

## 330051 - M1 - Mathematics I

Coordinating unit:	330 - EPSEM - Manresa School of Engineering
Teaching unit:	749 - MAT - Department of Mathematics
Academic year:	2019
Degree:	BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2016). (Teaching unit Compulsory) BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2016). (Teaching unit Compulsory) BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2016). (Teaching unit Compulsory) BACHELOR'S DEGREE IN ENERGY AND MINING RESOURCE ENGINEERING (Syllabus 2012). (Teaching unit Compulsory)
ECTS credits:	6
Teaching languages:	Catalan

### Teaching staff

Coordinator:	MONTSERRAT PONS VALLÈS
Others:	MONTSERRAT ALSINA AUBACH - JOSEP M. CORS IGLESIAS - MARGARITA DOMENECH BLAZQUEZ - JOSEP FREIXAS BOSCH - JOSE MIGUEL GIMENEZ PRADALES - M. ANTONIA MOLINA HERNANDEZ - XAVIER MOLINERO ALBAREDA - FRANCISCO PALACIOS QUIÑONERO - M. ALBINA PUENTE DEL CAMPO - JOSEP MARIA ROSSELL GARRIGA - JOSEP RUBIÓ MASSEGÚ - ENRIC VENTURA CAPELL

### 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 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.

### Learning objectives of the subject

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### Study load

Total learning time: 150h	Hours large group:	30h	20.00%
	Hours medium group:	0h	0.00%
	Hours small group:	30h	20.00%
	Guided activities:	0h	0.00%
	Self study:	90h	60.00%

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### Content

(ENG) 1. CÀLCUL DIFERENCIAL D'UNA VARIABLE	Learning time: 50h Theory classes: 10h Laboratory classes: 10h Self study : 30h
Description: (ENG)	
(ENG) 2. CÀLCUL INTEGRAL D'UNA VARIABLE	Learning time: 40h Theory classes: 8h Laboratory classes: 8h Self study : 24h
Description: (ENG)	
(ENG) 3. SISTEMES LINEALS, MATRIUS I DETERMINANTS	Learning time: 30h Theory classes: 6h Laboratory classes: 6h Self study : 18h
Description: (ENG)	
(ENG) 4. ÀLGEBRA LINEAL	Learning time: 30h Theory classes: 6h Laboratory classes: 6h Self study : 18h
Description: (ENG)	

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### Planning of activities

(ENG) A1: Subjects 1 & 2	Hours: 4h Laboratory classes: 1h Self study: 3h
(ENG) A2: Subjects 3 & 4	Hours: 4h Laboratory classes: 1h Self study: 3h
(ENG) A3: Subjects 1,2,3 & 4	Hours: 4h Laboratory classes: 1h Self study: 3h
(ENG) P1: Subjects 1 & 2	Hours: 8h Theory classes: 2h Self study: 6h
P2: Subjects 3 & 4	Hours: 8h Theory classes: 2h Self study: 6h

### Bibliography

#### Basic:

Lay, David C. Álgebra lineal y sus aplicaciones. 4ª ed. México: Pearson Educación, 2012. ISBN 9786073213981.

Nakos, George; Joyner, David. Álgebra lineal con aplicaciones. México: Thomson, 1999. ISBN 9687529865.

Larson, Ron; Hostetler, Robert P.; Edwards, Bruce H. Cálculo y geometría analítica. Vol. 1. 6ª ed. Madrid: McGraw-Hill, 1999. ISBN 8448122291.

Stewart, James. Cálculo de una variable: trascendentes tempranas. 6ª ed. México: International Thomson, 2008. ISBN 9789706866530.

Yasskin, Philip B. CalcLabs with Maple for Stewart's single variable calculus. 5th ed. [Toronto, Ontario]: Thomson. Brooks/Cole, cop. 2003. ISBN 0534393705.

Benavent, Roberto. Cuestiones sobre álgebra lineal. Madrid: Paraninfo, 2010. ISBN 9788428380973.