GC 2 Ingénieur civil des constructions (Diploma of the Second Cycle (Ingénieur civil)in Civil Engineering)

Programme management

AUCE Département d'architecture, d'urbanisme et de génie civil environnemental
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Study objectives

The university study programme in Engineering aims as much for the student to find employment in companies as for him to personally become a fully responsible active member of the society in which he lives. All the while offering a considerable amount of polyvalent instruction, the Civil Engineering studies, above all, prepare the student to become invoved in civil engineering and environmental projects. The GC engineer is responsible for his own technical expertise. it is up to himself to take initiatives and also anticipate potential problems. Furthermore, as he is often responsible for a team, he also needs to develop his inter-personal skills and sensitivity.
On the level of knowledge, the following can be expected :

- that the basic theories of each subject be acquired ,
- that the future GC engineer become familiar with the basic tools (modelling, computer studies, experimental techniques...),
- that the simple applications be perfectly mastered during the studies, by means of practical work and projects,
- that these foundations help the student approach the more complex applications and methods with a critical mind : the GC engineer must be able to understand and situate concepts in relation with his basic knowledge.

The programme will also aim to reinforce the student's concrete, practical sense, by means of laboratory work and visits to building sites and apprenticeships, as well as an end of course trip.

Admission conditions

The programme leading to a degree in Civil Construction Engineering is accessible to all students holding the first study cycle diploma ("candidature") in Civil Engineering. Industrial engineers and certain university degree holders in subjects relating to the Exact Sciences may also be entitled access, as may students with a foreign degree judged as being equivalent.

Admission procedure

The University admission and enrolment procedures are detailed in the section : "Access to studies" on the web page : http://www.ucl.ac.be/etudes/libres/acces.html

General structure of the programme

Besides the general and polyvalent studies, the programme revolves around the five following subjects : Construction; Hydraulics; Soils - Rocks - Geology; Structures-Materials and Environment. Each student will choose two complete modules to follow from among those subjects, the three others will take the form of reduced modules. The student will complete his programme with 180 hours of optional courses. The programme also includes visits to building sites, a 4 week apprenticeship and an end of course project.

Programme content

1. Programme composition
General and polyvalent courses
General courses

FSA2240	Gestion financière et comptable[30h+15h] (4 credits) (in French)	Philippe Grégoire
FSA2300	Religious Science Questions[15h] (2 credits) (in French)	Bernard Van Meenen

FSA2323	none[30h+15h] (4 credits) (in French)	Jean-Pierre Hansen, Yves Smeers
INMA2701	Applied mathematics : Signals and systems[30h+30h] (5 credits) (in French)	Luc Vandendorpe, Vincent Wertz
INGI2716	Computer science 3[30h+30h] (5 credits) (in French)	Marc Lobelle

Polyvalent courses

ELEC2751	Electrical circuits and measurements[15h+15h] (3 credits) (in French)	Christian Eugène
ELEC2752	Electronics[30h+15h] (4 credits) (in French)	Hervé Buyse

The ELEC 2752 course may be replaced by the following :

MAPR2806	Introduction to process engineering[30h] (3 credits) (in French)	Denis Dochain
MECA2120	Introduction to finite element methods.[30h+30h] (5 credits) (in French)	Vincent Legat
MECA2855	Thermodynamics and energetics.[45h+30h] (6 credits) (in French)	Michel Giot, Hervé Jeanmart, Miltiadis Papalexandris
MECA2901	Continuum mechanics.[30h+30h] (5 credits) (in French)	François Dupret

Specialised studies

The students will follow two complete modules and three reduced modules from among the five following subjects :
20.01. Construction
20.02. Hydraulics
20.03. Soils, rocks, geology
20.04. Structures, materials
20.05. Environment

Options

Each student will choose optional courses for a minimum of 180 hours, from among the optional courses offered in the below-listed subjects, from the courses offered on other FSA programmes, from the courses offered on other UCL programmes or those of KULeuven.
This choice must be approved by the GC degree programme Mangement Committee.
The optional courses will be followed in the second or third study year.
The choice will be made in such a way that the total of the courses and practical tasks will attain 750 hours in GC 22 and 345 hours in the first quadrimester of GC 23.

Building-site visits

These visits are organised by the GC unit.

Apprenticeship

The students must carry out an apprenticeship in a firm of at least four weeks duration during their second cycle studies. This apprenticeship is worth 3 credits (30 hours) of the total volume of their programme It is subject to the prior approval of the apprenticeship supervisor and the programme Management Committee and must conclude with a report. It will be ratified in by an evaluation specifying " has/has not satisfied the requirements".

Language course

During the second study cycle, the students may follow various language courses, organised by the ILV. These courses represent a minimum of 30 hours (3 credits) within the total volume of the optional part of their programme. A specific course aimed at improving the linguistic skills and professional interactive communication capacities of the students, is especially organised for the FSA students.

ANGL2470	English communication skills for engineers[30h] (3 credits)	Ahmed Adrioueche, Henri November, Severine Schmit

End of course project

This consists of a research project, preferably focusing on ongoing research activities in the Civil Engineering Unit. It represents an individual volume of work equivalent to half a year.

2. Programme per year of studies

The programmes presented below only specify the compulsory and semi-compulsory courses.

GC 21 First year

First quadrimester

AMCO2151	General and statistical hydrology[15h+15h] (3 credits) (in French)	Yves Zech
AMCO2171	Geology and mineralogy[30h+15h] (4 credits) (in French)	Christian Schroeder, Philippe Sonnet
AMCO2172	Soil Mechanics[30h+22.5h] (5 credits) (in French)	Jacques De Jaeger, Jean-François Thimus
FSAR1482	A préciser (in French)	
AMCO2343	Design Mechanisms[15h] (2 credits) (in French)	Nicolas Van Oost
INMA2701	Applied mathematics : Signals and systems[30h+30h] (5	Luc Vandendorpe, Vincent Wertz

	credits) (in French)	
MECA2855	Thermodynamics and energetics.[45h+30h] (6 credits) (in French)	Michel Giot, Hervé Jeanmart, Miltiadis Papalexandris
MECA2901	Continuum mechanics.[30h+30h] (5 credits) (in French)	François Dupret

Second quadrimester

AMCO2101	ELEMENTS OF PROJECT OF CIVIL ENGINEERING I[30h] (2 credits) (in French)	Jean-Louis Hilde
AMCO2152	Hydraulics[45h+30h] (7 credits) (in French)	Yves Zech
AMCO2173	Application of Soil Mechanics[30h+22.5h] (5 credits) (in French)	Jacques De Jaeger, Alain Holeyman
AMCO2031	STRUCTURAL MATERIALS[15h+15h] (2 credits) (in French)	Jean-François Cap
AMCO2191	Geoenvironment[30h+15h] (4 credits) (in French)	Alain Holeyman
INGI2716	Computer science 3[30h+30h] (5 credits) (in French)	Marc Lobelle
MECA2100	Deformable solid mechanics.[45h+45h] (7 credits) (in French)	Issam Doghri

GC 22 Second year

First quadrimester

AMCO2032	DESIGN OF REINFORCED CONCRETE STRUCTURES[22.5h+22.5h] (4 credits) (in French)	Jean-François Cap
AMCO2102	ELEMENTS OF PROJECT OF CIVIL ENGINEERING II[30h] (2 credits) (in French)	Jean-Louis Hilde, Alain Holeyman
AMCO2153	Fluvial hydraulics[45h+30h] (7 credits) (in French)	Sandra Soares Frazao, Yves Zech
AMCO2174	Geotechnic[30h+15h] (4 credits) (in French)	Alain Holeyman, Jean-François Thimus
AMCO2183	Mechanic of structures[30h+30h] (5 credits) (in French)	Jean-François Remacle
AMCO2186	Design and realisation of structure[45h] (4 credits) (in French)	Eli Schmit
AMCO2361	Building physics 1: thermal characteristics, acoustics, and lighting[30h+15h] (4 credits) (in French)	Marcelo Blasco, André De Herde, Elisabeth Gratia, Peter Wouters
AMCO2991	Faisabilité et incidence des projets de développement territorial[30h] (3 credits) (in French)	Dominique Peeters
ELEC2751	Electrical circuits and measurements[15h+15h] (3 credits) (in French)	Christian Eugène
MECA2120	Introduction to finite element methods.[30h+30h] (5 credits) (in French)	Vincent Legat

Second quadrimester

AMCO2103	Project of structure[60h] (4 credits) (in French)	Philippe Colson
AMCO2192	Floods and low-water level[22.5h] (2 credits) (in French)	Yves Zech
AMCO2154	Hydraulics structures[30h] (3 credits) (in French)	Didier Bousmar, Yves Zech
AMCO2155	Hydraulics project[60h] (4 credits) (in French)	Didier Bousmar, Yves Zech
AMCO2177	Project of soil mechanics[60h] (4 credits) (in French)	Alain Holeyman, Jean-François Thimus
AMCO2185	DESIGN OF PRESTRESSED CONCRETE STRUCTURES[22.5h+15h] (3 credits) (in French)	Jean-François Cap
AMCO2187	Project of structures[60h] (4 credits) (in French)	Jean-François Remacle
FSA2240	Gestion financière et comptable[30h+15h] (4 credits) (in French)	Philippe Grégoire
FSA2323	none[30h+15h] (4 credits) (in French)	Jean-Pierre Hansen, Yves Smeers
MECA2510	Dynamics of elastic systems.[30h+30h] (5 credits) (in French)	Jean-Pierre Coyette, David Johnson
POLU2201	A préciser (in French)	

The AMCO 2361 and AMCO 2103 courses only need to be followed if the student has chosen a complete module in Constructions.
The AMCO 2153, AMCO 2154 and AMCO 2155 courses only need to be followed if the student has chosen a full module in Hydraulics.
The AMCO 2174 and AMCO 2177 courses only need to be followed if the student has chosen a complete module in Soils-Rocks-Geology.
The AMCO 2186 and AMCO 2187 courses only need to be followed if the student has chosen the complete module in Structures-Materials.
The AMCO 2145 and POLU 2201 courses only need to be followed if the student has chosen a full module in Environment.

GC 23 Third year

First quadrimester

AMCO2104	SEMINARS RELATING TO THE CIVIL ENGINEERING WORKS - SEMINARS RELATING TO THE STRUCTURES[30h] (3 credits) (in French)	N.
AMCO2161	Civil works management[22.5h] (2 credits) (in French)	Bernard Cols
AMCO2175	Methods of design and geotechnical control[30h+15h] (4 credits) (in French)	Alain Holeyman, Jean-François Thimus
AMCO2176	Tunnels[15h] (2 credits) (in French)	Eddy Jacques, Jean-François Thimus
AMCO2188	Dynamique des structures[30h+30h] (5 credits) (in French)	Jean-Pierre Coyette, David Johnson
AMCO2193	Gestion des choix technologiques[22.5h] (2 credits) (in French)	Bernard Declève, Jean-François Thimus
AMCO2194	Project of environment[45h] (3 credits) (in French)	Alain Holeyman
AMCO2363	Building physics II: utilities - Part A: design - Part B: dimensioning[45h+15h] (4 credits) (in French)	Jacques Claessens, Christian Eugène, Jean-Claude Samin, Jean-Marie Seynhaeve
Part A, Conception		
AMCO2591	Législation du bâtiment et éléments du droit industriel[22.5h] (2 credits) (in French)	Pierre Nihoul
FSA2300	Religious Science Questions[15h] (2 credits) (in French)	Bernard Van Meenen
ELEC2752	Electronics[30h+15h] (4 credits) (in French)	Hervé Buyse
The ELEC 2752 course may be replaced by the following course :		
MAPR2806	Introduction to process engineering[30h] (3 credits) (in French)	Denis Dochain

The AMCO 2104 and AMCO 2363A courses only need to be followed if the student has chosen a complete module in Constructions.
The AMCO 2175 and AMCO 2176 courses only need to be followed if the student has chosen a complete module in Soils-Rocks-Geology.
The AMCO 2188 course only needs to be followed if the student has chosen the complete module in Structures-Materials.
The AMCO 2193 and AMCO 2194 courses only need to be followed if the student has chosen a full module in Environment.

Evaluation

The evaluation of each course is carried out by means of an exam which is usually oral, focusing on both the theoretical and practical aspects. The projects are evaluated at the end of the quadrimester on the basis of a report and an interview with the course lecturers.