INSTITUT NATIONAL DES SCIENCES APPLIQUÉES LYON

DPT GENIE CIVIL ET URBANISME
CIVIL ENGINEERING AND URBANISM
INSA Campus LyonTech - 8 rue des Sports
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Mechanical Design

Reinforced concrete structure

IDENTIFICATION

CODE : GCU-3-S2-EC-BA
ECTS : 3.0

HOURS

Lectures :	20.0 h
Seminars :	16.0 h
Laboratory :	7.0 h
Project :	0.0 h
Teacher-student contact :	43.0 h
Personal work :	20.0 h
Total :	63.0 h

ASSESSMENT METHOD

Poject
Practical work reports

TEACHING AIDS

Duplicated documents

TEACHING LANGUAGE

French

CONTACT

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AIMS

This module is part of the course unit GCU-S6-STRUCT-2 and contributes to:

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 aȩ) (level 2)

Allows the student to work and be evaluated on the following knowledge:
Design principles for reinforced concrete structure according to EUROCODES 0, 1 and 2;
Properties of constitutive materials (steel and concrete)
Calculus basis at limit states (service and ultimate states)
Environmental and durability classes
Beam cross section requirements with normal and shear forces

Allows the student to work and be evaluated on the following abilities:
To Design statically determinate rienforced concrete structure according to EUROCODES 0, 1 and 2
To integrate the durability notion in civil engineering projects

CONTENT

1 - Introduction to Eurocodes - Eurocodes 0, 1, and 2
2 - Properties of materials
3 - Steel/concrete bond
4 - Bending at Ultimate Limite State
5 - Bending at Serviceability Limite State
6 - Shear resistance

BIBLIOGRAPHY

Paillé J.M. (2009). Calcul des structures en béton. AFNOR. Editions Eyrolles, Paris, France; Roux J. (2009). Pratique de l'Eurocode 2. AFNOR. Editions Eyrolles, Paris, France; Roux J. (2009). Maîtrise de l'Eurocode 2. AFNOR. Editions Eyrolles, Paris, France; Ricotier D. (2012). Dimensionnement des structures en béton selon l'Eurocode 2. Edition Le Moniteur, Paris, France; 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.

PRE-REQUISITE

3GCU-S6-IAS1
3GCU-S6-IAS2

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