Surveying I. (BSc)
Detailed course plan
2024-2025 / 1. semester

1. Subject requirements

1.1. Mid-term test (MT)

To pass, 50% of the maximal points should be reached. The mid-term test will be held according to the following schedule.

5. week	2024.10.04. $14^{15} - 15^{00}$ *Room: K234*	***Mid-term test 1***, *45' (20 points)*
12. week	2024.11.22. $14^{15} - 15^{00}$ *Room: KF27a*	***Mid-term test 2***, *45' (20 points)*
6. week	2024.10.11. $16^{15} - 17^{00}$ *Room: K234*	***Retake of the mid-term test 1***, *45' (20 points)*
compl. week	2024.12.09. $10^{15} - 11^{00}$ *Room: K234*	***Retake of the mid-term test 2***, *45' (20 points)*
compl. week	2024.12.13. $10^{15} - 11^{00}$ *Room: KF27a*	***Re-retake of the mid-term test 1***, *45' (20 points) (after the payment of the retake fee)*
compl. week	2024.12.13. $11^{15} - 12^{00}$ *Room: KF27a*	***Re-retake of the mid-term test 2***, *45' (20 points) (after the payment of the retake fee)*

1.2. Practical test (PT)

The practical test is about the use of theodolite. The result is „accepted" or „failed", the minimum criterion for pass is „accepted".

8. pract.	*2024.10.24-25*	***Practical test,*** *60' (accepted / failed)*

There is an option for a retake. Its date should be negotiated with the teacher of the practical within 2 weeks after the 9. practical test.

Either the mid-term test (MT), <u>or</u> the practical test (PT) can be retaken *a second time* as well, after *payment of the retake fee*.

Maximum points during the semester:

PT	*accepted / failed (minimum criterion: accepted)*
MT1	*max. 20 points (minimum criterion: 10 points)*
MT2	*max. 20 points (minimum criterion: 10 points)*

Sum:	*max. 100 points (minimum criterion: 20 points (MT1 and MT2), „accepted" (PT))*

Exam	***max. 60 points (minimum criterion: 30 points)***

2. Grading system

failed (1)	*0*	*-*	*49*	*points*
passed (2)	*50*	*-*	*62*	*points*
satisfactory (3)	*63*	*-*	*75*	*points*
good (4)	*76*	*-*	*87*	*points*
excellent (5)	*88*	*-*	*100*	*points*

Budapest, 30 August 2024.

Dr. Lóránt Földváry	Dr. Szabolcs Rózsa
associate professor	associate professor
subject coordinator	head of department

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1. prac.	*Dimensions. Computing angles. The application of pocket calculators for surveying computations. Trigonometric functions and theorems.*
1. lec.	The principle of positioning. The definition of elevations, reduced levels. Principle of levelling. The structure of the surveyors' level.
2. prac.	*The principle of levelling. The fundamentals of levelling observations. Measurement of single elevation differences using the surveyors' level. The two-peg test.*
3. prac.	*Determination of a levelling benchmark with line levelling.*
2. lec.	Systematic error sources of levelling. The procedure of levelling. Line levelling, detail point levelling. Processing levelling observations (Rise/Fall method, HoC method).
4. prac.	*Detail point levelling.*
5. prac.	*Introduction to the use of the theodolite. Using the theodolite: set up and aiming.*
3. lec.	Plane surveying. Observed quantities. The instrument of angular observations: the theodolite.
6. prac.	*Using the theodolite: measuring horizontal and vertical angles in two faces. Computing the mean direction and the zenith angle from circle readings.*
7. prac.	*Using the theodolite: measuring sets of horizontal and vertical directions, observation processing.*
4. lec.	Systematic error sources of angular observations. The calibration of the theodolite and total stations. The definition of mean directions and zenith angles. The processing of excentric observations.
8. prac.	***Practical Test (60 min. ont he use of theodolite)***
9. prac.	*The fundametal tasks of surveying.*
5. lec.	Geodetic projections. National control networks. Geodetic informations: point descriptions, maps, etc.
10. prac.	*Orientation of the horizontal circle.*
11. prac.	*Calculating trigonometric heighting problems.*
6. lec.	Trigonometric heighting. The measurement of distances: corrections (standardization, temperature, etc.) and reductions (horizontal and sea-level reductions). Fundamentals of mapping. Digitised and digital maps.
12. prac.	*Intersection, arc section, resection.*
13. prac.	*Introduction to total stations.*

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Practicals						Lectures
No.	**Mon.**	**Tue.**	**Wed.**	**Thu.**	**Fri.**	**Monday**
1.				Sept 5.	Sept 6.	
2.				Sept 12.	Sept 13.	Sept 9.
3.				Sept 19.	Sept 20.	
4.				Sept 26.	Sept 27.	Sept 23.
5.				Oct 3.	Oct 4.	
6.				Oct 10.	Oct 11.	Oct 7.
7.				Oct 17.	Oct 18.	
8.				Oct 24.	Oct 25.	Oct 21.
9.				Oct 31.	Nov 8.	Nov 4.
10.				Nov 7.	Nov 15.	
11.				Nov 14.	Nov 22.	Nov 18.
12.				Nov 28.	Dec 6.	
13.				Dec 5.		Dec 2.

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