SUBJECT TEACHING GUIDE

G997 - Machines and Mechanisms

Degree in Industrial Electronic Engineering and Automatic Control Systems
First Degree in Industrial Electronic Engineering and Automatic Control Systems

Academic year 2024-2025

1. IDENTIFYING DATA						
Degree	Degree in Industrial Electronic Engineering and Automatic Control Systems First Degree in Industrial Electronic Engineering and Automatic Control Systems			Type and Year	Compulsory. Year 3 Compulsory. Year 3	
Faculty	School of Industrial Engineering and Telecommunications					
Discipline	Subject Area: Machines and Mechanisms Module in Common with the Industrial Branch					
Course unit title and code	G997 - Machines and Mechanisms					
Number of ECTS credits allocated	6	Term		Semester based (2)		
Web						
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face	

Department	DPTO. INGENIERIA ESTRUCTURAL Y MECANICA
Name of lecturer	RAMON SANCIBRIAN HERRERA
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Other lecturers	CARLOS AGUILAR QUINTANA

3.1 LEARNING OUTCOMES
- The student will be able to approach the kinematic and dynamic analysis of mechanisms
- Understand the concept of kinematic synthesis and apply it to certain types of mechanisms
- El alumno será capaz de analizar sistemas mecánicos y realizar diseños de máquinas y mecanismos

4. OBJECTIVES
The general objective of the subject is to establish the relationship between geometry, topology and motion in machines and mechanisms.
To know the general aspects of plane movement in mechanisms. To know the typology of different mechanisms used in the design of machines.
To tackle the kinematic analysis of mechanisms

6. SUBJECT PROGRAM	
CONTENTS	
1	Introduction
2	Plane motion
3	Analysis of Planar Linkages
4	Dynamics of Machines and Mechanisms
5	Synthesis of Linkages
6	Cams
7	Gears
8	Robots
9	Introduction to MEMS

7. ASSESSMENT METHODS AND CRITERIA

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

Observations

The course is divided into three parts, Theory (T), Practical (PA), and Laboratory (PL). In general, the final grade (NF) of the course will be the weighted sum of each part according to
NF = T*0.5 + PA*0.35 + PL*0.15:
T = Theory (max. = 10 points).
PA = Practical work (max. = 10 points).
PL = Practical laboratory (max. = 10 points).
To pass the course it is necessary to obtain a final grade (NF) of 5 or higher.
- EXCEPTION TO THE WEIGHTED SUM OF THE FINAL GRADE:
If, in any of the Theory (T) or Teaching Practice (PA) sections, a grade lower than 4 out of 10 is obtained in that section, and the weighted sum (NF) is equal to or higher than 5, the final grade of the subject will be NF = 4.9 (Fail). This means that it is not possible to pass the subject with a grade lower than 4 in any of the Theory (T) and/or Practical (PA) parts.
- LABS
The Laboratory Practicals (PL) will be assessed in conjunction with the Classroom Practicals by means of active participation in the sessions and a report of the practicals submitted within the specified time. The report will be submitted to an anti-plagiarism programme, which will penalise the grade in case of plagiarism.
Practicals are neither compulsory nor recoverable, but failure to complete them will result in the loss of their percentage in the final grade.
- PARTIAL EXAMINATION:
A partial examination covering the subject matter of the teaching practice (PA) will be taken. If the grade of the partial examination is equal to or higher than 4, the grade of this part will be maintained until the Extraordinary Call (included) of the respective course. If a grade of less than 4 is obtained, the student will have to take the examination of that part in the ordinary and/or extraordinary call.
- ORDINARY AND EXTRAORDINARY EXAMINATIONS:
The examination of the ordinary and extraordinary call consists of two parts: Theory (T) and Practice (PA). If, in one of the parts, the student obtains a grade equal to or higher than 4 in the ordinary exam (grade>=4 out of 10 of this part) and the final grade (NF) is lower than 5, the grade of this part will be kept in the extraordinary exam of the same course.

Observations for part-time students

Students with part-time dedication must notify the teacher if they are going to take the continuous assessment tests and laboratory practices at the beginning of the course (before the start of these activities).
Part-time students who do not carry out these activities and make it known to the teacher at the beginning of the course will be evaluated for them in the final exam.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Documentación en el aula virtual de la asignatura