

SUBJECT TEACHING GUIDE

G281 - Calculus I

Degree in Telecommunication Technologies Engineering

Academic year 2020-2021

1. IDENTIFYING DATA					
Degree	Degree in Telecommunication Technologies Engineering			Type and Year	Core. Year 1
Faculty	School of Industrial Engineering and Telecommunications				
Discipline	Subject Area: Mathematics Basic Training Module				
Course unit title and code	G281 - Calculus I				
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. MATEMATICA APLICADA Y CIENCIAS DE LA COMPUTACION				
Name of lecturer	BEGOÑA SANCHEZ MADARIAGA				
E-mail	begona.sanchezm@unican.es				
Office	E.T.S. de Ingenieros Industriales y de Telecomunicación. Planta: - 5. DESPACHO (S5019)				
Other lecturers	ANA CASANUEVA VICENTE				

3.1 LEARNING OUTCOMES

- Solve mathematical problems in engineering world. Apply algebra methods, geometry, differential and integral methods to solve telecommunication engineering problems. Use approximating methods. Introduce basic statistics.

4. OBJECTIVES

Understand and use the most important concepts and tools in differential calculus of one and two variables and the integral calculus of one variable.

Use mathematical software to solve problems.

6. COURSE ORGANIZATION	
CONTENTS	
1	PART 1
1.1	Chapter 1: Complex Numbers. Basic operations.
1.2	Chapter 2: Functions in one variable. Differentiation of functions in one variable. Polynomial approximations. Taylor and Maclaurin polynomials. Taylor's Theorem. Applications.
2	PART 2
2.1	Chapter 3: Numerical series. Geometric series. Conditional and absolute convergence. Taylor series and Maclaurin series. Intervals of convergence.
2.2	Chapter 4: Differential calculus of functions in two variables.
3	PART 3
3.1	Chapter 4: Maxima and minima of functions in two variables.
3.2	Chapter 5: The indefinite integral. Riemann's integral. Applications of integration. Improper integrals.

7. ASSESSMENT METHODS AND CRITERIA				
Description	Type	Final Eval.	Reassessn	%
EVALUATION FOR PART 1 (EV1) Continuous evaluation for the chapters 1 and 2.	Others	No	Yes	32,00
EVALUATION FOR PART 2 (EV2) Continuous evaluation for the chapters 3 and 4, without "Maxima and minima of functions in two variables".	Others	No	Yes	36,00
EVALUATION FOR PART 3 (EV3) Continuous evaluation for the "Maxima and minima of functions in two variables" (chapter 4) and the chapter 5.	Others	No	Yes	32,00
This exam has theory questions, exercises and questions of Matlab.	Written exam	Yes	Yes	0,00
TOTAL				100,00
Observations				
<p>FOR CONTINUOUS EVALUATION</p> <p>To pass Cálculo I for continuous evaluation, the student mean mark of EV1 (32%), EV2 (36%) and EV3 (32%) must be greater than or equal to 5 points over 10. Moreover, the EV1, EV2 and EV3 marks must be greater than or equal to 4 points over 10. The students that fail EV1 or EV2 or EV3 in continuous evaluation can repeat the exam of the parts failed in final exam (ordinary convocatory).</p> <p>The students that fail Cálculo I in the ordinary convocatory must repeat the exam of all the Cálculo I contents in the extraordinary convocatory.</p> <p>It is possible on line evaluation of theory questions, home works, exercises and Matlab questions if new sanitary restrictions for COVID-19 became.</p>				
Observations for part-time students				
The part-time students can choose between the continuous evaluation previous or the final exam for the complete course (100%).				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Bradley, G. L. And Smith, K. Calculo de una variable y Cálculo de varias variables. Volumen I y II. Prentice Hall. ISBN: 84-89660-76-X.

<http://catalogo.unican.es.unican.idm.oclc.org/cgi-bin/abnetopac/?TITN=145826>

Smith, R. y Minton, R.B. Cálculo. Volumen 1 y 2. Editorial Mc Graw-Hill. ISBN: 84-481-3861-9.

<http://catalogo.unican.es.unican.idm.oclc.org/cgi-bin/abnetopac/?TITN=211158>

Steward, J. Cálculo: conceptos y contextos. 3º Edición. Thomson Learning. ISBN: 0-534-40986-5.

<http://catalogo.unican.es.unican.idm.oclc.org/cgi-bin/abnetopac/?TITN=331269>

<http://catalogo.unican.es.unican.idm.oclc.org/cgi-bin/abnetopac/?TITN=332794>

Larson, R. y Edwards. B.H. Calculo 1 de una variable. Editorial Mc Graw-Hill. ISBN: 978-607-15-0273-5.

Calculo 2 de varias variables. Editorial Mc Graw-Hill. ISBN: 978-970-19-7134-2

<http://catalogo.unican.es.unican.idm.oclc.org/cgi-bin/abnetopac/?TITN=324671>