GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2026-2027

Railway Technology Fundamentals (E053642)

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

Credits 3.0 **Study time 90 h**

Course offerings in academic year 2027-2028

A (semester 2) English Gent

Lecturers in academic year 2027-2028

Bonne, Hendrik TW08 lecturer-in-charge

Offered in the following programmes in 2027-2028	crdts	offering
Master of Science in Electrical Engineering Technology(main subject Automation)	3	A
Master of Science in Electrical Engineering Technology(main subject Electrical Engineering)	3	A
Master of Science in Electromechanical Engineering	3	A
Master of Science in Electromechanical Engineering Technology	3	A
Master of Science in Mechanical and Electrical Systems Engineering	3	A

Teaching languages

English

Keywords

railway transportation, rolling stock, traction, braking systems, safety, adhesion, running stability

Position of the course

This course treats the basics of railway technology. It is an application of mechanics and electrotechnical technology.

Contents

- Rail transport: general context; economic, ecological, and sociological aspects;
- Traction: the different traction systems; fixed installations (substations, rectifiers, protection systems);
- Rolling stock: structure, high voltage electrical schematics, braking systems;
- Rail guidance: critical speed of rail vehicles, with particular emphasis on high speed trains (HST);
- Train propulsion: running resistances, adhesion, power;
- Railway infrastructure: structure of the track.

Initial competences

mechanical, electrotechnical and electronics basics

Final competences

1 Being able to explain electrical traction.
2 Being able to explain running stability.
3 Being able to make choices in rolling stock braking systems.

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

Extra information on the teaching methods

visits are aimed at rolling stock and train operation

Study material

Type: Syllabus

Name: Railway Technology Fundamentals
Indicative price: € 5
Optional: no
Language : English
Number of Pages : 150
Available on Ufora : No
Online Available : No
Available in the Library : No
Available through Student Association : No
Additional information: the course might be available via the student organization

References

Course content-related study coaching

Assessment moments

end-of-term assessment

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

Oral assessment

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

Oral assessment

Examination methods in case of permanent assessment

Possibilities of retake in case of permanent assessment

not applicable

Extra information on the examination methods

During examination period: oral closed-book exam

Calculation of the examination mark