

Specialised road engineering & mobility (E053570)

Valid as from the academic year 2015-2016

Credits 5

Study time 150 h

Contact hrs 45 h

Course offerings and teaching methods in academic year 2015-2016

A (semester 1) seminar: coached exercises 15.0 h

guided self-study 30 h

B (semester 1) seminar: coached exercises 15.0 h

lecture 30 h

Lecturers in academic year 2015-2016

Hans De Backer TW15 lecturer-in-charge

Dirk Lauwers TW15

Offered in the following programmes in 2015-2016

Master of Science in Civil Engineering 4 A

Master of Science in Civil Engineering 4 B

Teaching language

English

Keywords

Road construction materials, layer composition, maintenance methods, PMS, traffic engineering design, mobility policy, mobility impacts, traffic networks, transport nodes

Level

specialist

Position of the course

To gain insight in concepts for the use of materials in the layer composition of roads, technical requirements and test methods, foundation methods for roads, tendering, etc.

To provide insight in the dynamics of mobility in relation to infrastructure development and in the policy processes to manage these dynamics.

This course contributes to the following educational competences of the programme:
MaB.1.3, MaB.1.4, MaB.1.5, MaB.1.7, MaB.1.9, MaB.1.10, MaB.2.1, MaB. 2.2, MaB.2.4,

MaB.3.1, MaB.3.2, MaB.4.1, MaB.4.2, MaB.4.3, MaB.4.4, MaB.5.3, MaB. 5.4, MaB.6.1, MaB.6.2.

Contents

- Generalities: Introduction
- Materials design: Materials, Foundations and sub-foundations, Asphalt pavement, Concrete pavement
- Diagnose and repair: Test methods and measurement devices, damage cases, Maintenance methods
- E.I.S. (Environmental Impact Studies)
- Specialized road design: bike roads, roundabouts, heavy and long transport, ...
- Mobility analysis and exploration: Trends and scenarios, Mobility of persons and transport behavior, Freight transport and logistics
- Sustainable mobility policy: Paradigm of sustainable mobility
- Traffic and transport planning: Structure of networks, Dynamic traffic management, Traffic modelling, Road safety policy, Parking policy
- Mobility management

Initial competences

Geometric aspects of roads, Soil mechanics, Foundation techniques and execution methods

Final competences

Gained insights:

- the student must be able to choose the most efficient materials;
- the student must be able to design the layer composition of the road structure;
- the student must be able to understand tender documents.;
- the student must be able to grasp the design problems for non-standard design situations
- the student must be able to apply mobility design concepts and to substantiate and to clarify them, based on the understanding of the relationship between mobility, infrastructure and space and on the knowledge of relevant paradigms

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

Guided self-study, lecture, seminar: coached exercises

Learning materials and price

Syllabus; Presentations used during the lectures and published papers and good practices

References

Standaardbestek S.B. 250

Course content-related study coaching

Student coaching and assistance: the lecturer or the assistants are available during or in between lectures; there is assistance during the workshops.

Evaluation methods

end-of-term evaluation and continuous assessment

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

Oral examination

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

Oral examination

Examination methods in case of permanent evaluation

Assignment

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

During examination period: oral closed-book exam, written preparation. During semester: graded workshop results.

Calculation of the examination mark

Oral examination (60%) and projects (40%)