

Advanced Railway Technology (E053643)

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

Credits 3.0

Study time 90 h

Course offerings and teaching methods in academic year 2025-2026

A (semester 2)

English

Gent

excursion

lecture

Lecturers in academic year 2025-2026

Bonne, Hendrik

TW08

lecturer-in-charge

Offered in the following programmes in 2025-2026

crdts

offering

Master of Science in Electrical Engineering Technology(main subject Automation)

3

A

Master of Science in Electromechanical Engineering(main subject Control Engineering and Automation)

3

A

Master of Science in Electrical Engineering Technology(main subject Electrical Engineering)

3

A

Master of Science in Electromechanical Engineering(main subject Electrical Power Engineering)

3

A

Master of Science in Electromechanical Engineering(main subject Maritime Engineering)

3

A

Master of Science in Electromechanical Engineering(main subject Mechanical Construction)

3

A

Master of Science in Electromechanical Engineering(main subject Mechanical Energy Engineering)

3

A

Master of Science in Electromechanical Engineering Technology

3

A

Teaching languages

English

Keywords

railway traffic, rolling stock, traction, ecology, maintenance, infrastructure

Position of the course

The course is a follow up course of railway technology 1, focusing on the interface between infrastructure and rolling stock as well as adding a few key domains within railway technology.

Contents

- energy distribution
- Rolling stock reliability engineering
- Design project: construction of rolling stock
- The influence of technological evolution on the development of railway technology in the world
- Innovation and future trends in railway technology
- Railway technology environmental aspects
- rolling stock on board monitoring

Initial competences

Railway technology fundamentals; mechanical, electrotechnical and electronics basics

Final competences

- 1 Being able to explain design choices in rolling stock.
- 2 Understanding the limits of ecology within the railway system.
- 3 Understanding the basics of rolling stock maintenance.
- 4 Understanding railway infrastructure and the interface between rolling stock and infrastructure.
- 5 Situating railways within an historical perspective and within the transport world.

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

Group work, Excursion, Lecture

Extra information on the teaching methods

Visits are aimed at transport operations and rolling stock maintenance.
Lecture, online lecture, seminar, design project, excursion.

Study material

Type: Syllabus

Name: Advanced Railway Technology

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, 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

During examination period: oral closed-book exam

Calculation of the examination mark