GHENT UNIVERSITY

Course Specifications

From the academic year 2021-2022 up to and including the academic year

Engineering Project (E099131)

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

Credits 6.0	**Study time 180 h**	**Contact hrs** 60.0h

Course offerings and teaching methods in academic year 2022-2023

A (semester 2)	Dutch	Gent	lecture	10.0h
			project	60.0h

Lecturers in academic year 2022-2023

Boone, Matthieu	WE05	lecturer-in-charge
De Geyter, Nathalie	TW17	co-lecturer
Poelman, Dirk	WE04	co-lecturer

Offered in the following programmes in 2022-2023	**crdts**	**offering**
Bachelor of Science in Engineering(main subject Engineering Physics)	6	A

Teaching languages

Dutch

Keywords

Project, group work, experiment, reporting, physics

Position of the course

Application of physical concepts and theories, given in the introductory courses physics, by performing three experimental projects. During the projects, skills required to perform scientific research will be acquired: how to set up and execute a scientific experiment, how to analyze data taking into account error analysis and how to describe the obtained results making use of figures and tables in a scientific report.

Contents

In a general introduction, students will receive information on:
- the processing of measuring data in graphs and tables
- how to deal with measuring errors
- research, reporting and publishing
- how to make a standardized scientific report in Latex

Afterwards, students will perform in group (typically 2 to 4 persons) an experimentally oriented project in each of the three involved research groups. They will spend (minimally) three afternoons of three consecutive course blocks per project at each of the organizing research groups to conduct experiments in the framework of the project. Preparation of the experiment and data processing are to be conducted independently.
Depending on the circumstances, the projects can possibly be changed to projects that the students have to carry out at home, whereby they are in mutual communication via professional communication technology such as MS Teams, and where they are also guided through such online communication.

Initial competences

Physics I and II

Final competences

1 Formulating a research question and translating to measurable quantities
2 Being able to accurately perform physical experiments in group, to analyze the obtained data and to interpret the results in a critical way with the application of appropriate error analysis.

3 Being able to look for information in scientific papers to solve specific research questions.
4 Being able to write an accurate, succinct and clear report of the experimental physical project based on a scientific paper (state of the art, objectives, experimental methods, results and conclusions). Learning specific ICT skills for word processing in Latex and data processing (graphs and tables).
5 Collaborate online using professional communication technology such as MS Teams for discussions, sharing results as well as communication with professors and supervisors.

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, Lecture, Project

Extra information on the teaching methods

Classroom lectures: introductory lessons
Guided project sessions in group: to conduct experiments
Homework: to analyze the obtained results and to make a scientific report
Excursion: visit to a company

Learning materials and price

Presentations introductory classroom lectures and documents describing the projects will be available for free via the electronic learning platform

References

Course content-related study coaching

Guidance during the project sessions (1 afternoon each teaching week).
Extra guidance possible (electronically or by personal contact after making an appointment).

Assessment moments

continuous assessment

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

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

Examination methods in case of permanent assessment

Report, Participation

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible in modified form

Extra information on the examination methods

Evaluation of the 3 submitted project reports; evaluation of individual participation during the 3 projects. The relative weights of the evaluations (report and participation) will be communicated for each individual project.
Anyone who withdraws from one of the 3 projects by not participating cannot pass this course (not even in the second examination period).

Calculation of the examination mark

The final score will be the calculated average of the three marks obtained for each project.