



# **Specialisation Civil Engineering**



## **BÂTIMENTS ET INFRASTRUCTURES**

### **CONSTRUCTIONS**

#### **Lecturers:**

| Lecturers : 0.0 | TC : 0.0 | PW : 0.0 | Autonomy : 0.0 | Study : 0.0 | Project : 0.0 | Language : FR

#### **Objectives**

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Keywords :

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#### **Programme**

#### **Learning outcomes**

#### **Independent study**

Objectifs :

Méthodes :

#### **Core texts**

#### **Assessment**



## CONSTRUCTIONS

## CONSTRUCTIONS

Lecturers: **Eric VINCENS, Francesco FROILIO**

| Lecturers : 14.0 | TC : 0.0 | PW : 0.0 | Autonomy : 0.0 | Study : 16.0 | Project : 0.0 | Language : FR

### Objectives

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Through this course, three construction technologies most representative of current practices are approached, namely reinforced concrete, prestressed concrete and steel construction.

The aim of this course is to provide tools for making technological choices, and calculation techniques for dimensioning beams, floors, columns as well as load-bearing walls. The European regulatory framework which should guide the engineer in the design is also addressed. All the Practical Sessions associated with these courses are supervised by professional engineers.

**Keywords :** reinforced concrete, prestressed concrete, steel construction

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### Programme

Steel construction: 2 practical sessions (4h each)

Reinforced concrete: lectures (10h) + 2 practical sessions (4h each)

Prestressed concrete: lectures (4h)

### Learning outcomes

### Independent study

**Objectifs :** This activity is not concerned with framed autonomy activities outside personal work.

**Méthodes :** This activity is not concerned with framed autonomy activities outside personal work.

### Core texts

Jean Perchat , *TRAITÉ DE BÉTON ARMÉ - SELON L'EUROCODE 2*, Le Moniteur, 2010

Henry Thonier *CONCEPTION ET CALCUL DES STRUCTURES DE BÂTIMENT : L'EUROCODE 2 PRATIQUE*, Presses de l'École nationale des ponts et chaussée, 2006

Jean-Pierre Muzeau, *APKMANUEL DE CONSTRUCTION MÉTALLIQUE*, Eyrolles Afnor éd., 2012

### Assessment

1 grade from the final exam\*0.75 + 1 grade from practical sessions\*0.25



## OUVRAGES POUR LA MOBILITÉ

### TRANSPORTATION WORKS AND STRUCTURES

Lecturers: **Eric VINCENS**

| Lecturers : 12 | TC : 0.0 | PW : 0.0 | Autonomy : 0.0 | Study : 8 | Project : 0.0 | Language : FR

#### Objectives

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Transportation facilities are characterised by a long linear of works in an environment often more aggressive than for buildings or by non-standard geometries requiring technological solutions which are specific to them.

Among them, we can cite works of art, railway infrastructures as well as tunnels. Here, the main principles of design and monitoring of these structures will be given to fully understand the issues specific to their mechanical behavior and their durability. The speakers are all engineers, specialists in the field.

**Keywords :** bridge, railway, tunnel

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#### Programme

Bridges: CM 4h + 1BE 4h  
Tunnels: CM 4h + 1BE 4h  
Railways: CM 4h

#### Learning outcomes

#### Independent study

**Objectifs :** This activity is not concerned with framed autonomy activities outside personal work.

**Méthodes :** This activity is not concerned with framed autonomy activities outside personal work.

#### Core texts

Bernard-Gely, Jean-Armand Calgaro, *CONCEPTION DES PONTS*, Presses de l'École nationale des ponts et chaussées, 1994  
Michel Leboeuf *GRANDE VITESSE FERROVIAIRE.*, Cherche midi, 2014  
Jean Sulem , Marc Panet *LE CALCUL DES TUNNELS PAR LA MÉTHODE CONVERGENCE-CONFINEMENT*, Presses de l'École nationale des ponts et chaussées, 2021

#### Assessment

Continuous evaluation, in particular through the Practical Sessions



## PROJET TET

### TET PROJECT

Lecturers: Eric VINCENS, Pietro SALIZZONI

| Lecturers : 0.0 | TC : 0.0 | PW : 70.0 | Autonomy : 0.0 | Study : 0.0 | Project : 0.0 | Language : FR

### Objectives

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The project is common to the three components of the "Option". It is based on the final project of the students's diploma from the National School of Architecture of Lyon belonging to the departement "Collaborative experimentation in architecture". Through this interdisciplinary work between student-architects and student-engineers, the goal is to get engineering students to invest in a reflection on economically viable solutions, adapted to a Post-Carbon Society taking into account the scarcity of resources, the necessary energy frugality in a regenerated city.

**Keywords :** home comfort, structures, foundation engineering, acoustics, LCA, circular economy

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### Programme

- Work on different themes at the Habitat and City scale including the lithosphere, hydrosphere and atmosphere
- 3 project monitoring meetings by theme

### Learning outcomes

### Independent study

**Objectifs :** This activity is not concerned with framed autonomy activities outside personal work.

**Méthodes :** This activity is not concerned with framed autonomy activities outside personal work.

### Core texts

Marie-Hélène Contal, Jana Revedin, *ARCHITECTURES DURABLES : UNE NOUVELLE ÉTHIQUE POUR L'ARCHITECTURE ET LA VILLE*, Le Moniteur Editions, 2009  
Laurence Lestel, Catherine Carré *LES RIVIÈRES URBAINES ET LEUR POLLUTION*, Quae, 2017  
Jean-Jacques Terrin *VILLES ET CHANGEMENT CLIMATIQUE : ÎLOTS DE CHALEUR URBAINS*, Parenthèses, 2015

### Assessment

0.33 \* oral defense + 0.33 \* final written report + 0.33 \* 2 interim reports