COURSE DETAILS

"SOLID AND STRUCTURAL MECHANICS"

SSD ICAR08

DEGREE PROGRAMME:	**SOLID AND STRUCTURAL MECHANICS**
ACADEMIC YEAR:	**2022-2023**

GENERAL INFORMATION - TEACHER REFERENCES

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GENERAL INFORMATION ABOUT THE CORSE

INTEGRATED COURSE (IF APPLICABLE):	NO
MODULE (IF APPLICABLE):	NO
SSD OF THE MODULE (IF APPLICABLE):	-
CHANNEL (IF APPLICABLE):	
YEAR OF THE DEGREE PROGRAMME:	YEAR III
SEMESTER (I, II, ANNUAL):	ANNUAL
CFU:	8

REQUIRED PRELIMINARY COURSES (IF MENTIONED IN THE COURSE STRUCTURE "REGOLAMENTO")

FUNDAMENTALS OF SOLID AND STRUCTURAL MECHANICS.

PREREQUISITES (IF APPLICABLE)

The disciplinary prerequisites necessary for understanding the theoretical and methodological knowledge are:

- Statics and kinematics of rigid bodies;
- Geometry of the areas;

- Elements of mechanics of elastic solids.

LEARNING GOALS

The course aims to provide students with the fundamental principles which, when correctly acquired and applied, allow to analyze the static behavior of civil structures.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

- Learning of the essential knowledge for design and verification of structures.
- Learning of the mechanics of materials and structures necessary for the understanding and analysis of complex structural behaviors.

Knowledge and understanding

The discipline has its objective in the knowledge of the mechanics of solids and structures and the understanding of the structural behavior of the most common structures.

Applying knowledge and understanding

The student develops the ability to transfer the theoretical and methodological knowledge related to the structural aspects into the architectural project and design drawings.

COURSE CONTENT/SYLLABUS

The contents of the course are as follows:

- Deformation analysis
  0.66 CFU
- Stress analysis
  0.66 CFU
- Elastic relations
  0.66 CFU
- Elastic balance
  0.66 CFU
- Resistance criteria of materials
- 0.66 CFU
- Geometry of the masses
  0.5 CFU
- De Saint Venant Problem (Normal Stress, Straight Bending, Deviated Bending, Pressure Bending, Shear, Torsion)
  4 CFU

READINGS/BIBLIOGRAPHY

V. Franciosi. Fondamenti di Scienza delle Costruzioni Vol. 1. *Teoria dell'elasticità*. Liguori editore, Napoli 1983
V. Franciosi. Fondamenti di Scienza delle Costruzioni Vol. 2. *Teoria della trave*. Liguori editore, Napoli 1983
V. Franciosi. Fondamenti di Scienza delle Costruzioni Vol. 3. Liguori editore, Napoli 1983

TEACHING METHODS

The course is based into lectures.

EXAMINATION/EVALUATION CRITERIA

a) Exam type:

Exam type	
written and oral	x
only written	
only oral	
project discussion	
other	

In case of a written exam, questions refer to: (*)	Multiple choice answers	
	Open answers	
	Numerical exercises	

(*) multiple options are possible

b) Evaluation pattern:

This field needs to be filled in only when there are different weights among written and oral exams, or among modules if this refers to an integrated course.