

# Concrete structures 1



ECTS  
6 credits



Component  
INSTITUT  
NATIONAL  
DES SCIENCES  
APPLIQUEES  
TOULOUSE



Number of  
hours  
68h

## Presentation

### Description

- \* Basic rules of structural design for concrete structures according to Eurocodes.
  - \* Actions and combinations of actions on structures.
  - \* Foundations: actions on foundations, pad footings, pile caps.
  - \* Choice of materials according to mechanical and environmental performance criteria.
  - \* Effects of horizontal actions on bracing walls.
  - \* Design and verification of simple elements:
- Vertical load-carrying components: columns and walls.
  - Horizontal load-carrying components: continuous concrete beams, floors (continuous supported slabs).
  - Bracing wall with or without windows.

### Objectives

At the end of this module, the student will have understood and be able to explain (main concepts):

Prominent design parts (bearing frames, foundations, bracing systems), and calculation of reinforced concrete buildings, submitted to vertical or horizontal loads.

The student will be able to:

Identify actions on the structures and environmental conditions, understand and predict the mechanical behavior of a structure, argue its technological choices (type of components and carrying systems, strength class of materials), design the various structural elements of a common construction and possess the needed basis to go further into particular domains, enrich a numerical model.

### Pre-requisites

Structural analysis and engineering

Reinforced Concrete and prestressed concrete

## Useful info

### Place

> Toulouse