Course description

Department/Unit /	KGM / GENM			**Academic Year**	2023/2024	
Title	Geodesy - Survey Camp			**Type of completion**	Pre-Exam Credit	
Accredited/Credits	Yes, 4 Cred.			**Type of completion**		
Number of hours	Tutorial 4 [Hours/Week]					
Occ/max	Status A	Status B	Status C	**Course credit prior to**	NO	
Summer semester	1 / -	0 / -	0 / -	**Counted into average**	NO	
Winter semester	0 / -	0 / -	0 / -	**Min. (B+C) students**	1	
Timetable	Yes			**Repeated registration**	NO	
Language of instruction	Czech			**Semester taught**	Summer semester	
Optional course	Yes			**Internship duration**	0	
Evaluation scale	S|N					
No. of hours of on-premise						
Auto acc. of credit	Yes in the case of a previous evaluation 4 nebo nic.					
Periodicity	K					
Substituted course	KMA/GENM					
Preclusive courses	N/A					
Prerequisite courses	N/A					
Informally recommended courses	N/A					
Courses depending on this Course	N/A					

Course objectives:

The aim of the course is to acquaint students with following problems:
Plane survey. Densification of horizontal ground control, project and observation of complementary net (angular measurement by electronic theodolites, distance measurement by electronic distance meters), traverses for plane survey.
Detailed plane survey by polar and orthogonal methods with the checking of measured data for aposteriori analysis of accuracy.
Simultaneous measurement of position and elevation of detailed horizontal ground control points with the analysis of accuracy.
Detailed measurement of heights by tacheometry (stadia, with the use of electronic distance meters, block tacheometry).
Precise levelling and measuring the elevation of points of detailed levelling net.
Global Navigation Satelite System (GNSS), new conception of basic ground control. Measuring of network of stations by static method.

Requirements on student

The solving of primal problems of:
1) Terrain reconnaissance
2) Geodetic monument
3) Polygonal traverse
4) Eagle measuring
5) GNSS (statical method, RTK and RTK lay out)
6) Polar method
7) Tacheometry
8) Precise levelling
9) Trigonometry, three-dimensional coordinates
10) Orthogonal method

Content

Terrain Reconnaissance. Polygonal traverse. Detailed measurement of heights by polar and orthogonal method, tacheometry. Coordinates computation of geodetic points. Precise levelling, technic levelling. Global Navigation Satelite System (GNSS).

Fields of study

Guarantors and lecturers

- **Guarantors:** Ing. Martina Kepka Vichrová, Ph.D.
- **Tutorial lecturer:** Ing. Pavel Hájek, Ph.D. (100%), Ing. Martina Kepka Vichrová, Ph.D. (100%)

Literature

- **Recommended:** Blažek, Radim; Jandourek, Jan. *Geodézie : Úpravy měřených veličin a výškopis : Určeno pro stud. fak. stavební*. Praha : ČVUT, 1991. ISBN 80-01-00611-5.
- **Recommended:** Ratiborský J. *Geodezie 10*. ČVUT Praha, 2000.
- **Recommended:** Skořepa Z. *Geodezie 10,20. (Návody na cvičení)*. ČVUT Praha, 1999.
- **Recommended:** Blažek, Radim; Skořepa, Zdeněk. *Geodezie 30 : výškopis*. Praha : Vydavatelství ČVUT, 1999. ISBN 80-01-01598-X.
- **Recommended:** Dušek R., Vlasák J. *Geodezie 40 (Příklady a návody na cvičení)*. ČVUT Praha, 1998.
- **Recommended:** Jandourek, Jan. *Geodézie 50 : vyrovnání účelových geodetických sítí v E2 a v E3*. Praha : Vydavatelství ČVUT, 2000. ISBN 80-01-02171-8.
- **Recommended:** Grewal, M.S., Weill, L.R., Andrews, A.P. *Global Positioning Systems, Inertial Navigation and Integration.*. New Jersey, 2007. ISBN 978-0-470-04190-1.
- **Recommended:** Böhm J., Radouch V., Hampacher M. *Vyrovnávací počet*. SNTL Praha, 1964.
- **Recommended:** Cimbálník M., Mervart L. *Vyšší geodézie 1 (skriptum)*. Ediční středisko ČVUT Praha, 1997.
- **Recommended:** Mervart L., Cimbálník M. *Vyšší geodézie 2 (skriptum)*. Ediční středisko ČVUT, 1997.

Time requirements

All forms of study

Activities	Time requirements for activity [h]
Practical training (number of hours)	84
Preparation for laboratory testing; outcome analysis (1-8)	36
Total:	**120**

assessment methods

Knowledge - knowledge achieved by taking this course are verified by the following means:

Skills demonstration during practicum

Individual presentation at a seminar

Project

Skills - skills achieved by taking this course are verified by the following means:

Individual presentation at a seminar

Project

Skills demonstration during practicum

Competences - competence achieved by taking this course are verified by the following means:

Skills demonstration during practicum

Individual presentation at a seminar

Project

prerequisite

Knowledge - students are expected to possess the following knowledge before the course commences to finish it successfully:

popsat strukturu a možnosti budování výškových a polohových bodových polí na území ČR

aplikovat a rozumět významu ustanovení právních předpisů, vyhlášek a norem oboru zeměměřictví

popsat přímé a nepřímé metody sběru geodat

vysvětlit zásady a principy statistického hodnocení souboru velkého počtu měřených dat

Skills - students are expected to possess the following skills before the course commences to finish it successfully:

pracovat s geodetickým vybavením sloužícím pro sběr geodat

Competences - students are expected to possess the following competences before the course commences to finish it successfully:

N/A

N/A

teaching methods

Knowledge - the following training methods are used to achieve the required knowledge:

Skills demonstration

Field trip

Skills - the following training methods are used to achieve the required skills:

Field trip

Skills demonstration

Individual study

Multimedia supported teaching

Group discussion

Competences - the following training methods are used to achieve the required competences:

Skills demonstration

learning outcomes

Knowledge - knowledge resulting from the course:

Explain principles of methods for plannimetry survey.

Explain principles of methods for hypsography survey.

Describe utilization of valid legislation, directives and standards for planimetry and hypsography survey.

Explain workflow of design and realization of minor geodetic control in the locality of interests.

Skills - skills resulting from the course:

Measure detailed survey of planimetry and hypsography by using of different methods and instruments.

Surveying according to valid legislation, standards and directives.

Design and realize project of minor geodetic control.

Process of measured data by appropriate methods and evaluate characteristics of measured data.

Competences - competences resulting from the course:

N/A

N/A

N/A

N/A

N/A

Course is included in study programmes:

Study Programme	Type of	Form of	Branch	Stage St. plan v.	Year	Block	Status	R.year	R.

Study Programme	Type of	Form of	Branch	Stage	St. plan v.	Year	Block	Status	R.year	R.
Geomatics	Bachelor	Full-time	Geomatika	1	2022 akr	2023	Povinné předměty	A	2	LS
Geomatics	Bachelor	Full-time	Geomatika	1	2023	2023	Povinné předměty	A	2	LS
Geomatics	Bachelor	Full-time	Geomatics	1	2018	2023	Oborové předměty povinné	A	2	LS