



## Course guides

### 330056 - M2 - Mathematics II

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 ENERGY AND MINING RESOURCE ENGINEERING (Syllabus 2012). (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

#### LECTURER

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**Coordinating lecturer:** JOSE MIGUEL GIMENEZ PRADALES

**Others:** MONTSERRAT ALSINA AUBACH - JOSEP M. CORS IGLESIAS - MARGARITA DOMENECH BLAZQUEZ - JOSEP FREIXAS BOSCH - FRANCISCO PALACIOS QUIÑONERO - MONTSERRAT PONS VALLES - M. ALBINA PUENTE DEL CAMPO - JOSEP MARIA ROSSELL GARRIGA - JOSEP RUBIÓ MASSEGÚ - ENRIC VENTURA CAPELL

#### DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

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**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 1. Planning oral communication, answering questions properly and writing straightforward texts that are spelt correctly and are grammatically coherent.
3. TEAMWORK - Level 1. Working in a team and making positive contributions once the aims and group and individual responsibilities have been defined. Reaching joint decisions on the strategy to be followed.
4. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.

#### TEACHING METHODOLOGY

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#### LEARNING OBJECTIVES OF THE SUBJECT

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## STUDY LOAD

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

**Total learning time:** 150 h

## CONTENTS

### (ENG) 1. CAMPS ESCALARS

**Full-or-part-time:** 30h

Theory classes: 6h

Laboratory classes: 6h

Self study : 18h

### (ENG) 2. INTEGRACIÓ MÚLTIPLE

**Full-or-part-time:** 60h

Theory classes: 12h

Laboratory classes: 12h

Self study : 36h

### (ENG) 3. CàLCUL VECTORIAL

**Full-or-part-time:** 60h

Theory classes: 12h

Laboratory classes: 12h

Self study : 36h

## ACTIVITIES

### (ENG) A1: CAMPS ESCALARS

**Full-or-part-time:** 4h

Laboratory classes: 1h

Self study: 3h

### (ENG) A2: INTEGRACIÓ MÚLTIPLE

**Full-or-part-time:** 4h

Laboratory classes: 1h

Self study: 3h



### (ENG) A3: CÀLCUL VECTORIAL

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

### (ENG) A4: E1 I E2: PROVES ESCRITES

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

## GRADING SYSTEM

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## BIBLIOGRAPHY

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### Basic:

- Stewart, James. Cálculo multivariable. 4ª ed. México: International Thomson, 2001. ISBN 9706861238.
- Thomas, George Brinton. Cálculo. Vol. 2, Varias variables. 11ª ed. México: Pearson Educación, 2005-2006. ISBN 9702606446.
- Larson, Ron; Hostetler, Robert P.; Edwards, Bruce H. Cálculo y geometría analítica. Vol. 2. 6ª ed. Madrid: McGraw-Hill, 1999. ISBN 8448123530.
- Bradley, Gerald L.; Smith, Karl J. Cálculo. Vol. 2, Cálculo de varias variables. Madrid: Prentice Hall, 1998. ISBN 8489660778.