

DIM-GITI-433 Structural Analysis

SEMESTER: Fall
CREDITS: 4.5 ECTS
LANGUAGE: English/Spanish
DEGREES: GITI

Course overview

This course provides the basic principles of structural analysis and its application to solving problems in the field of engineering. A practical approach is followed to enrich conceptual problems with more realistic ones by means of the application of standard codes.

When completing the course, students will understand the calculation of problems related to truss and framed structures and will be familiarized with certain building standards. The concepts herein acquired are somehow the basis for industrial building, the finite element method and complementary with vibration analysis.

Prerequisites

Basic knowledge of linear algebra and material mechanics.

Course contents

Theory:

1. Introduction to Structural Analysis
2. Analysis of statically determinate trusses
3. Analysis of statically indeterminate trusses
4. Generalized Principle of Virtual Work
5. The Stiffness Method
6. Influence lines
7. Eurocode 3: Design of steel structures

Laboratory:

This subject does not include laboratory practice.

Textbook

- Structural Analysis, 8th Ed., R.C. Hibbeler. Prentice Hall, 2012.

Grading

The following conditions must be accomplished to pass the course:

- A minimum overall grade of at least 5 over 10
- A minimum grade in the final exam of 4 over 10

The overall grade is obtained as follows:

- Final exam: 60%-75%
- Other exams and continuous assessment: 25%-40%
- Technical project: 0%-15%

In the extraordinary exam, the student will be examined of the whole syllabus.

The weighting criterion is:

- Final exam 85%-100%
- Continuous assessment 0%-15%