

Architecture, engineering and construction project management

Lecturer

Philippe BOUILLARD (Coordinator)

Course mnemonic

CNST-H423

ECTS credits

5 credits

Language(s) of instruction

English

Course period

Second term

Campus

Solbosch

- 4 Discuss the procurement strategies and estimate the costs of a project
- 5 Plan and schedule a construction project
- 6 Analyse the nature of risk associated with a construction project and propose mitigation measures
- 7 Discuss the construction methods and organise the work-site layout
- 8 Evaluate ethical practices from the various stakeholder perspectives

Pre-requisites and co-requisites

Required knowledge and skills

Background in architectural or civil engineering.

Course content

- 1 Introduction
- 2 The project life cycle
- 3 Project procurement management
- 4 Project risk management
- 5 Project planning management
- 6 Project worksite management
- 7 Project cost management
- 8 Project health & safety management
- 9 Project contemporary design practices
- 10 Ethics and professional practice

Objectives (and/or specific learning outcomes)

Module aim

This module aims at training students in architectural and civil engineering on the contemporary management methods and tools in the AEC industry for the project life cycle (from the inception of a project until its operation/maintenance/refurbishment/demolition/material mining stage).

Specific learning outcomes

On completion of this module, students are expected to be able to:

- 1 Apply the project management methods and tools to an AEC project
- 2 Critically review the roles and responsibilities of the key players in the AEC industry
- 3 Describe the different stages of a project life cycle including the stakeholders involved

Teaching method and learning activities

Lectures: 2,5 ECTS = 30h

Tutorials: 1,5 ECTS = 18h (in-class case studies)

Field trip: 1 ECTS = 12h (2 compulsory site visits)

Unsupervised work: 60h (teamwork)

Contribution to the teaching profile

(This section refers to the programme learning outcomes. Their definition is not the responsibility of the module coordinator who is only referring to them).

This module contributes to the following overall programme learning outcomes:

- In-depth knowledge and understanding of integrated structural design methods in the framework of a global design strategy
- reformulate complex problems in order to solve them (simplifying assumptions, reducing complexity)
- present and defend results in a scientifically sound way, using contemporary communication tools, for a national as well as for an international professional or lay audience
- collaborate in a (multidisciplinary) team
- think critically about and evaluate projects, systems and processes, particularly when based on incomplete, contradictory and/or redundant information
- a creative, problem-solving, result-driven and evidence-based attitude, aiming at innovation and applicability in industry and society
- a critical attitude towards one's own results and those of others
- the consciousness of the ethical, social, environmental and economic context of his/her work and strives for sustainable solutions to engineering problems including safety and quality assurance aspects

- > the flexibility and adaptability to work in an international and/or intercultural context
- > an attitude of life-long learning as needed for the future development of his/her career

References, bibliography and recommended reading

Project Management Institute (2017) A guide to the Project Management Body of Knowledge. PMBOK Guide, 6th Edition, Pennsylvania (USA).

P. Netscher (2017) Construction Management. From Project Concept to Completion, Panet Publications, Subiaco (Australia)

Additional references are available on ULB UV.

Course notes

Université virtuelle

Other information

Place(s) of teaching

Solbosch

Contact(s)

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Evaluation method(s)

Group work and Written report

Evaluation method(s) (additional information)

TEMPORARY: THIS SECTION WILL BE REVIEWED BASED ON STUDENTS AND GUEST LECTURERS' FEEDBACK Assignments #1-2: 2 work site visit reports (25% each)

Each WS-team must visit two worksites of any construction type (new building or renovation, industrial building, infrastructure). The teams must choose very different stages of progress allowing each team to cover and discuss: (i) initiating and planning a project, (ii) executing, monitoring and controlling a project. For (i), it is recommended to visit a worksite at an early stage (foundations, framing), and for (ii), at a later stage (finishes). The teams report on the visits according to the provided template.

(application of chapters 1 to 10).

Assignment #3: Case studies

Each CS-team identifies among the work site visits of any team member, the best case studies to address the two following topics:

#3.1 Project life cycle and risk assessment (25%)

The CS-teams have to discuss the project life cycle and provide a risk analysis of a construction project based on a risk matrix.

(application of chapters 2, 3 and 4).

#3.2 Work Site management (25%)

The CS-teams have to make a detailed sequencing of a subset of a construction (Gantt chart with a critical path analysis; at least 20 tasks with overlapping), a work site layout and describe the techniques used for a construction detail. Then, the students will simulate the impact of an unexpected event (e.g. a task is late or delayed) and update the sequencing accordingly.

(application of chapters 5 and 6).

Determination of the mark (including the weighting of partial marks)

TEMPORARY: THIS SECTION WILL BE REVIEWED BASED ON STUDENTS AND GUEST LECTURERS' FEEDBACK

This module is an active learning activity with continuous evaluation. There is no resit option, only a retake.

Assignments: 100% - no exam.

- > Assignment #1: Worksite visit report #1 (25%)
- > Assignment #2: Worksite visit report #2 (25%)
- > Assignment #3: Case studies (50%)

Main language(s) of evaluation

English

Programmes

Programmes proposing this course at the Brussels School of Engineering

MA-IRAR | Master of science in Architecture and Engineering | finalité Professional/unit 1 and finalité Professional/unit 2 and MA-IRCN | Master of science in Civil Engineering | finalité Professional/unit 1