

Surveying I. (BSc)
 Detailed course programme
 2018/19 Autumn semester

Scheduled lectures

<i>L1 10/09</i>	<i>The principle of positioning. The definition of elevations, reduced levels. Principle of levelling. The structure of the surveyors' level.</i>
<i>L2 24/10</i>	<i>Systematic error sources of levelling. The procedure of levelling. Line levelling, detail point levelling. Processing levelling observations (Rise/Fall method, HoC method)</i>
<i>L3 08/11</i>	<i>Plane surveying. Observed quantities. The instrument of angular observations: the theodolite.</i>
<i>L4 05/11</i>	<i>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.</i>
<i>L5 19/11</i>	<i>Geodetic projections. National control networks. Geodetic informations: point descriptions, maps, etc. Fundamentals of mapping. Computer aided mapping and the production of digital maps.</i>
<i>L6. 03/12</i>	<i>Trigonometric heighting. The measurement of distances: corrections (standardization, temperature, etc.) and reductions (horizontal and sea-level reductions)</i>

Scheduled Practicals

P1	Surveying and Geodesy. Dimensions. Computing angles. The application of pocket calculators for surveying computations. Trigonometric functions and theorems.
P2	Fundamentals of coordinate geometry: orthogonal and polar coordinate systems. Transformation between cartesian and polar coordinates using a calculator. Equation of line, intersection of straight lines.
P3	The principle of levelling. The fundamentals of levelling observations. Measurement of single elevation differences using the surveyors' level. The two-peg test.
P4.	Determination of a levelling benchmark with line levelling.
P5	Detail point levelling.
P6	Test (30 min, practicals 1-4.) Introduction to the use of the theodolite
P7	Using the theodolite: set up and aiming
P8	Using the theodolite: measuring horizontal and vertical angles in two faces. Computing the mean direction and the zenith angle from circle readings.
P9	Using the theodolite: measuring sets of horizontal and vertical directions, observation processing.
P10	Practical Test (60 min): using the theodolite. Computations of distances: corrections and reductions.
P11	The fundamental tasks of surveying.
P12	Orientation of the horizontal circle.
P13	Mid-term test L1-L7 & P1-P12

Practical	Courses				
	EN1	EN2	EN5	EN6	EN7
Scheduled time	WED 8.15-10.00	WED 8.15-10.00	THU 8.15-10.00	THU 10.15-12.00	FRI 10.15-12.00
P1	05/09	05/09	06/09	06/09	07/09
P2	12/09	12/09	13/09	13/09	14/09
P3	19/09	19/09	27/09	27/09	21/09
P4	26/09	26/09	04/10	04/10	28/09
P5	03/10	03/10	11/10	11/10	05/10
P6	10/10	10/10	13/10	13/10	12/10
P7	17/10	17/10	18/10	18/10	19/10
P8	24/10	24/10	25/10	25/10	26/10
P9	31/10	31/10	08/11	08/11	09/11
P10	07/11	07/11	15/11	15/11	10/11
P11	21/11	21/11	22/11	22/11	16/11
P12	28/11	28/11	29/11	29/11	23/11
P13	05/12	05/12	06/12	06/12	07/12

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Dr. Szabolcs Rózsa
 associate professor
 subject coordinator