

COURSE SYLLABUS AND COURSE REQUIREMENTS

ACADEMIC YEAR 2023/24 2ND SEMESTER

<i>Course title</i>	<i>Geodesy</i>
<i>Course Code</i>	MSB032ANEP
<i>Hours/Week: le/pr/lab</i>	2/0/4
<i>Credits</i>	7
<i>Degree Programme</i>	Civil Engineering BSc
<i>Study Mode</i>	Full time
<i>Requirements</i>	Mid-term grade
<i>Teaching Period</i>	spring
<i>Prerequisites</i>	-
<i>Department(s)</i>	Civil Engineering
<i>Course Director</i>	
<i>Teaching Staff</i>	Béla GADÓ, László ARADI, Zsolt BONNYAI

COURSE DESCRIPTION

Acquisition of the necessary geodesy knowledge required for the design and layout of civil engineer and infrastructure facilities. The aim of this class is to give an overview of planning and setting out the planned industrial facilities. Students can acquire comprehensive skill in industrial geodesy datapoint measurements and setting out. Basic calculations in geodesy. Methods of creating maps from measured data.

SYLLABUS

1. GOALS AND OBJECTIVES

Acquiring theoretical knowledge for mapping and setting out. Practical skills for confident usage of the instruments. Basic understanding of the fundamental tasks' calculations and their usage in further use for creating maps. Calculating the necessary components for setting out buildings, roads, arcs.

2. COURSE CONTENT

TOPICS

LECTURE	
	<ol style="list-style-type: none">1. <i>Basic theory for geodesy, shape of the Earth.</i>2. <i>Horizontal and vertical measurements with the theodolite.</i>3. <i>Detail point measurement methods and calculations</i>4. <i>Setting out techniques and calculations</i>5. <i>Determining elevations with levelling</i>6. <i>Different levelling measurement methods and calculations</i>
LABORATORY PRACTICE	<ol style="list-style-type: none">1. <i>Usage of the theodolite: angular measurements and setting out</i>2. <i>Orthogonal detail point measurements</i>3. <i>Usage of the tilting instrument, levelling methods</i>4. <i>Basic calculations and mapping in geodesy</i>

DETAILED SYLLABUS AND COURSE SCHEDULE

LECTURE

week	Topic	Compulsory reading; page number (from ... to ...)	Required tasks (assignments, tests, etc.)	Completion date, due date
1.	Introduction. Instrument parts.	[1] p. 1-11		
2.	The theodolite. Reading microscopes. Horizontal and vertical angular measurements	[1] p. 24-29		
3.	Plane surveying. Fundamental tasks of surveying.	[1] p. 46-70		
4.	Setting out. (Theodolite and prism)	[1] p. 124-130		
5.	Detail point measurement. (Orthogonal and polar)	[1] p. 37-43		
6.	Principle of tacheometry. Trigonometrical heighting.	[1] p. 113-122 [1] p. 71-99		
7.	Traversing. (Test 1)	[1] p. 100-112		
8.	Determining elevations. Levelling. Rules of levelling.	[1] p. 12-17		
9.	--- (<i>Spring break</i>)			
10.	Profile section, cross section. Grid levelling.	[1] p. 18-22		
11.	Setting out roads and buildings	[2] p. 19-31		
12.	Height setting out	[1] p. 131		
13.	Test 2	[1] p.		
14.	Retakes			
15.				

LABORATORY PRACTICE

<i>week</i>	Topic	Compulsory reading; page number (from ... to ...)	Required tasks (assignments, tests, etc.)	Completion date, due date
1.	- Accident prevention. Using the theodolite: setting the vertical axis - Using the theodolite: setting the vertical axis			
2.	- Using the theodolite: readings and aiming - Using the theodolite: bearing angles			
3.	- Using the theodolite: bearing angles - Bearing angle practical test		HW 1, 2	4 th week
4.	- Using the theodolite: angle setting out - Using the theodolite: angle setting out		HW 3, 8	5 th week
5.	- Using the theodolite: angle setting out - Angle setting out practical test		HW 6	6 th week
6.	- Finding the foot of a perpendicular practical test - Orthogonal detail point measurement		Orthogonal draw.	7 th week
7.	- Trigonometrical heighting - Tacheometry		HW 4	8 th week
8.	- Using the tilting instrument: determining heights - Line levelling			
9.	- --- (<i>Spring break</i>) - Line levelling			
10.	- Line levelling - Line levelling practical test			
11.	- Profile section levelling - Cross section levelling		- prof. sect. draw. - cross sect. draw.	13 th week
12.	- Arc setting out - Grid levelling		- HW 9 - grid lev. draw.	13 th week
13.	- Building setting out - --- (<i>May 1st break</i>)			
14.	- Height setting out - Traversing calculation			
15.				

3. ASSESSMENT AND EVALUATION

ATTENDANCE

In accordance with the Code of Studies and Examinations of the University of Pécs, Article 45 (2) and Annex 9. (Article 3) a student may be refused a grade or qualification in the given full-time course if the number of class absences exceeds 30% of the contact hours stipulated in the course description. **Tardiness more than 20 minutes is considered as an absence!** Online participation is not allowed nor for the lectures, nor for the practical laboratory classes.

Method for monitoring attendance

The attendance sheet must be signed on the lectures to indicate on class presence. In the laboratory practices active attendance is required, proven by the well filled measurement logbook turned in on the end of each laboratory class.

ASSESSMENT

There shall be two written tests in the semester on the 8th and 13th week. The 1st in non-class time, the 2nd during lecture time. In the laboratory classes there will be 7 calculation homework, 4 technical drawing homework and 5 practical tests.

Mid-term assessments, performance evaluation and their ratio in the final grade

The student must be actively present on classes and earn at least 1 point from each homework and practical tests in order to get a signature for the class.

Furthermore, the student must earn at least the pass performance on both written tests in order to get a final grade for the class.

Type	Assessment	Ratio in the final grade
Test 1	max 20 points	25 %
Test 2	max 20 points	25 %
Home assignments and practical tests	max 55 points	50 %

Opportunity and procedure for re-takes

Calculus and drawing assignments submitted by the deadline may be returned for correction. There is only one week to correct them. Homework submitted after the deadline cannot be returned for correction and may be handed in up to one week after the deadline. Make-ups for practical tests may be made once at a pre-arranged time outside class time. Each written test may be re-taken only once. (1st test in week 9, 2nd test in 14th week)

Grade calculation as a percentage

Course grade	Performance in %
excellent (5)	85 % ...
good (4)	70 % ... 85 %
satisfactory (3)	55 % ... 70 %
pass (2)	40 % ... 55 %
fail (1)	below 40 %

The lower limit given at each grade belongs to that grade.

4. SPECIFIED LITERATURE

COMPULSORY READING AND AVAILABILITY

[1.] Lecture notes: Geodesy 1 – Aradi full: available in the Teams group and on Witch-server

[2.] Lecture notes: Setting out: available in the Teams group and on Witch-server

RECOMMENDED LITERATURE AND AVAILABILITY