

FIFTH YEAR INSA TOULOUSE

Practical info

Location(s)





Human Resources Management and Group Work

75h

Hourly volume

Introducing

6 crédits

ECTS

a

Objectives

At the end of this module, the student will have understood and be able to explain (main concepts) :

Human Resource Management

Aims and organisation of a Human Resources position, job analysis and forecasting, recruiting, work motivation, skills, salary, training, career management, conflict mitigation, work contract

Social Psychology

Groups, what they are, their influences and dynamics The student will be able to analyse a group situation

Necessary prerequisites

None

Practical info

Location(s)





HVAC – Building physics





Introducing

Objectives

At the end of this formation unit, the student will be able to dimension, to conceive and to propose a pertinent regulation of varied air conditioning installations.

Expected skills :

Design an air conditioning installation (HVAC) from determined specificationsDesign a control system to optimize this facilityDesign main elements of the installation

Practical info

Location(s)





Future buildings





Introducing

Objectives

This teaching describes some of the great concepts of building and of running of buildings of the future. Namely, High Environnemental Quality (HQE), Renewable Energies and Technical Management of Buildings (TMB).

Main goal of this teaching is to make student sensitive to these different concepts.

At the end of this module, the student will have understood and be able to explain (main concepts):

- Targets and areas of HQE , how to take them into account in the labeling of a building project

- The main principles of the methods of controlling an air conditioning system , and the operation of control systems in the HVAC industry

- The physical principles of different renewable energy sources (solar , geothermal, biomass , etc.) and associated technologies - carry out a HQE study on a simplified building

- describe and analyze a control system of an $\ensuremath{\mathsf{HVAC}}$ installation

- calculate and design a renewable energy system design for a real building project

Expected skills :

calculate energy coming from renewable sources from a CCTP, design the hydraulic and / or ventilation pattern of an HVAC plant using renewable energyimplement the HQE method on a building projectdesign a control system of an HVAC installation

Macro-skills evaluated : 2_1, 2_2, 2_3, 3_1, 3_2, 3_6, 3_8

Necessary prerequisites

- General lectures of semesters 7 and 8 of climatic engineering - year 4 ;

- Basic physic.

The student will be able to:



Practical info

Location(s)





Methods and English



Hourly volume

Introducing

Objectives

At the end of this module, the student will have understood and be able to explain (main concepts):

Elaborating means, planning and budget of a construction operationMain techniques and methods in various sectors (building, bridges and roads)Principles of Lean Management applied to Civil Engineering projectsUse specific vocabulary of Civil Engineering to complete reports and discuss key elements of a project

The student will be able to:

Elaborate methods.Estimate a budget and establish a planning of works.Pilot a project referring to Lean Management conceptsCommunicate in English civil engineering environment

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Necessary prerequisites

None

Practical info

Location(s)





Bridge Project & Conferences





Introducing

Objectives

At the end of this module, the student will have understood and be able to explain (main concepts):

Main steps in design and calculation of a prestressed concrete bridge.

The student will be able to:

Define and calculate the main structural components of a concrete bridge.

Necessary prerequisites

Prestressed Concrete Structures & Bridges

Practical info

Location(s)





Road engineering and structures





Introducing

Objectives

At the end of this module, the student will have understood and be able to explain (main concepts):

Main road techniques. Methods for boring tunnelsPractice and stakes of bridge management

The student will be able to:

Design of a structural pavement.Elaborate methods for boring tunnels.Participate to bridge management process

Necessary prerequisites

Cours de matériaux de génie civil.

Practical info

Location(s)





Methods and English



Hourly volume

Introducing

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Necessary prerequisites

None

Practical info

Location(s)





Frames and Composite steel and concrete structures

Introducing

ECTS

6 crédits

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Objectives

At the end of this module, the student will have understood and be able to explain (main concepts):

Elaborating methods, planning and budget for a construction project.Designing and calculating an steel structure and timber component

The student will be able to:

Foresee the execution methods.Establish a projected budget and planningDesign the framework and stability of a steel structureCalculate members and components according to EC3 and EC5.

Necessary prerequisites

Steel & timber structures

Practical info

Location(s)





Concrete structures 2 & masonry

ECTS 0 7 crédits



Hourly volume 105h

Introducing

Objectives

At the end of this module, the student will have understood and be able to explain (main concepts):

The principles of design for building concrete structures under earthquake and under fire, the principles of design of masonry structures according to EC6.

The student will be able to:

Design and check simple concrete structures in case of fire, or built in seismic zone.

Write a calculation note and justify the structural elements.

Know the limite of EUROCODE 6 and justify a masonry wall.Calculation and design of buildings in seismic area according to Eurocode 8, design of beams, walls with and without openings, foundations, design project.

Practical info

Location(s)

• Toulouse





Methods and English



Hourly volume

Introducing

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Practical info

Location(s)





Eco building & Environmental impact



Introducing

ECTS



environmental impacts of a project

- carry out a simplified LCA to study a building

Objectives

At the end of this module, the student will have understood and be able to explain (main concepts):

- Interest and principles being used to establish a diagnosis of energetic performance (DPE).

- Interest and the principle of a thermal dynamic simulation for buildings to help with the design renovating of the buildings in a bioclimatic approach

- Interest and principles of methods to evaluate global environmental impacts in a project of new or renovated building: life cycle analysis (LCA), Bilan Carbone and other methods.

The student will be able to:

- carry out the DPE and the thermal dynamic simulation of a project of building, analyze results obtained and propose improvements with the studied project

- analyze and take into account a study report on the

Expected skills :

To optimize a building according to bioclimatic principles, using a dynamic thermal simulation softwareTo assess the environmental impact of a building (or part of a building) via LCA and / or a Carbon Footprint analyze.

Practical info

Location(s)





BIM Environment



Hourly volume

Introducing

Objectives

At the end of this module, the student will have understood and be able to explain (main concepts):

Organisation of a collaborative work thanks to the numerical modelRole, limit and responsibilities of the stakeholders in a BIM project

The student will be able to:

Give principles of the process for elaborating the numerical model as function of the invitation to tenderParticipate to a BIM construction projectKnow how to interact with the participants of a BIM construction project

Practical info

Location(s)





Project ownership assistance





Practical info

Location(s)





ID-RIMS





Hourly volume

Practical info

Location(s)





Training period (5th year)





Practical info

Location(s)





Training period (4th year)





Practical info

Location(s)

