



---

COURSE: Strength of Materials

---

ACADEMIC YEAR: 2016-2017

---

TYPE OF EDUCATIONAL ACTIVITY: Basis

---

TEACHER: Claudio Franciosi

---

e-mail: [claudio.franciosi@unibas.it](mailto:claudio.franciosi@unibas.it)  
[franciosi@scienzadellecostruzioni.co.uk](mailto:franciosi@scienzadellecostruzioni.co.uk)

---

web: [scienzadellecostruzioni.co.uk](http://scienzadellecostruzioni.co.uk)

---

phone: 971-205060

---

mobile (optional):

---

Language: Italian

---

ECTS: 12

---

n. of hours:  
60 lessons  
60 tutorials

---

Campus: Potenza  
Dept./School: School of  
Engineering

---

Semester: Annual

---

#### EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

The student should be able to master the fundamental results of the elasticity theory for a three-dimensional continuum, in order to apply these results to the static analysis of beams and two-dimensional frames. More particularly, emphasis is given to the force method and the displacement method in order to calculate the bending moments, the shear stresses and the normal stresses, together with the displacements of a generic cross section.

At the end, the student should be able to apply the virtual work theorem and the related methods in order to study a generically constrained two-dimensional frame in the presence of forces and Volterra distortions. Moreover, he will be able to use the reciprocity theorems in order to sketch an influence line.

---

#### PRE-REQUIREMENTS

Every effort is put in order to minimize the pre-requirements, but it is obvious that a good knowledge of the following arguments is welcomed:

- differential and integral calculus, linear algebra, vectorial analysis

---

#### SYLLABUS

1. Rigid systems: kinematic analysis
2. Theory of elasticity
3. Statically determinate beams and frames
4. Statically indeterminate beams and frames
5. Influence lines
6. Euler stability theory

---

#### TEACHING METHODS

Theoretical lessons and Classroom tutorials

---

#### EVALUATION METHODS

Written and Oral examination

---

#### TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

Detailed materials from the internet sites.

---

#### INTERACTION WITH STUDENTS

- Monday 8.30-9.30

- Wednesday 11.30-12.30

E-mails are obviously very well welcomed for every kind of questions



Università degli Studi della Basilicata  
**Scuola di Ingegneria**

---

---

EXAMINATION DATES<sup>1</sup>

I Session: 11/1/2017

II Session 7/06/2017 and 2/08/2017

III Session 27/09/2017 and 6/12/2017

---

---

EVALUATION BOARD

---

---

SEMINARS BY EXTERNAL EXPERTS    YES     NO

---

---

FURTHER INFORMATION

---

Scuola di Ingegneria – Viale dell’Ateneo Lucano, 10 – 85100 Potenza

<http://ingegneria.unibas.it> - e-mail: [scuolaingegneria.segreteria@unibas.it](mailto:scuolaingegneria.segreteria@unibas.it) - tel 0971.205032/33 - fax (+39)0971 22115

<sup>1</sup> Potrebbero subire variazioni: consultare la pagina web del docente o del Dipartimento/Scuola per eventuali aggiornamenti

