Course guides
330051 - M1 - Mathematics I

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

Coordinating lecturer: MONTSERRAT PONS VALLÈS

Others: MONTSERRAT ALSINA AUBACH - JOSEP M. CORS IGLESIAS - MARGARITA DOMENECH BLAZQUEZ - JOSEP FREIXAS BOSCH - JOSE MIGUEL GIMENEZ PRADALES - 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.

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

STUDY LOAD

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

Total learning time: 150 h

CONTENTS

(ENG) 1. CÀLCUL DIFERENCIAL D'UNA VARIABLE

Description:
(ENG)

Full-or-part-time: 50h
Theory classes: 10h
Laboratory classes: 10h
Self study : 30h

(ENG) 2. CÀLCUL INTEGRAL D'UNA VARIABLE

Description:
(ENG)

Full-or-part-time: 40h
Theory classes: 8h
Laboratory classes: 8h
Self study : 24h

(ENG) 3. SISTEMES LINEALS, MATRIUS I DETERMINANTS

Description:
(ENG)

Full-or-part-time: 30h
Theory classes: 6h
Laboratory classes: 6h
Self study : 18h

(ENG) 4. ÀLGEBRA LINEAL

Description:
(ENG)

Full-or-part-time: 30h
Theory classes: 6h
Laboratory classes: 6h
Self study : 18h

ACTIVITIES

(ENG) A1: Subjects 1 & 2

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

(ENG) A2: Subjects 3 & 4

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

(ENG) A3: Subjects 1,2,3 & 4

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

(ENG) P1: Subjects 1 & 2

Full-or-part-time: 8h
Theory classes: 2h
Self study: 6h

P2: Subjects 3 & 4

Full-or-part-time: 8h
Theory classes: 2h
Self study: 6h

GRADING SYSTEM

BIBLIOGRAPHY

Basic:
- Yasskin, Philip B. CalcLabs with Maple for Stewart's single variable calculus. 5th ed. [Toronto, Ontario]: Thomson. Brooks/Cole, cop. 2003. ISBN 0534393705.
- Stewart, James. Cálculo de una variable: trascendentes tempranas. 6ª ed. México: International Thomson, 2008. ISBN 9789706866530.
- Benavent, Roberto. Cuestiones sobre álgebra lineal. Madrid: Paraninfo, 2010. ISBN 9788428380973.
- Lay, David C. Álgebra lineal y sus aplicaciones [on line]. 4ª ed. México: Pearson Educación, 2012 [Consultation: 28/07/2020]. Available on: http://www.ingebook.com/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=1275. 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.