



## COURSE DETAILS

# "SOLID AND STRUCTURAL MECHANICS"

SSD ICAR08

DEGREE PROGRAMME: **SOLID AND STRUCTURAL MECHANICS C**

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

C. Anselmi – Appunti di Scienza delle Costruzioni. (In distribuzione da LUDA Copy)

C. Anselmi – Appunti di Teoria delle Strutture. Capitolo VI (In distribuzione da LUDA Copy)

### TEACHING METHODS

The course is based into lectures.



## EXAMINATION/EVALUATION CRITERIA

### a) Exam type:

Exam type	
written and oral	
only written	
only oral	X
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.*