

**COURSE DATA****Data Subject**

Code	36588
Name	Ecuaciones diferenciales ordinarias F-M
Cycle	Grade
ECTS Credits	9.0
Academic year	2021 - 2022

Study (s)

Degree	Center	Acad. year	Period
1928 - D.D. in Physics-Mathematics	Double Degree Program Physics and Mathematics	2	Annual

Subject-matter

Degree	Subject-matter	Character
1928 - D.D. in Physics-Mathematics	2 - Segundo Curso (Obligatorio)	Obligatory

Coordination

Name	Department
MULET MESTRE, PEP	363 - Mathematics

SUMMARY**English version is not available**

Se introducirán ejemplos de aplicación de EDO a las ciencias naturales, especialmente a física. También se introducirán los conceptos básicos sobre EDO, a partir del problema de Cauchy. Se estudiarán los métodos de búsqueda formal de soluciones; particularmente, la resolución de ecuaciones y sistemas diferenciales lineales y la resolución de EDO mediante series de potencias y funciones especiales.

Se tratarán métodos para obtener información sobre soluciones no calculadas y sobre cuestiones de estabilidad.

Se hará una introducción a métodos numéricos básicos para la aproximación numérica de soluciones de EDO

**PREVIOUS KNOWLEDGE****Relationship to other subjects of the same degree**

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

Es indispensable tener los siguientes conocimientos:

1. Cálculo diferencial en una y varias variables.
2. Integración en una variable e integrales múltiples.
3. Sucesiones y series numéricas reales
4. Series de potencias
5. Sistemas lineales
6. Espacios vectoriales
7. Matrices y determinantes, operadores lineales, autovalores y autovectores.
8. Forma canónica de Jordan

OUTCOMES**LEARNING OUTCOMES**

English version is not available

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	45,00	100
Classroom practices	19,00	100
Computer classroom practice	15,00	100
Other activities	11,00	100
Preparation of evaluation activities	15,00	0
Preparing lectures	30,00	0
Preparation of practical classes and problem	30,00	0
TOTAL	165,00	



TEACHING METHODOLOGY

English version is not available

EVALUATION

English version is not available

REFERENCES

Basic

- Referencia b1: - R. Kent Nagle, E.B. Saff, Fundamentos de ecuaciones Diferenciales, Addison Wesley Iberoamericana.

Referencia b2: M. Braun, Differential equations and their applications, Springer, 1993.

Referencia b3: P. Hartman, Ordinary differential applications, SIAM, 2002.

Additional

- Referencia c1: A.D. Polyanin, V. F. Zaitsev, Handbook of exact solutions for Ordinary Differential Equations, Chapman and Hall/CRC, 2003.

Referencia c2: G. Teschl, Ordinary Differential Equations and Dynamical Systems, AMS, 2012

Referencia c3: K.F. Riley, M.P. Hobson, S. J. Bence, Mathematical Methods for Physics and Engineering, Cambridge University Press, 2006.

ADDENDUM COVID-19

This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council

In the event of a closure of the facilities due to the health situation, and if this affects all or part of the classes of the subject, these will be replaced by classes where physical attendance will be replaced by online synchronous classes following the established schedules, and with asynchrony work from home.

In the event of a closure of the facilities due to the health situation, and if this affects any of the face-to-face tests of the subject, these will be replaced by tests of a similar nature but in virtual mode through the



supported computer tools by the University of Valencia. The evaluation percentages will remain the same as those established in the guide.

