDE

### G707 - Kinematics of Machines and Mechanisms

#### Degree in Industrial Technologies Engineering

Academic year 2023-2024

1. IDENTIFYING DATA					
Degree	Degree in Industrial Technologies Engineering			Type and Year	Compulsory. Year 3
Faculty	School of Industrial Engineering and Telecommunications				
Discipline	Subject Area: Machine Kinematics and Mechanisms Module in Common with the Industrial Branch				
Course unit title and code	G707 - Kinematics of Machines and Mechanisms				
Number of ECTS credits allocated	6	Term	Semester based (1)		
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. INGENIERIA ESTRUCTURAL Y MECANICA				
Name of lecturer	RAMON SANCIBRIAN HERRERA				
E-mail	ramon.sancibrian@unican.es				
Office	E.T.S. de Ingenieros Industriales y de Telecomunicación. Planta: - 2. DESPACHO (S2047)				
Other lecturers	CARLOS AGUILAR QUINTANA				

### 3.1 LEARNING OUTCOMES

- Students will be able to perform a structural synthesis in the design of mechanisms by selecting the type of mechanism most appropriate to meet the design requirements.
- Students will be able to solve problems kinematic analysis and synthesis.
- Students will be able to design mechanical systems using cams and / or gears.

#### 4. OBJECTIVES

The overall objective of the course is to establish the relationship between geometry, topology and movements on machines and mechanisms.

To know the general aspects of the plane motion in mechanisms .

Knowing the type of mechanisms used in various machine design.

Addressing the kinematic analysis of mechanisms.

To understand the concept of kinematics synthesis and apply to certain types of mechanisms .

#### 6. COURSE ORGANIZATION

##### CONTENTS

1	Introduction
2	Planar motion
3	Curvature theory
4	Analysis and synthesis of planar linkages
5	Dimensional synthesis of mechanisms
6	Kinematics of cams
7	Kinematics of gears

#### 7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Problems exam	Written exam	No	Yes	35,00
Final exam	Written exam	Yes	Yes	50,00
Laboratory	Work	No	No	15,00
TOTAL				100,00

##### Observations

The laboratory activities and the continuous evaluation are not compulsory, but the non-performance of them supposes renouncing the percentage of the mark in the final evaluation. The exams will be conducted without documentation or electronic devices that allow communication

In case of a new health alert by COVID-19 makes impossible the evaluation in person, remote evaluation of the works (practical laboratory exercises and written tests) would be carried out.

##### Observations for part-time students

At the beginning of the course (before the beginning of these activities), part-time students should notify the lecturer if they are going to take continuous assessment and laboratory activities. Part-time students who do not perform these activities and notify the teacher at the beginning of the course will be evaluated in the final exam.

#### 8. BIBLIOGRAPHY AND TEACHING MATERIALS

##### BASIC

Apuntes de la asignatura disponibles en el Aula Virtual

