

SUBJECT TEACHING GUIDE

G838 - Communications Systems

Degree in Telecommunication Technologies Engineering

Academic year 2023-2024

1. IDENTIFYING DATA					
Degree	Degree in Telecommunication Technologies Engineering			Type and Year	Optional. Year 3
Faculty	School of Industrial Engineering and Telecommunications				
Discipline	Subject Area: Telecommunications Systems				
Course unit title and code	G838 - Communications Systems				
Number of ECTS credits allocated	6	Term		Semester based (2)	
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. INGENIERIA DE COMUNICACIONES
Name of lecturer	AMPARO HERRERA GUARDADO
E-mail	amparo.herrera@unican.es
Office	Edificio Ing. de Telecomunicación Prof. José Luis García García. Planta: - 1. DESPACHO (S129)
Other lecturers	ALMUDENA SUAREZ RODRIGUEZ FRANCO ARIEL RAMIREZ TERAN MARIA ISABEL PONTON LOBETE

3.1 LEARNING OUTCOMES
- Basic knowledge of the subsystems that are used to built a communications system
- Ability to select systems and subsystems that meet the technical requirement
- RF system characteristics study techniques and the knowledge of the RF system modeling
- User-level skills of a simulation environment (System Simulator Software) and its system simulation techniques
- Measurement and Characterization Equipment for RF Systems at User Level

4. OBJECTIVES

Analyze RF and Microwave subsystems and systems
Simulate RF and Microwave subsystems and systems
Know the basic magnitudes of the RF and Microwave subsystems and systems
Characterization of the basic magnitudes of the RF and Microwave subsystems and systems

6. COURSE ORGANIZATION

CONTENTS	
1	General Introduction
2	Passive Components (Clasification and general parameters)
3	Active Components and subsystems (General characteristics and definitions)
4	Systems Magnitudes: Noise, gain, power, Second Order Interception Point (SOI also known as IP2), Third Order Interception Point (TOI also known as IP3), One dB Compression Point P1dB, etc
5	Communication Systems: Architectures and Clasification
6	Simulation Laboratory Works: System Simulations (including Active and Passive subsystems)
7	Measurement Laboratory Works: System Characterization (including Active and Passive subsystems)

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Simulation and Measurement projects	Laboratory evaluation	No	Yes	30,00
Final Exam	Written exam	No	Yes	30,00
Individual Projects	Others	No	Yes	35,00
Workgroup Projects	Work	No	No	5,00
TOTAL				100,00
Observations				
<p>The subject is organized to be evaluated with the continuous assessment method, the simulation and measurement work in the laboratory are compulsory as well as the final written exam. Students who have not passed any of the partial assessments made throughout the course may be submitted to the final exam with the weight of the grade at 60%, and 40% will be obtained from the evaluation of laboratory work.</p> <p>The rest of the students that follow the continuous evaluation method will be able to obtain a 70% by this method being 30% the weight of the final exam. In the continuous evaluation, there will be two individual works, two test exams, two deliveries of problems to solve individually, classroom activities, a workgroup, and practical sessions in the simulation laboratory and in the characterization laboratory. And finally the June written exam.</p>				
Observations for part-time students				
<p>Students who have chosen the part-time option may submit to the final exam, the weight of the grade is 60%, and the remaining 40% will be obtained from the evaluation of the laboratory works, both simulation, and measurement, composed for 11 sessions of two hours that are compulsory and not recoverable.</p>				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Practical RF System Design (William F. Egan) ED.Wiley Interscience 2003 ISBN 0-471-20023-9

RF System Design of Transceivers for Wireless Communications (Qizheng Gu) ED: Springer 2005 ISBN: 978-0387241616

RF Circuit Design (Second edition) . Richard Chi-Hsi Li. ED Wiley ISBN 978-118-30990-2 versión Adobe-PDF. ISBN 978-1-118-12849-7 (Version impresa)