

SUBJECT TEACHING GUIDE

G711 - Further Automation

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: Further Electronics and Automation Module: Selection of Specific Technologies				
Course unit title and code	G711 - Further Automation				
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. TECNOLOGIA ELECTRONICA E INGENIERIA DE SISTEMAS Y AUTOMATICA				
Name of lecturer	LUCIANO ALONSO RENTERIA				
E-mail	luciano.alonso@unican.es				
Office	E.T.S. de Ingenieros Industriales y de Telecomunicación. Planta: - 2. DESPACHO (S2022)				
Other lecturers	ALBERTO RIVERO ALARIO				

3.1 LEARNING OUTCOMES

- Obtaining skills and abilities in analysis and design of control systems with computer.

4. OBJECTIVES

Obtain the mathematical model of discrete control systems.
Study of techniques for sampling and reconstruction of signals.
Analysis of the temporal behavior of control systems with computer.
Design of discrete systems using different techniques.
Implantation techniques.

6. COURSE ORGANIZATION

CONTENTS	
1	ANALYSIS OF CONTROL SYSTEMS WITH COMPUTER Mathematical model Sampling and reconstruction Discrete equivalent Stability Temporal analysis
2	DISCREET DESIGN REGULATORS Discretization of continuous regulators Design by root locus Frequency Design Direct method

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
First theory control	Written exam	No	Yes	30,00
First laboratory control	Laboratory evaluation	No	Yes	20,00
Final theory exam	Written exam	Yes	Yes	30,00
Final laboratory exam	Laboratory evaluation	Yes	Yes	20,00
TOTAL				100,00
Observations				
De no poder realizarse de forma presencial serán sustituidas por evaluaciones a distancia.				
Observations for part-time students				
Final exam with theoretical part (60%) and practical part (40%)				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

- J. Pérez Oria y S. Arnaltes. "Introducción a los Sistemas de Control con Computador". Editorial Ciencia 3. Madrid, 1993
- R. Aracil y A. Jimenez. "Sistemas Discretos de Control: Representación externa". Sección Publicaciones de E.T.S.I.I.M. Madrid, 1987.
- J.R. Llata, E. González, D. Fernández, J. Arce y J. Pérez Oria. "Problemas de Ingeniería de Sistemas: Sistemas Discretos". Ediciones TDG, 2000
- K.J. Armstrong and B. Wittenmark. "Sistemas controlados por computador". Ed. Paraninfo, 1988.