

SUBJECT TEACHING GUIDE

G1016 - Design of Control Systems: Applications

Degree in Industrial Electronic Engineering and Automatic Control Systems

Academic year 2019-2020

1. IDENTIFYING DATA			
Degree	Degree in Industrial Electronic Engineering and Automatic Control Systems	Type and Year	Optional. Year 4
Faculty	School of Industrial Engineering and Telecommunications		
Discipline	Subject Area: Systems and Automation Engineering Optional Module		
Course unit title and code	G1016 - Design of Control Systems: Applications		
Number of ECTS credits allocated	6	Term	Semester based (1)
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
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Other lecturers	MARIA SANDRA ROBLA GOMEZ

3.1 LEARNING OUTCOMES

- Students will be able to design and tune control systems of different nature

4. OBJECTIVES

Present the different fields of application of control systems.
Analyze and discuss different alternatives of control over practical examples.
Design and implementation of control systems of different nature.

6. COURSE ORGANIZATION

CONTENTS	
1	DESIGN OF INDUSTRIAL REGULATORS Industrial control systems. Industrial relays. PIDs. Tuning of industrial controllers. Self-tuning regulators (STR and CRM).
2	DESIGN AND APPLICATION OF CONTROL SYSTEMS Electrical / electronic systems DC motors AC motors Stepper motors Incremental and absolute encoders Control by pulse width modulation Frequency variation control Pneumatic systems Hydraulic systems

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
laboratory work	Laboratory evaluation	No	No	30,00
Final work	Work	Yes	Yes	40,00
Final exam	Written exam	Yes	Yes	30,00
TOTAL				100,00
Observations				
Attendance at practices is mandatory.				
Observations for part-time students				
Final exam with theoretical part (70%) and practical part (30%)				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC
Landau, I.D. and Zito, G. "Digital control systems. Design, identification and implementation". Springer
Astrom, K.J. and Wittenmark, B. "Computer-controlled: theory and design". Prentice-Hall
Gajic, Z. and Lelic, M. "Modern control systems engineering". Prentice Hall
Creus Solé, A. "Neumática e hidráulica". Marcombo