



Course guides

330066 - RM - Strength of Materials

Last modified: 31/05/2020

Unit in charge: Manresa School of Engineering
Teaching unit: 750 - EMIT - Department of Mining, Industrial and ICT Engineering.

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 ICT SYSTEMS ENGINEERING (Syllabus 2010). (Optional 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: Dr. Fausto Arias Araluce i Prepedigno Martin Villanueva

Others: Dr. Fausto Arias Araluce
Prepedigno Martin Villanueva

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

1. (ENG) Coneixement i utilització dels principis de la resistència de materials.

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. EFFECTIVE USE OF INFORMATION RESOURCES - Level 2. Designing and executing a good strategy for advanced searches using specialized information resources, once the various parts of an academic document have been identified and bibliographical references provided. Choosing suitable information based on its relevance and quality.
5. 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	15,0	10.00
Self study	90,0	60.00
Hours large group	45,0	30.00

Total learning time: 150 h

CONTENTS

(ENG) 1. Tipus d'estructures

Full-or-part-time: 13h 10m

Theory classes: 4h 15m

Laboratory classes: 1h 25m

Self study : 7h 30m

(ENG) 2. Esforços i Diagrames

Full-or-part-time: 38h 10m

Theory classes: 11h 25m

Laboratory classes: 4h 15m

Self study : 22h 30m

(ENG) 3. Tracció i compressió pura

Full-or-part-time: 38h 10m

Theory classes: 11h 25m

Laboratory classes: 4h 15m

Self study : 22h 30m

(ENG) 4. Flexió pura

Full-or-part-time: 38h 10m

Theory classes: 11h 25m

Laboratory classes: 4h 15m

Self study : 22h 30m

(ENG) 5. Cisallament i torsió

Full-or-part-time: 25h

Theory classes: 7h 30m

Laboratory classes: 2h 30m

Self study : 15h



ACTIVITIES

(ENG) 1. PRÀCTICA DE LABORATORI: TIPUS D'ESTRUCTURES (CONTINGUT 1).

Full-or-part-time: 7h 36m

Laboratory classes: 2h

Self study: 5h 36m

(ENG) 2. PRÀCTICA DE LABORATORI: TRACCIO COMPRESIO PURA (CONTINGUT 3).

Full-or-part-time: 11h 24m

Laboratory classes: 3h

Self study: 8h 24m

(ENG) 3. PRÀCTICA DE LABORATORI: FLEXIO (CONTINGUT 4).

Full-or-part-time: 11h 24m

Laboratory classes: 3h

Self study: 8h 24m

(ENG) 4. PROVA INDIVIDUAL D'AVALUACIÓ CONTÍNUA: TIPUS D'ESTRUCTURES, ANALISIS DE SECCIONS, TRACCIO COMPRESIO PURA (CONTINGUTS 1-3).

Full-or-part-time: 7h

Theory classes: 2h

Self study: 5h

(ENG) 5. PROVA INDIVIDUAL D'AVALUACIÓ CONTÍNUA: FLEXIO, CISALLAMENT I TORSIO (CONTINGUTS: 4, 5).

Full-or-part-time: 7h

Theory classes: 2h

Self study: 5h

(ENG) 6. PROVA FINAL: (CONTINGUTS: 1-5).

Full-or-part-time: 13h

Theory classes: 3h

Self study: 10h

GRADING SYSTEM



BIBLIOGRAPHY

Basic:

- Rivera Amores, Juanjo. Anàlisi d'estructures: teoria i problemes [on line]. Barcelona: Edicions UPC, 2005 [Consultation: 08/03/2018]. Available on: <http://hdl.handle.net/2099.3/36638>. ISBN 8483018179.
- Rivera Amores, Juanjo. Mecànica de materials: problemes [on line]. Barcelona: Edicions UPC, 2008 [Consultation: 08/03/2018]. Available on: <http://hdl.handle.net/2099.3/36772>. ISBN 9788483017616.
- Beer, Ferdinand Pierre, i altres. Mecánica de materiales. 5ª ed. México: McGraw-Hill, 2010. ISBN 9786071502636.
- Gere, James M. Resistencia de materiales. 5ª ed. Madrid: International Thomson Editores, 2002. ISBN 9788497320658.