INSA INSTITUT NATIONAL DES SCIENCES APPLIQUÉES LYON

DPT GENIE CIVIL ET URBANISME
CIVIL ENGINEERING AND URBANISM
INSA Campus LyonTech - 8 rue des Sports
Batiment Eugène Freyssinet - 69621 VILLEURBANNE
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Projects

Infrastructures and bridge engineering

IDENTIFICATION

CODE : GCU-5-S1-EC-PIOA
ECTS : 13.0

HOURS

Lectures :	0.0 h
Seminars :	150.0 h
Laboratory :	0.0 h
Project :	0.0 h
Teacher-student contact :	150.0 h
Personal work :	175.0 h
Total :	325.0 h

ASSESSMENT METHOD

Reports
Oral defences

TEACHING AIDS

Lessons
Standard
Projets

TEACHING LANGUAGE

French

CONTACT

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AIMS

This module is part of the course unit GCU-S9-PM and contributes to:

Competences in Engineering Science:
A1- Analyze a real or virtual system (or problem)(level 3)
A2- Operate a model of a real or virtual system (level 3)
A4- Designing a system that meets a specification (level 3)
A5- Processing data (level 3)
A6- Communicate a scientific analysis or approach (level 3)

Competences in Humanities, Documentation and Physical and Sports Education:
B2- Work, learn, evolve autonomously (level 3)
B3- Interact with others, work as a team (level 3)
B4- Demonstrate creativity, innovate and undertake (level 3)

Competences specific to the specialty:
C7- Building structure (design, dimension and control a¿) (level 3)
C8- Civil Engineering Structures (design, dimension and control a¿) (level 3)
C9- Highway and rail infrastructure (design, dimension and control a¿) (level 3)
C10- Infrastructure project management (level 3)
C11-Perform an environmental analysis of an infrastructure (level 3)
C12-Assess several building methods (level 3)
C25- Contribute to sustainable urban developments and sustainable construction (level 3)
C26- Manage assets (assessment, maintenance, rehabilitation) (level 3)

Allows the student to work and be evaluated on the following knowledge:
Definition and development of a infrastructure project
Design of a bridge

Allows the student to work and be evaluated on the following abilities:
To know the different stages of a mutlimodal infrastructure project
To identify the actors and their respective responsibilities.
To use the body of knowledge in structural design on a bridge project

CONTENT

Road project
- Take into account the different needs and constraints.
- Determination of the longitudinal section and of the cross-section.
- Design of the solution (pavement, earthwork, hydraulic structures, ...)

Bridge project
- Schematic design phase of a bridge.
- Proposal of a technical solution.

WARNING : this project can't be chosen with PMAU and PBAT

BIBLIOGRAPHY

J.A. Calgaro et A. Bernard-Gély : Conception des Ponts. Cours de l'Ecole Nationale des Ponts et Chaussées, Presses de l'ENPC.
Jean-Armand Calgaro : Projet et construction des Ponts. Presses de l'ENPC.
Eurocode 1 - Partie 2 : Charges sur les Ponts Routes.
Fascicule 61 - Titre II : Conception, calcul et épreuves des ouvrages d'art.
Eurocode 2 : Calcul des structures en béton - Partie 1-1 : Règles générales et règles pour les bâtiments.
Eurocode 3 : Calcul des structures en acier.
Eurocode 4 : Calcul des structures mixtes acier-béton.

PRE-REQUISITE

Good level of oral and written French (Level C1)
GCU-S5-IAS1
GCU-S5-IAS2
GCU-S5-MMC
GCU-S6-BA
GCU-S6-MAS-1
GCU-S6-MAS-2
GCU-S7-BP
GCU-S7-EAS1
GCU-S7-EAS2
GCU-S7-CMM1
GCU-S7-CMM2

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