



Course guide

205612 - 205612 - Computational Structural Dynamics

Last modified: 11/10/2024

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 712 - EM - Department of Mechanical Engineering.
737 - RMEE - Department of Strength of Materials and Structural Engineering.

Degree: MASTER'S DEGREE IN MECHANICAL ENGINEERING RESEARCH (Syllabus 2024). (Compulsory subject).

Academic year: 2024 **ECTS Credits:** 6.0 **Languages:** Catalan

LECTURER

Coordinating lecturer: Robert Arcos – Enginyeria Mecànica
Neus Consul - Matemàtiques

Others:

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

CE5-MUREM. Apply structural analysis, modeling and numerical simulation of structures to static and dynamic requests.

CE7-MUREM. Use numerical simulation tools for the design, calculation and manufacture of components, systems and mechanical installations.

Generical:

CG1-MUREM. Solve problems of Mechanical Engineering through the application of mathematical, analytical, scientific, instrumental, technological and management aspects.

CG8-MUREM. Develop the learning skills that allow mastering the current and future activities of Mechanical Engineering and the continuous development of the field.

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

STUDY LOAD

Type	Hours	Percentage
Self study	96,0	64.00
Hours large group	30,0	20.00
Hours small group	24,0	16.00

Total learning time: 150 h



CONTENTS

title english

Description:

content english

Full-or-part-time: 6h

Theory classes: 2h

Self study : 4h

title english

Description:

content english

Full-or-part-time: 18h

Theory classes: 4h

Laboratory classes: 2h

Self study : 12h

title english

Description:

content english

Full-or-part-time: 6h

Theory classes: 2h

Self study : 4h

title english

Description:

content english

Full-or-part-time: 58h

Theory classes: 12h

Laboratory classes: 10h

Self study : 36h

title english

Description:

content english

Full-or-part-time: 37h

Theory classes: 6h

Laboratory classes: 7h

Self study : 24h



GRADING SYSTEM

BIBLIOGRAPHY

Basic:

- Den Hartog, J. P. Mechanical vibrations . New York : Dover Publications, cop. 1984. ISBN 0-486-64785-4.
- Reddy, J. N. Energy principles and variational methods in applied mechanics . 2nd ed. Hoboken, NJ : John Wiley & sons, cop. 2002. ISBN 0-471-17985-x.
- Zienkiewicz, O. C; Taylor, Richard Lawrence. El Método de los elementos finitos . 5ª ed. Barcelona : CIMNE, 2004. ISBN 84-95999-51-X.