

Course description

Course abbreviation:	KGM/AVTG1	Page:	1 / 3
Course name:	Computer Applications in Geodesy 1		
Academic Year:	2023/2024	Printed:	26.05.2024 08:07

Department/Unit /	KGM / AVTG1			Academic Year	2023/2024
Title	Computer Applications in Geodesy 1			Type of completion	Exam
Accredited/Credits	Yes, 3 Cred.			Type of completion	Combined
Number of hours	Lecture 1 [Hours/Week] Seminar 1 [Hours/Week]				
Occ/max	Status A	Status B	Status C	Course credit prior to	YES
Summer semester	0 / -	0 / -	0 / -	Counted into average	YES
Winter semester	0 / -	0 / -	0 / -	Min. (B+C) students	1
Timetable	Yes			Repeated registration	NO
Language of instruction	Czech			Semester taught	Winter, Summer
Optional course	Yes			Internship duration	0
Evaluation scale	1 2 3 4			Ev. sc. – cred.	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/AVTG1				
Preclusive courses	N/A				
Prerequisite courses	N/A				
Informally recommended courses	N/A				
Courses depending on this Course	N/A				

Course objectives:

Software for coordinate calculations used in geodesy. Geodetic network adjustment. 2D transformations and their determination using ground control points. Practical introduction of software Kokeš.

Requirements on student

Elaboration of seminary works - the processing of specific measured data. Semester test.

Content

Data formats for working with spatial and measurement data (measured data formats and lists of coordinates). Processing of basic coordinate calculations in the chosen software.
Determination of similar, affine and projective transformations, including the derivation of parameters using adjustment calculus.
Introduction to selected geospatial software. Processing of geodetic measurements from the field practice from Nectiny.

Fields of study

Studentům je k dispozici kurz v Google Classroom se všemi podstatnými informacemi a materiály.

Guarantors and lecturers

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

Literature

- **Extending:** The GNU GaMa Project - Adjustment of Geodetic Networks (Čapek, A.) - <https://ojs.cvut.cz/ojs/index.php/ap/article/download/350/182> >
- **Recommended:** *Online katalogy knihoven.*
- **Recommended:** ČSN 01 3411 *Mapy velkých měřítek. Kreslení a značky.*
- **Recommended:** Dušek R., Vlasák J. *Geodzie 40 (Příklady a návody na cvičení).* ČVUT Praha, 1998.
- **Recommended:** *Grafický systém Kokeš pro Windows..* Gepro, s.r.o.
- **Recommended:** *Interní výukové materiály.*
- **Recommended:** Huml, Milan. *Mapování a kartografie.* Vyd. 1, dotisk. Praha : Vydavatelství ČVUT, 2003. ISBN 80-01-02383-4.
- **Recommended:** *Návod pro obnovu katastrálního operátu, ČÚZK č.j. 21/1997.*

Time requirements

All forms of study

Activities	Time requirements for activity [h]
Preparation for comprehensive test (10-40)	10
Contact hours	39
Undergraduate study programme term essay (20-40)	20
Preparation for laboratory testing; outcome analysis (1-8)	8
Practical training (number of hours)	5
Total:	82

assessment methods

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

Combined exam

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

Seminar work

Skills demonstration during practicum

Combined exam

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

Seminar work

prerequisite

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

popsat způsob výpočtu polygonového pořadu

popsat způsob měření polární a tachymetrickou metodou

vysvětlit význam vyrovnávacího počtu

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

ovládat souřadnicové výpočty v rovině

využívat lineárních transformací souřadnic

teaching methods

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

Lecture with visual aids

Practicum

Self-study of literature

Interactive lecture

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

Cooperative instruction

Practicum

Project-based instruction

Skills demonstration

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

Project-based instruction

learning outcomes

Knowledge - knowledge resulting from the course:

Editing of self-collected geospatial data in geodetic software

Processing of self-collected geospatial data in geodetic software

Calculation of geodetic tasks from manually collected geospatial data in geodetic software

Analysis of results of calculations of geodetic tasks in geodetic software

Skills - skills resulting from the course:

practically use GNU Gamma Dolu software

process coordinate calculations using the available software

practically use Kokeš software to calculate polygon programs

practically use Kokeš software to calculate tasks based on the polar method

practically use Kokeš software to align measuring networks

practically use Kokeš software to calculate tasks based on the tachymetric method

practically use Kokeš software to transform raster and vector data

practically use Kokeš software to create drawings

Competences - competences resulting from the course:

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.
Civil Engineering	Bachelor	Full-time	Land-use Planning	1	2017	2023	Povinné předměty	A	2	LS
Civil Engineering	Bachelor	Full-time	Land-use Planning	1	2020	2023	Povinné předměty	A	2	LS
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