



COURSE: Strength of Materials

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Language: italian

ECTS: cfu 9

n. of hours: 90

Academic year: 2014.15

Campus: Potenza

Semester: I,II

TOPICS:

Study of elastic solids. Beam theory and its applications

TEACHING METHODS (please tick one or more options)

Theoretical lessons

Tutorials in classroom

Tutorials in laboratory

Project works

Technical visits

Other activities (please specify) _____

TEXTBOOKS

- You sharpen theoretical and examples furnished during course
 - V. Franciosi, Fondamenti di Scienza delle Costruzioni, Vol. 1,2,3. Ed. Liguori, Napoli.
 - V. Franciosi, Problemi di Scienza delle Costruzioni. Vol. 1, 2, 3. Ed. Liguori, Napoli.
 - E. Viola, Esercitazioni di Scienza delle Costruzioni, Vol. 1, 2. Ed. Pitagora
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ON-LINE EDUCATIONAL MATERIAL

web address: _____

LEARNING OUTCOMES

Ability to set up and solve problems related to the behavior of structures through the procedures set out during the course.

REQUIREMENTS

Calculus I and II, Geometry, Mathematical Physics

EVALUATION METHODS (please tick one or more options)

Intermediate verifications

Written examination

Discussion of a project work

Practical test

Oral examination

Other methods (please specify) _____

DETAILED CONTENT

Introduction to vector and tensors, linear transformation, antisymmetric and symmetric transformation. Configuration of continuum bodies, analysis strain. Analysis stress: the concept of stress. Elastic stress-strain relation and formulation of elasticity problem; Isotropic materials. Failure Criteria: Tresca's Criterion Energy principles and introduction to variational methods; principle of virtual work, principle of stationary potential energy, principle of Betti. The elementary theory of beams: De Saint Venant theory; axial force, bending, shear end torsion of the beam. Elastic stability: columns and beam-column; buckling of Long Slender Columns. Structural Analysis: analysis of statically structures. Analysis of statically indeterminate structures by the force method; applications of tress and beams.

SEMINARS BY EXTERNAL EXPERTS YES NO

FURTHER INFORMATION



Università degli Studi della Basilicata
Scuola di Ingegneria