Course: MECHANICAL PROPERTIES OF MATERIALS, PROCESSING AND DESIGN

GENERAL INFORMATION

Fall Semester 6
ECTS credits

INSTRUCTOR(S)

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Description

The aim of this course is to provide the student with the basis to understand the different models of mechanical behaviour of materials used for structural purposes. The course is divided into two sections: The first part is focused on understanding the linear-elastic, plastic and viscous behaviour of materials. The second one pays attention to the application of fracture mechanics and failure analysis in structural integrity assessments. In all cases a threefold point of view is used for the description of the phenomena: phenomenological description of the models, structural application and microstructural understanding. The course includes some laboratory practises to be conducted by the students in small groups.

TEXTBOOK

***Textbook**: ASHBY M.F. y JONES D.R.H., "Engineering Materials: An introduction to microstructures, processing and design", Butterworth-Heinemann (1998).*

SYLLABUS

1. Introduction
2. Basic Concepts
3. Elastic Behaviour
4. Plastic Behaviour
5. Creep Behaviour
6. Fracture Mechanics
7. Fatigue