

Course guides

330061 - M3 - Mathematics III

Last modified: 05/05/2020

Unit in charge: Manresa School of Engineering
Teaching unit: 749 - MAT - Department of Mathematics.

Degree: BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2016). (Compulsory subject).
BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2016). (Compulsory subject).
BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2016). (Compulsory subject).

Academic year: 2020 **ECTS Credits:** 6.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: MARGARITA DOMENECH BLAZQUEZ

Others: Alsina Aubach, Montserrat
Cors Iglesias, Josep M.
Freixas Bosch, Josep
Gimenez Pradales, Jose Miguel
Palacios Quiñonero, Francisco
Pons Valles, Montserrat
Puente Del Campo, M. Albina
Rossell Garriga, Josep Maria
Rubió Masegú, Josep
Samaniego Vidal, Daniel
Ventura Capell, Enric

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

1. (ENG) CE1: Capacitat per la resolució dels problemes matemàtics que puguin sorgir en l'enginyeria. Aptitud per aplicar els coneixements sobre: àlgebra lineal, geometria, geometria diferencial, càlcul diferencial i integral, equacions diferencials i en derivades parcials, mètodes numèrics, algorísmica numèrica, estadística i optimització.

Transversal:

2. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 2. Using strategies for preparing and giving oral presentations. Writing texts and documents whose content is coherent, well structured and free of spelling and grammatical errors.
3. TEAMWORK - Level 2. Contributing to the consolidation of a team by planning targets and working efficiently to favor communication, task assignment and cohesion.
4. SELF-DIRECTED LEARNING - Level 2: Completing set tasks based on the guidelines set by lecturers. Devoting the time needed to complete each task, including personal contributions and expanding on the recommended information sources.

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT



STUDY LOAD

Type	Hours	Percentage
Hours small group	30,0	20.00
Self study	90,0	60.00
Hours large group	30,0	20.00

Total learning time: 150 h

CONTENTS

(ENG) 1. EQUACIONS DIFERENCIALS ORDINÀRIES.

Full-or-part-time: 25h

Theory classes: 5h

Laboratory classes: 5h

Self study : 15h

(ENG) 2. TRANSFORMADA DE LAPLACE.

Full-or-part-time: 30h

Theory classes: 6h

Laboratory classes: 6h

Self study : 18h

(ENG) 3. SÈRIES NUMÈRIQUES I SÈRIES DE FOURIER.

Full-or-part-time: 40h

Theory classes: 9h

Laboratory classes: 10h

Self study : 21h

(ENG) 4. TRANSFORMADA DE FOURIER.

Full-or-part-time: 40h

Theory classes: 9h

Laboratory classes: 9h

Self study : 22h

(ENG) 5. EQUACIONS EN DERIVADES PARCIAIS.

Full-or-part-time: 15h

Theory classes: 1h

Self study : 14h



ACTIVITIES

(ENG) A1: EQUACIONS DIFERENCIALS I TRANSFORMADA DE LAPLACE.

Full-or-part-time: 4h
Laboratory classes: 1h
Self study: 3h

(ENG) A2: SÈRIES I TRANSFORMADA DE FOURIER.

Full-or-part-time: 4h
Laboratory classes: 1h
Self study: 3h

(ENG) A3: EQUACIONS EN DERIVADES PARCIAIS.

Full-or-part-time: 3h
Self study: 3h

(ENG) E1 I E2: PROVES ESCRITES.

Full-or-part-time: 16h
Theory classes: 4h
Self study: 12h

GRADING SYSTEM

BIBLIOGRAPHY

Basic:

- Blanchard, Paul; Devaney, R. L.; Hall, Glen R. Differential equations. 4th ed. Pacific Grove: Brooks/Cole, 2011. ISBN 9781133110590.
- Zill, Dennis G. Ecuaciones diferenciales con problemas con valores en la frontera. 9a ed. Cuajimalpa: Cengage Learning, 2018. ISBN 9786075266305.
- Harris, K.; López, R. J. Discovering calculus with Maple. 2nd ed. New York: John Wiley & Sons, 1995. ISBN 0471009733.
- Hsu, Hwei P.; Mehra, R. Análisis de Fourier. Argentina: Addison-Wesley Iberoamericana, 1987. ISBN 0201029421.

Complementary:

- Gabel, R. A.; Roberts, R. A. Señales y sistemas lineales. México: Limusa, 1975.