

Design Engineering (E711060)

Course size (nominal values; actual values may depend on programme)

Credits 5.0 Study time 150 h Contact hrs 60.0 h

Course offerings and teaching methods in academic year 2018-2019

A (year)	Dutch	excursion	6.0 h
		project	54.0 h

Lecturers in academic year 2018-2019

Wylaers, Marc	TW14	lecturer-in-charge
Vandenbruwane, Ignaas	TW14	co-lecturer

Offered in the following programmes in 2018-2019

	crdts	offering
Bachelor of Science in Engineering Technology (main subject Civil Engineering Technology)	5	A
Bachelor of Science in Civil Engineering Technology	5	A
Linking Course Master of Science in Land Survey Engineering Technology	5	A
Preparatory Course Master of Science in Land Survey Engineering Technology	5	A

Teaching languages

Dutch

Keywords

Woodframe construction, construction drawings, construction details, interior finishes, steel construction, design, building, house, plumbing, sewage, descriptive, specifications, quantity survey, estimate cost.

Position of the course

Design Engineering aims to integrate solution techniques and methods from disciplines CAD, multidisciplinary engineering project, building construction, building physics and technologies in buildings and hydro technology in the context of a given design. All these techniques are used to complete the architectural plans, construction details, building permit, site plan, location plan and section of the terrain, descriptive specification, quantity survey, estimation of costs.

Contents

Preparation of a complete architectural dossier of a building (teamwork: 3 persons) based on a given design.

Semester 1:

Part 1: Preparing all architectural and construction drawings by means from drawing or BIM software.: site plan, location plan, section of the terrain, foundation plan, floor plan, upper floor plans, roof plan, vertical sections, façades and construction details.

Preparation of the documents necessary for the building permit. 3D visualization and presentation of the design using the SketchUp and Revit Architecture software.

Semester 2:

Part 2: Descriptive specifications, quantity survey, estimation of costs.

Part 3: Calculation and drawing sanitary installations and sewerage.

Semester 1 and / or 2:

Part 4: There can be organized buildingsite visits and compagny visits.

Initial competences

- Being able to design and draw architectual constructions using drawing or BIM software.
- Competences acquired in engineering courses.

- Being able to discuss and resolve problems independently and in team.

Final competences

- 1 The technical concepts, material-related concepts and concepts related to building 1 physics assimilate and integrate into an architectural design.
- 2 The general plans, the details of construction, the building permit, the situation plan, location plan and section of the terrain draw based preliminary architectural design.
- 3 Critically and constructively solve a structural problem or project and drawing.
- 4 A descriptive specification, quantity survey and cost estimate draw up a building.
- 5 Calculate and draw from a plumbing system in a building.
- 6 Draw the sewerage of a building.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Excursion, project

Extra information on the teaching methods

Part 1, 2 and 3: Project. Teamwork (3 persons).

Part 4: Report (individual)

Learning materials and price

All previous construction-related courses from the curriculum.

Part 1, 2 and 3: There are costs associated with making photocopies and plotting: 150 Euro/team.

Part 4: Factory and building-site visits: 55 euro. Safety shoes S3, helmet and yellow fluorescent jacket

References

Course content-related study coaching

Individual coaching of students.

Demonstrations by lecturers and coaches during the exercises and project.

Additional explanation of the lecturers and coaches possible by appointment.

Evaluation methods

continuous assessment

Examination methods in case of periodic evaluation during the first examination period

Examination methods in case of periodic evaluation during the second examination period

Examination methods in case of permanent evaluation

Assignment, report

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible in modified form

Extra information on the examination methods

Part 1,2 and 3: All projects are to be completed in teamwork. Each member is expected to contribute equally to the final result. All team members are responsible for the final result. Each team member should have an equal contribution in all parts of the project. The final mark is identical for all team members, unless the commitment of one or several team members is poor, which will lead to a different individual mark.

The assignments are handed in on a beforehand communicated date and time. All projects not handed in in time will be considered zero. Oral presentation and explanation of the prepared dossier by the group. A jury of lecturers and external members evaluates the quality.

Part 4: Layout of an individual report. Notes are recorded and delivered to the end and evaluated. 0 will be charged for unlawful absences. Maximum 1 legally absent.

Evaluation in the second examination period: completion and/or improvement of the dossier. Evaluation of the final result by the coaches.

In the second session, the part 1, 2 and 3 needs to be updated and / or supplemented with the missing items. The evaluation takes place only on the final result and is given by the teachers.

For part 4: No second term possible and to maintain the points of the first session.

Calculation of the examination mark

Part 1: 55%

Part 2: 17.5%

Part 3: 17.5%

Part 4: 10%

Part 1, 2, 3 and 4: Unjustified absence in the project work gives rise to a total maximum score of 9/20.

Part 1, 2 and 3: When the student does not participate in the evaluation of one or more components or the student scores less than 10/20 for one of the components, he/she can no longer pass the entire course unit. If the total score is a mark of ten or more out of twenty, then this is reduced to the highest failing mark.

Facilities for Working Students

There are no facilities for working students.