

Mechanical Design

Prestressed concrete structure

IDENTIFICATION

CODE : GCU-4-S1-EC-BP
ECTS : 2.0

HOURS

Lectures : 10.0 h
Seminars : 16.0 h
Laboratory : 0.0 h
Project : 0.0 h
Teacher-student
contact : 26.0 h
Personal work : 24.0 h
Total : 50.0 h

ASSESSMENT METHOD

Project

TEACHING AIDS

Duplicated documents

TEACHING LANGUAGE

French

CONTACT

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AIMS

This module is part of the course unit GCU-S7-STR-3 and contributes:

Competences in Engineering Science:

- A1- Analyze a real or virtual system (or problem) [level 2]
- A2- Operate a model of a real or virtual system [level 2]
- A4- Designing a system that meets a specification [level 2]

Competences specific to the specialty:

- C7- Building structure (design, dimension and control a2) [level 2]

Allows the student to work and be evaluated on the following knowledge:

- Rules of design according to Eurocodes 0, 1 and 2
- Design and verifications reinforced concrete beams in combined bending
- Functioning and design of prestressed concrete beams

Allows the student to work and be evaluated on the following abilities:

- To design statically determinate reinforced concrete beams in combined bending according to Eurocodes 0, 1 and 2
- To design statically determinate prestressed reinforced concrete beams to Eurocodes 0, 1 and 2

CONTENT

1-Combined bending and compression at service and ultimate states

2-Prestressed concrete

2.1-Generalities

2.2-Prestress loss

2.3-Elastic design

2.4-Design requirements

BIBLIOGRAPHY

NF EN 1990 [Mars 2003]. Eurocodes structuraux - Bases de calcul des structures. AFNOR.

NF EN 1991 [Juillet 2001]. Actions sur les structures. AFNOR.

NF EN 1992 [Avril 2003]. Eurocode 2 - Calcul des structures en béton. AFNOR.

Annexe Nationale à la NF EN 1992-1-1 [Mars 2007]. AFNOR

Recommandations professionnelles pour l'application de la norme NF EN 1992 -1-1 et de son annexe nationale relative aux calculs des structures en béton [mars 2007]. Editions SEBTP.

EFB [2008]. Application de l'Eurocode 2. Presse de l'ENPC. Paris, France.

Le Delliou P. [2003]. Béton précontraint aux Eurocodes. ENTPE, Presses Universitaires de Lyon, France.

Roux J. [2009]. Maîtrise de l'Eurocode 2. AFNOR. Editions Eyrolles, Paris, France.

PRE-REQUISITE

3GCU-S7-BA

3GCU-S7-IAS1

3GCU-S7-IAS2

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