



1. General information

Course: CALCULUS I

Type: BASIC

Degree: 423 - UNDERGRADUATE DEGREE IN MATHEMATICS

Center: 603 - E.T.S. CIVIL ENGINEERS OF CR

Year: 1

Main language: Spanish

Use of additional
languages:

Web site:

Code: 38502

ECTS credits: 6

Academic year: 2023-24

Group(s): 20

Duration: First semester

Second language:

English Friendly: Y

Bilingual: N

Lecturer: CRISTINA SOLARES MARTINEZ - Group(s): 20

Building/Office	Department	Phone number	Email	Office hours
Edificio Politécnico/2-D32	MATEMÁTICAS	3255	cristina.solares@uclm.es	Tuesday 16.00-19.00 h and Thursday 16.00-19.00 h

2. Pre-Requisites

To achieve the learning objectives of the subject, knowledge and skills that are supposed to be guaranteed in the pre-university education are required. In particular, knowledge of basic geometry and trigonometry, elementary mathematical operations (powers, logarithms, fractions), polynomials, matrices, derivation, integration and fundamentals of graphical representation of functions are necessary.

With regard to basic skills in the handling of instruments is the elementary management of computers: access, file and directories management, etc.

3. Justification in the curriculum, relation to other subjects and to the profession

Calculus is one of the most basic and fundamental disciplines in the training of a Mathematics graduate. It involves the mastery of the skills associated with the manipulation of quantities, variables and functions. Its importance for other branches of Science and Engineering is unquestionable. The emphasis in this subject is placed on the fluency and confidence with which the student must be able to perform the operations involved in the manipulation of functions of one variable.

4. Degree competences achieved in this course

Course competences

Code	Description
INFO-2023	

5. Objectives or Learning Outcomes

Course learning outcomes

Description

6. Units / Contents

Unit 1: Precalculus/Some Preliminaries

Unit 2: Limits

Unit 3: Continuity

Unit 4: Differential Calculus

Unit 5: Integral Calculus

Unit 6: Infinite Series

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures	INFO-2023	1.4	35	N	-	
Problem solving and/or case studies [ON-SITE]	Combination of methods	INFO-2023	0.6	15	N	-	
Computer room practice [ON-SITE]	Practical or hands-on activities	INFO-2023	0.2	5	Y	N	
Final test [ON-SITE]	Assessment tests	INFO-2023	0.12	3	Y	Y	
Progress test [ON-SITE]	Assessment tests	INFO-2023	0.08	2	Y	N	
Study and Exam Preparation [OFF-SITE]							

[SITE]	Combination of methods	INFO-2023	3.6	90	N	-
Total:			6	150		
Total credits of in-class work: 2.4			Total class time hours: 60			
Total credits of out of class work: 3.6			Total hours of out of class work: 90			

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

8. Evaluation criteria and Grading System			
Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Progress Tests	20.00%	0.00%	Progress tests to be taken during the course.
Final test	70.00%	90.00%	The test includes the ordinary and/or extraordinary exams.
Assessment of activities done in the computer labs	10.00%	10.00%	Test performed with the computer.
Total:	100.00%	100.00%	

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject, an ordinary and an extraordinary one (evaluating 100% of the competences).

Evaluation criteria for the final exam:

Continuous assessment:

The minimum mark required in the final exam is 4 out of 10. The progress tests, final test and computer practicals, with a minimum mark of 4, are kept for the extraordinary exam.

Non-continuous evaluation:

The student must take the final test (90% of the mark) and computer practice (10% of the mark). In order to pass the course, students must obtain at least a 5 out of 10.

By default, students are in a continuous assessment system.

Specifications for the resit/retake exam:

Same criteria as in the ordinary exam. Progress test marks can be recovered by means of the final test. Computer practicals can be made up with a computer-based test.

Specifications for the second resit / retake exam:

The student will have to do a global test that will include all the course and competences content. In order to pass the course, the student must obtain at least a 5 out of 10, which will constitute 100% of his/her grade.

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	hours
Final test [PRESENCIAL][Assessment tests]	3
Progress test [PRESENCIAL][Assessment tests]	2
Study and Exam Preparation [AUTÓNOMA][Combination of methods]	90
Unit 1 (de 6): Precalculus/Some Preliminaries	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	5.5
Problem solving and/or case studies [PRESENCIAL][Combination of methods]	1
Computer room practice [PRESENCIAL][Practical or hands-on activities]	.5
Unit 2 (de 6): Limits	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	6
Problem solving and/or case studies [PRESENCIAL][Combination of methods]	3
Computer room practice [PRESENCIAL][Practical or hands-on activities]	1
Unit 3 (de 6): Continuity	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Problem solving and/or case studies [PRESENCIAL][Combination of methods]	1
Computer room practice [PRESENCIAL][Practical or hands-on activities]	.5
Unit 4 (de 6): Differential Calculus	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	5
Problem solving and/or case studies [PRESENCIAL][Combination of methods]	3
Computer room practice [PRESENCIAL][Practical or hands-on activities]	1
Unit 5 (de 6): Integral Calculus	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	9.5
Problem solving and/or case studies [PRESENCIAL][Combination of methods]	4
Computer room practice [PRESENCIAL][Practical or hands-on activities]	1
Unit 6 (de 6): Infinite Series	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	6
Problem solving and/or case studies [PRESENCIAL][Combination of methods]	3
Computer room practice [PRESENCIAL][Practical or hands-on activities]	1
Global activity	

Activities	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	35
Study and Exam Preparation [AUTÓNOMA][Combination of methods]	90
Problem solving and/or case studies [PRESENCIAL][Combination of methods]	15
Computer room practice [PRESENCIAL][Practical or hands-on activities]	5
Final test [PRESENCIAL][Assessment tests]	3
Progress test [PRESENCIAL][Assessment tests]	2
Total horas: 150	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
R. Larson y R. Hostetler	Precálculo	Reverté		978-84-291-5168-8	2008	
Juan de Burgos	Cálculo infinitesimal de una variable	McGraw-Hill		9788448173548	2007	
D. Brannan	A first course in mathematical analysis	Cambridge University Press		978-0521684248	2006	
J. Rogawski	Cálculo de una variable	Reverté		978-84-291-5166-4	2012	
J. Stewart	Cálculo de una variable : Trascendentes tempranas	Cengage Learning		978-970-686-653-0	2008	
A. García y otros	Cálculo I. Teoría y problemas de análisis matemático en una variable	CLAGSA		84-605-0944-3	1998	
R. Larson y B. H. Edwards	Cálculo 1 : de una variable	McGraw-Hill		978-607-15-0273-5	2010	
R. Courant y F. John	Introducción al cálculo y al análisis matemático	Limusa		968-18-0639-5	1998	
F. Coquillat	Cálculo integral	Tébar Flores			1997	
T. M. Apostol	Calculus	Reverté		978-84-291-5002-5	2022	
E. Aranda	Problemas de cálculo en una variable	Bubok, D.L.		978-84-92580-05-7	208	
G. L. Bradley y K. J. Smith	Cálculo de una variable	Prentice Hall		84-89660-76-X	1998	
G. B. Thomas	Calculo: una variable	Pearson		978-607-32-3331-6	2015	
S. Abbott	Understanding analysis	Springer		978-1-4939-5026-3	2015	
M. L. Lial, R. N. Greenwell and N. P. Ritchey	Calculus with applications	Pearson Education		978-1292108971	2016	
M. L. Bittinger, D. J. Ellenbogen and S. A. Surgent	Calculus and its Applications	Pearson Education		978-1292100241	2015	
R. G. Bartle y D. R. Sherbert	Introducción al análisis matemático de una variable	Limusa		968-18-5191-9	1998	
V. Tomeo, I. Uña y J. San Martin	Cálculo en una variable	Garceta		978-84-9281-236-3	2010	
S.L. Salas, E. Hille, G.J. Etgen	Calculus: una y varias variables (Vol. 1)	Reverté		9788429194210	2011	
M.C. Masa Noceda y E. Vigil Álvarez	Curso de cálculo diferencial en una y varias variables	ediuno		978-84-18324-20-8	2021	
E.J. Purcell, D. Varberg, S. E. Rigdon	Cálculo diferencial e integral	Prentice Hall		9786074423365	2007	
E. Linés	Principios de análisis matemático	Reverté		9788429192674	1991	
D. G. Zill y W. S. Wright	Cálculo de una variable: Trascendentes tempranas	McGraw-Hill		9781456219888	2011	