

Continuum Mechanics

ECTS: 6 ECTS

COORDINATOR: Iñigo Arregui Álvarez (arregui@udc.es)

UNIVERSITY WHERE THE COORDINATOR IS: UDC

HAVE YOU GIVEN PERMISSION TO RECORD YOUR CLASSES? Yes

LECTURER 1: José Manuel Rodríguez Seijo (jose.rodriguez.seijo@udc.es)

UNIVERSITY WHERE THE LECTURER 1 IS: UDC

HAVE YOU GIVEN PERMISSION TO RECORD YOUR CLASSES? Yes

SUBJECT CONTENTS

Tensor algebra and tensor analysis.

Curvilinear coordinates.

Kinematics.

Conservation laws.

Change of observer.

Some simple models in fluid and solid mechanics.

METHODOLOGY

Lectures. Exercises resolution. Tutorials.

LANGUAGE USED IN CLASS: Spanish

IS IT COMPULSORY TO ATTEND CLASS? Students can attend via conference system, it is not compulsory.

BIBLIOGRAPHY

Basic references:

- * M. E. Gurtin, "An Introduction to Continuum Mechanics", Academic Press, 1981.
- * O. López Pouso, "An Introduction to Continuum Mechanics, de M. E. Gurtin. Ejercicios resueltos (cap. I-VI)". Publicaciones Docentes del Departamento de Matemática Aplicada, Universidad de Santiago de Compostela, 2002.

Complementary references:

- * A. Bermúdez de Castro, "Continuum Thermomechanics", Birkhauser, 2004.
- * N. Bobillo Ares, "Introducción a la geometría y cinemática de los medios continuos", Servicio de Publicaciones de la U. de Oviedo, 2003.
- * G. Duvaut, "Mécanique des milieux continus", Masson, 1990.
- * K. Hutter, K. Jöhnk, "Continuum Methods of Physical Modeling", Springer, 2004.
- * R. Temam, A. Miranville, "Mathematical Modeling in Continuum Mechannics", Cambridge U. P., 2001.

SKILLS

Basic:

CG3: To be able to integrate knowledge in order to state opinions using information that even incomplete or limited, include reflecting on social and ethical responsibilities linked to the application of their knowledge.

Specific:

CE1: To acquire a basic knowledge in an area of Engineering / Applied Science, as a starting point for an adequate mathematical modelling, using well-established contexts or in new or unfamiliar environments within broader and multidisciplinary contexts.

CE2: To model specific ingredients and make appropriate simplifications in the model to facilitate their numerical treatment, maintaining the degree of accuracy, according to previous requirements.

WILL YOU BE USING A VIRTUAL PLATFORM? No.

WILL YOU BE USING ANY SPECIFIC SOFTWARE? No.

CRITERIA FOR THE 1ST ASSESSMENT OPPORTUNITY

-Continuous assessment of the student work: solving exercises (40%). Skills CG3, CE1 and CE2 will be evaluated.

- Final evaluation: assessment of the knowledge, skills and abilities acquired during the course (60%). Skills CG3, CE1 and CE2 will be evaluated.

-It is compulsory to get a 4 out of 10 in the final exam.

CRITERIA FOR THE 2ND ASSESSMENT OPPORTUNITY

- Resolution of exercises by the student (40%).

- Final evaluation: assessment of the knowledge, skills and abilities acquired during the course (60%).

-It is compulsory to get a 4 out of 10 in the final exam.
