GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2024-2025

Engineering Physics and Industry (E025700)

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

Credits 6.0 **Study time 180 h**

Course offerings and teaching methods in academic year 2025-2026

A (semester 2)	English	Gent	lecture
B (semester 2)	Dutch	Gent	

Lecturers in academic year 2025-2026

Beunis, Filip	TW06	lecturer-in-charge

Offered in the following programmes in 2025-2026	**crdts**	**offering**
Master of Science in Engineering Physics	6	B
Master of Science in Engineering Physics	6	A

Teaching languages

English, Dutch

Keywords

Innovation, system design, socio-environmental-economic impact

Position of the course

Engineering skills are further developed by applying methodologies that are provided in formal lectures on an authentic problem from industry. An attitude focusing on societal and economic value that MSc in engineering physics could create, is trained.

Contents

Introductory lectures on:
- Innovation thinking and entrepreneurship
- Intellectual property search and analysis
- Product development, production, resource management, cost/benefit
- Environmental impact and life cycle analysis
- Sustainability thinking

Project work
The projects will focus on a real problem with a strong engineering physics component encountered in the areas of possible employment for Engineering Physics graduates. Students will collaborate intensively in small teams to find suitable solutions and give proof-of-concept. This entails in particular:
- Analysis of the problem proposed by industry
- Innovative solution finding in collaboration with academic expert
- Analysis of economic viability of the solution and sustainability
- Presentation of results to industrial partner

Initial competences

This course relies on the initial competences required for entering the MSc program.

Final competences

1 Analyze a typical engineering physics problem
2 Manage an innovation process and initiate creative thinking
3 Design a proof of concept
4 Understand and evaluate impacts of a solution (social, economic, sustainable)
5 Defending a project

6 Organize team work

Conditions for credit contract

This course unit cannot be taken via a credit contract

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Group work, Lecture

Study material

None

References

Course content-related study coaching

Assessment moments

continuous assessment

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

Oral assessment, Assignment

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

Oral assessment, Assignment

Examination methods in case of permanent assessment

Possibilities of retake in case of permanent assessment

not applicable

Extra information on the examination methods

Report and presentation for jury from academic and industry
The following factors will be evaluated:

- convincing proof-of-concept
- proven innovative components of the proposed solution
- proven economic, social, ecologic viability

Calculation of the examination mark