

Calculus

Code: 106802
ECTS Credits: 6

2024/2025

Degree	Type	Year
2504602 Nanoscience and Nanotechnology	FB	1

Contact

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Teachers

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Teaching groups languages

You can view this information at the [end](#) of this document.

Prerequisites

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Objectives and Contextualisation

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Learning Outcomes

1. CM07 (Competence) Solve real-world problems that occur in the field of science and technology using mathematical tools and methods.
2. KM08 (Knowledge) Identify the elementary mathematical models and tools used in calculus, linear algebra and differential equations.
3. KM11 (Knowledge) Recognise the mathematical methods (calculus, algebra, numerical) used for probabilistic modelling.
4. SM09 (Skill) Express oneself clearly using basic mathematical language.
5. SM09 (Skill) Express oneself clearly using basic mathematical language.
6. SM10 (Skill) Solve simple problems related to matrix calculus, linear equations and first order differential equations.

Content

Traducció des de Google.

1. Notion of ordinary differential equation, separate variables.
2. Review of basic concepts of differential and integral calculus in one variable.
3. Taylor's formula in one variable.
4. Numerical series, power series and improper integrals.
5. Differential calculation in several variables.
6. Integral calculation in several variables.

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Exercises classes	10	0.4	CM07, KM08, KM11, SM09, SM10, CM07
Practice classes	6	0.24	CM07, KM08, KM11, SM09, SM10, CM07
Theory classes	36	1.44	CM07, KM08, KM11, SM09, SM10, CM07
Type: Supervised			
Delivery of practices	6	0.24	CM07, KM08, KM11, SM09, SM10, CM07
Type: Autonomous			
Theory study and problem solving	84	3.36	CM07, KM08, KM11, SM09, SM10, CM07

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Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continuous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Delivery of practices	20%	1	0.04	CM07, KM08, KM11, SM09, SM10
Final exam	80%	3	0.12	CM07, KM08, KM11, SM09, SM10
Mid term exam	40%	2	0.08	CM07, KM08, KM11, SM09, SM10
Mid term exam	40%	2	0.08	CM07, KM08, KM11, SM09, SM10

Veure guia en català.

Bibliography

Veure guia en català.

Software

Veure guia en català.

Language list

Name	Group	Language	Semester	Turn
(PAUL) Classroom practices	1	Catalan	first semester	afternoon
(PAUL) Classroom practices	2	Catalan	first semester	afternoon
(PLAB) Practical laboratories	1	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	2	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	3	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	4	Catalan	first semester	morning-mixed
(TE) Theory	1	Catalan	first semester	afternoon