

Mechanical Design

Reinforced concrete structure

IDENTIFICATION

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

HOURS

Lectures : 20.0 h
Seminars : 16.0 h
Laboratory : 0.0 h
Project : 0.0 h
Teacher-student
contact : 36.0 h
Personal work : 0.0 h
Total : 36.0 h

ASSESSMENT METHOD

Written exam
Practical work reports

TEACHING AIDS

Duplicated documents
On-line documents

TEACHING LANGUAGE

French

CONTACT

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AIMS

To give some theoretical and regulation elements useful for designing reinforced concrete structure.

At the end of this module, student must be able to design statically determinate reinforced concrete structure according to EUROCODES 0, 1 and 2 and to integrate the durability notion in civil engineering projects.

CONTENT

Design principles for designing reinforced and prestressed concrete structure according to EUROCODES 0, 1 and 2

Reinforced concrete definitions

Properties of constitutive materials (steel and concrete)

Semi-probabilistic safety approach

Calculus basis at limit states (service and ultimate states)

Environmental and durability classes

Beam cross section requirements with normal and shear forces

BIBLIOGRAPHY

EN1990: Eurocode 0. Bases de calcul des structures

EN1991: Eurocode 1. Actions sur les structures.

EN1992-1-1: Eurocode 2. Calcul des structures en béton. Règles générales et règles pour les bâtiments.

PRE-REQUISITE

IAS1

IAS2

MAS1

Beam theory