Course description

Department/Unit /	KGM / AVTG2			**Academic Year**	2023/2024
Title	Computer Applications in Geodesy 2			**Type of completion**	Exam
Accredited/Credits	Yes, 5 Cred.			**Type of completion**	Combined
Number of hours	Lecture 1 [Hours/Week] Seminar 3 [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	1 / -	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/AVTG2				
Preclusive courses	N/A				
Prerequisite courses	N/A				
Informally recommended courses	N/A				
Courses depending on this Course	N/A				

Course objectives:

Digital map in vector format. Digital cadastral map (DKM), a set of geospatial information, a set of descriptive information. Maintenance of DKM. Practical examples of the graphical environment. Knowledge from this course are required in the course KMA / TGI.

Requirements on student

Processing of measured data. Visualization and distribution of created geodata through web services.

Content

? CAD data model and GIS data model. CAD based data processing in the software Kokes - formats *. VYK, *. vtx, and other vector formats.
? Draft of data model for large scale map.
? Practical processing of large scale maps.
? Topology and object map, with connection of attribute data.
? Creation of geodetic data for ground control points.
? Digital terrain model and generation of contour lines.
? CAD and GIS data conversion. .
? Reference coordinate systems in GIS.
? Basics of distribution of geodata using Web mapping services.
? Server and client software for the sharing of geodata in a web environment

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

- **Recommended:** Peng, Zhong-Ren; Tsou, Ming-Hsiang. *Internet GIS : distributed geographic information services for the internet nad wireless networks*. [Hoboken] : John Wiley & Sons, Inc., 2003. ISBN 0-471-35923-8.
- **Recommended:** *Kokeš příručka uživatele*. Praha GEPRO.
- **Recommended:** Huml M., Michal J. *Mapování 10*. Vydavatelství ČVUT, Praha, 2000.
- **Recommended:** Vybrané specifikace OGC - http://www.opengeospatial.org/ >

Time requirements

All forms of study

Activities	Time requirements for activity [h]
Contact hours	65
Practical training (number of hours)	5
Undergraduate study programme term essay (20-40)	20
Preparation for comprehensive test (10-40)	10
Preparation for an examination (30-60)	30
Preparation for laboratory testing; outcome analysis (1-8)	8
Total:	**138**

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:

Individual presentation at a seminar

Seminar work

Skills demonstration during practicum

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

Finding out the level and amount of acquired knowledge and skills

teaching methods

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

Cooperative instruction

Lecture with visual aids

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

Practicum

Project-based instruction

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

Implement the information obtained to solve specific practical tasks

learning outcomes

Knowledge - knowledge resulting from the course:

Creating a topologically correct digital map in vector form

Creation of a digital terrain model and its possibilities of expression

Export of CAD data model to GIS data model

Web map services and their use

Creation of three-dimensional geometry of an object

Introduction to the concept of Building Information Management

Skills - skills resulting from the course:

practically use available software for spatial data processing

process the measured data in the form of a digital map

create a data model for CAD

convert data model for CAD to GIS

Competences - competences resulting from the course:

Plan a time and cost independent solution of the given problem

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	3	ZS
Civil Engineering	Bachelor	Full-time	Land-use Planning	1	2020	2023	Povinné předměty	A	3	ZS
Geomatics	Bachelor	Full-time	Geomatika	1	2022 akr	2023	Povinné předměty	A	3	ZS
Geomatics	Bachelor	Full-time	Geomatika	1	2023	2023	Povinné předměty	A	3	ZS
Geomatics	Bachelor	Full-time	Geomatics	1	2018	2023	Oborové předměty povinné	A	3	ZS