# Syllabus

# Strength of Materials 1

# (A2).

# Academic year 2025/2026

## General information

**FUNDAMENTAL TEACHING UNIT: EA 3**

**SUBJECT TITLE**: Strength of Materials 1 (RDM 1)

**WEEKLY HOURS**: 3 hours of lectures and tutorials

**TOTAL COURSE DURATION**: 45 hours

**PERSONAL WORK**: 55 hours

**WEIGHTING**: 2

**CREDITS**: 4

**FAILING GRADE**: Grade below 5/20

**LECTURERS:**

Ms BOUBEKRI Amel (tutorials for groups 1, 2 and 3)

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Mr TAIBI Abdelsemi (tutorials for groups 5 and 6)

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Ms. DJAFOUR BENKELFAT Naoual (Lectures and tutorials for Group 4)

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**SUBJECT COORDINATOR:**

Ms DJAFOUR BENKELFAT Naoual

## Course objectives

The Strength of Materials (RDM) module aims to provide architecture students with the fundamental knowledge required to understand the mechanical behaviour of structures. Architects must be able to analyse how a structure carries its loads, regardless of the materials used. The course explains the main physical principles governing structural behaviour (forces, stresses, deformations, strength) and highlights their influence on design choices, including materials, geometry, and structural assemblies. This module constitutes an essential foundation for the structural design courses taught in subsequent years

## Course content

CHAPTER 1: **Introduction to Strength of Materials: objectives and basic concepts**

CHAPTER 2: **Geometrical characteristics of sections: centroid, moment of inertia**

CHAPTER 3: **Internal forces: tension, compression, shear, bending, torsion**

CHAPTER 4: **Stress and strain: Hooke's law, Poisson's ratio, elastic and plastic behaviour**.

CHAPTER 5: **Relationship between internal forces and stresses**

CHAPTER 6: **Deformation and deflection of elements under load.**

## Assessment method

Continuous assessment (40%): in-class tests and/or assignments.

Final examination (60%).

## References


1/ Résistance des matériaux de base Noureddine BOURAHLA https://www.researchgate.net/Nouredine_Bourahla/Resistance_des_materiaux

2/ GOLAY F., Résistance des matériaux http://www.freddy.univ-tln.fr/enseignement/RDM.pdf

3/ KHAOUA M., Traité de mécanique des structures, 2èmeédition, OPU 2009.

4/G.R. Nicolet Collection d'exercices en résistance des matériaux https://www.raymondnicolet.ch/resmat/rmexercices.pdf