CAD Software in Road and Rail Design - BMEEOUVMU66

I. Subject Specification

1. Basic Data

1.1 Title

CAD Software in Road and Rail Design

1.2 Code

BMEEOUVMU66

1.3 Type

Module with associated contact hours

1.4 Contact hours

Type	Hours/week / (days)
Lab	3

1.5 Evaluation

Midterm grade

1.6 Credits

3

1.7 Coordinator

name	Szabolcs BARNA
academic rank	PhD student
email	barna.szabolcs@emk.bme.hu

1.8 Department

Department of Highway and Railway Engineering

1.9 Website

https://epito.bme.hu/BMEEOUVMU66
https://fiek2.mywire.org/course/view.php?id=3501

1.10 Language of instruction

english

1.11 Curriculum requirements

Recommended elective in the Specialization in Highway and Railway Engineering (MSc) programme

1.12 Prerequisites

1.13 Effective date

1 September 2022

2. Objectives and learning outcomes

2.1 Objectives

The objective of the subject is to present a general overview of road design with the help of AutoCAD Civil 3D.

2.2 Learning outcomes

Upon successful completion of this subject, the student:

A. Knowledge

1. will learn the steps of road design (using AutoCAD Civil 3D),
2. will learn the alignment (horizontal and vertical) and complex 3D (cross-section, corridor modelling) design of a road,
3. will learn the main features of AutoCAD Civil 3D in road design.

B. Skills

1. will be able to understand the principles of 3D design and plan a road with intersection,
2. will be able to use the basic commands of AutoCAD and the features of Civil 3D version,
3. will be able to understand the outcome of the program and use it to prepare the plan documentation.

C. Attitudes

1. continuously extends his/her knowledge,
2. is open to get familiarized with the application of modern technical solutions,
3. is intent on precise and error-free problem solving,
4. cooperates with the lecturers and with fellow students.

D. Autonomy and Responsibility

1. is aware of the relevance of deadlines, is intent to keep them,
2. is able to autonomously solve the tests,
3. is open to the new information and fact-based critics.

2.3 Methods

Lectures, exercises, application of IT tools and oral communications, assignments solved individually.

2.4 Course outline

Week	Topics of lectures and/or exercise classes
1.	Introduction.
2.	AutoCAD and Civil 3D.
3.	Surface modelling.
4.	Alignment design (horizontal axis).
5.	Profile design (vertical axis).
6.	Sample cross sections (subassembly composer).
7.	Corridor modelling.
8.	Cross sections.
9.	Plan production and documentation.
10.	Superelevation, Corridor targets.
11.	Drainage design.
12.	Intersection design.
13.	Materials and quantities.
14.	Road rehabilitation design.

The above programme is tentative and subject to changes due to calendar variations and other reasons specific to the actual semester. Consult the effective detailed course schedule of the course on the subject website.
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2.5 Study materials

Online materials.

AutoCAD Civil 3D

2.6 Other information

Computer and AutoCAD software access is available during classes.
2) Students are evaluated based on their actual individual performance. Students are required to show evidence of their own knowledge and skills. Submitting a work of others, obtaining or giving unauthorized help (e.g. during an exam or test) cheating and plagiarism in any form is unacceptable. Whoever violate the respective Regulations of the University will be given a failing grade (1), without the possibility of retake and repeat, and will be reported to the Dean's Office.

2.7 Consultation

The instructors are available for consultation during their office hours, as advertised on the department website. Special appointments can be requested via e-mail: barna.szabolcs@emk.bme.hu

This Subject Datasheet is valid for:

CAD Software in Road and Rail Design - BMEEOUVMU66

2023/2024 semester I

II. Subject requirements

Assessment and evaluation of the learning outcomes

3.1 General rules

The assessment of the learning outcomes specified in clause 2.2. above and the evaluation of student performance occurs via tests and class work.

3.2 Assessment methods

Evaluation form	Abbreviation	Assessed learning outcomes
1. control test	CT1	A.1-A.3; B.1-B.3; C.3; D.1-D.2
1. midterm test	MT1	A.1-A.3; B.1-B.3; C.1-C.4; D.1-D.3

The dates of midterm tests can be found in the detailed course schedule on the subject's website.
The dates of deadlines of assignments/homework can be found in the detailed course schedule on the subject's website.

3.3 Evaluation system

Abbreviation	Score
CT1	20%
MT1	80%
Sum	**100%**

Criterion for completion of the subject is to collect at least 50% of the total points of all the two tests.

3.4 Requirements and validity of signature

The final mark is calculated on the basis of the weighted average of the tests (with the weights shown in the table of Section 3.3).

3.5 Grading system

Grade	Points (P)
excellent (5)	80<=P
good (4)	70<=P<80%
satisfactory (3)	60<=P<70%
passed (2)	50<=P<60%
failed (1)	P<50%

3.6 Retake and repeat

1. The two midterm tests can be repeated –without fee – at a previously determined date given in the course schedule. One midterm test can be repeated twice by paying a previously defined fee.
2. The new result of the repeated test always overwrites the former results.

3.7 Estimated workload

Activity	Hours/semester
contact hours	14×3=42
preparation for the tests	1×10+1×38=48
Sum	**90**

3.8 Effective date

1 September 2022

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2023/2024 semester I