

TEACHING DISCIPLINE: Topography (Specialization Environmental Engineering, Ith Year of study, IIth Semester)

Credit value (ECTS): 4

Course category: mandatory

Course holder: Lecturer Ph. D. Oprea RADU

Discipline objectives (course and practical works)

The course aims at acquiring knowledge regarding the instruments and methods used in topographic surveys, methods of calculation, editing and use of topographic maps and plans.

During practical work, the students will learn how the instruments used in planimetric, levelling and tachymetric surveys work; they will go through the methods used for the calculation of surfaces, as well as for carrying out topographic-cadastral maps.

Contents (syllabus)

Course (chapters/subchapters)
1. General notions: the object and the component parts of topography; the importance of topography for agriculture; units of measurement used in topography; topographic elements of the land; angular and linear elements measured on the land; basic topographic calculations; trigonometric circle and topographic circle; coordinate systems and axes; numerical and graphical topographic scales.
2. Planimetrics: marking topographic points; signalling topographic points; distance measuring equipment on the direct route; angle measuring equipment; horizontal angle measurement; vertical angle measurement; planimetric surveys through traversing; planimetric surveys through radial traversing; surface calculation; carrying out topographical plans.
3. Levelling: general notions; types of levelling; levelling support networks; geometric levelling; geometric levelling surveys using the traversing method; relief representation on maps and plans; slope.
4. Tachymetry: general notions; classic tachymeters; self-reducing tachymeters; electronic tachymeters; carrying out the digital topographic plan.
5. Cartographic and technical drawing: basic elements of cartographic writing; writing on topographic maps and plans; topographic maps and plans; map and plan sheet nomenclature; cartometric issues; general norms and rules in technical drawing.

Practical works
Alignments and direct distance measurement
Angle measuring instruments
Optical angle and distance measuring
Geometric levelling instruments
Levelling surveys using the geometrical levelling traversing method
Topographical maps and plans
Project work
Tachymetric surveys using the radial traversing method
Calculating the coordinates of the points from the elevation network
Relating the points from the support and elevation network
Surface calculation
Tracing contour lines on the topographic plan

Bibliography

1. Leu I. N., Budi u V., Moca V., Ritt C., Ciolac Valeria, Ciotl u Ana, Negoescu I., 2003 - *Topografie general i aplicat – Cadastru*. Editura Universul, Bucure ti.
2. Moca V., Radu O., Hu anu Cr., 2016 - *Topografie i desen tehnic*. Editura „Ion Ionescu de la Brad” Ia i.
3. Osaci-Costache Gabriela, 2008 - *Topografie-cartografie*. Editura Universitar , Bucure ti.

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Exam	Written	60
	Presence	10
	Tests	10
	Practice application	20

Contact

Lecturer Ph. D. Oprea RADU
Faculty of Horticulture - USAMV Ia i
Aleea Mihail Sadoveanu nr. 3, Ia i, 700490, Romania
Tel: 0040232 407 511, fax: 0040 232 407 506
E-mail: roprea@uaiasi.ro