Study plan

Name of study plan: Geodézie a kartografie, specializace Inženýrská geodézie

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch:

Program of study: Geodesy and Cartography Type of study: Follow-up master full-time

Required credits: 120 Elective courses credits: 0 Sum of credits in the plan: 120

Note on the plan: platí pro nástup v akad. roce 2023/24

Name of the block: Compulsory courses Minimal number of credits of the block: 90

The role of the block: Z

Code of the group: NG20230001

Name of the group: Geodézie a kartografie, spec. Inženýrská geodézie, 1. semestr Requirement credits in the group: In this group you have to gain at least 30 credits

Requirement courses in the group: In this group you have to complete at least 8 courses

Credits in the group: 30 Note on the group:

and deformations.

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
101MM4G	Mathematics 4G Jozef Bobok Jozef Bobok Jozef Bobok (Gar.)	Z,ZK	4	2P+2C	Z	Z
124UPST	Introduction to Civil Engineering Ctislav Fiala Ctislav Fiala (Gar.)	ZK	2	2P	Z	Z
154ACIG	AutoCAD for Engineering Surveying Rudolf Urban Rudolf Urban (Gar.)	KZ	2	2C	Z	Z
154ING2	Engineering Surveying 2 Martin Štroner Martin Štroner (Gar.)	Z,ZK	5	2P+2C	Z	Z
155DPRZ	Remote Sensing Karel Pavelka Eva Matoušková Karel Pavelka (Gar.)	Z,ZK	5	2P+2C	Z	Z
155GPL2	Survey Sketches 2 Zden k Valenta Zden k Valenta (Gar.)	KZ	2	2C	Z	Z
155KAT3	Cartography 3 Ji í Cajthaml, Tomáš Janata, Petra Justová, Josef Münzberger Ji í Cajthaml Ji í Cajthaml (Gar.)	Z,ZK	5	2P+2C	Z	Z
155TGD3	Theoretical geodesy 3 Jan Holešovský Jan Holešovský (Gar.)	Z,ZK	5	2P+2C	Z	Z

Characteristics of the courses of this group of Study Plan: Code=NG20230001 Name=Geodézie a kartografie, spec. Inženýrská geodézie, 1. semestr

101MM4G	Mathematics 4G	Z,ZK	4			
https://mat.fsv.cvut.cz/b	obok/					
124UPST	Introduction to Civil Engineering	ZK	2			
Basic classification of b	Basic classification of building structures, basics of building structures - construction elements, construction systems, construction technology, construction process. Technical					
documentation - levels of	f technical documentation, principles of technical documentation. Foundation structures of buildings - construction trenchs, surfi	ace foundations, c	leep foundations.			
Substructure - constructure	tion, expansion, waterproofing. Load-bearing tructures of buildings - vertical land horizontal oad-bearing structures, roof struc	tures - building ted	chnical solutions.			
Overhanging structures	, stairs and ramps - structural and material solutions. Completion construction - types, technology, construction technical solu	utions.				
154ACIG	AutoCAD for Engineering Surveying	KZ	2			
Basics of AutoCAD - wo	rking with files, file types, compatibility, user interface, control, drawing, grips, tracing, levels, measurements, dimensions, blo	ocks, tables, exter	nal references,			
working with rasters, au	xiliary commands.					
154ING2	Engineering Surveying 2	Z,ZK	5			
Planning and evaluating	anning and evaluating of precision of the geodetic activities, evaluation of precision of measurement and setting-out of distances, angles and verticals including sources of errors.					
Geodetic setting-out ne	detic setting-out networks positional, altimetric and spatial (derivation of precision), evaluation of precision of positional and altimetric setting-out of elementary parts of a building					

structure, derivation of main elements of transition curve including solution of circular arcs with transition curves, evaluation of precision and provableness of building structures shifts

155DPRZ Remote Sensing Z.ZK The subject is focused on explanation of physical bases allowing to use remote sensing, on technical explanation of methods of data collection/measurement, on behavior of individual materials/land covers as an interaction with electromagnetic radiation, and on possibility to use RS for many applications. 155GPL2 Survey Sketches 2 ΚZ 2 Students will learn about the preparation of geometric plans through practical exercises. It is mainly about the orientation of changes for updating the cadastral register by various measuring technologies and the subsequent processing of geometric plans as a technical basis for the introduction of these changes into the cadastral register in locations with different technical conditions - analogue cadastral map, digital cadastral map (DKM, KMD, etc.) 155KAT3 Z,ZK

155TGD3 Theoretical geodesy 3 Z,ZK 5 Vector and scalar description of gravitational field of the Earth. Properties of gravitational potential and its derivatives for basic bodies. Description of gravity field of the Earth. Normal gravity field of normal bodies. Approximation of the shape of the Earth in form of geoid or level ellipsoid. Stokes' and Molodensky's solution of the shape of the Earth. Consequences of this procedures for geodesy (geoid, quasigeoid, heights). Construction and models of (quasi)geoid. Physical priciples of gravity surveying.

Advanced cartography, web map services and applications, dynamic maps, spatial data formats, data sources, standardization, web maps, trends in cartography.

Code of the group: NG20180002

Cartography 3

Name of the group: Geodézie a kartografie, spec. Inženýrská geodézie, 2. semestr Requirement credits in the group: In this group you have to gain at least 30 credits

Requirement courses in the group: In this group you have to complete at least 8 courses

Credits in the group: 30 Note on the group:

155PKAR

Project - Cartography

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
136UDST	Introduction to Transportation Facilities Engineering Ludvík Vébr, Lenka Lomoz Ludvík Vébr Ludvík Vébr (Gar.)	ZK	2	2P	L	Z
154ING3	Engineering Surveying 3 Jaroslav Braun Jaroslav Braun (Gar.)	Z,ZK	5	2P+2C	L	Z
154SPG	Land Surveying in Civil Engineering and Industry Pavel Hánek Pavel Hánek Rudolf Urban (Gar.)	Z,ZK	5	2P+2C	L	Z
154VYIG	Engineering Surveying Fieldwork Training (2 weeks) Martin Štroner Martin Štroner (Gar.)	KZ	2	4C	L	Z
155FTG2	Photogrammetry 2 Karel Pavelka, Jan Pacina Karel Pavelka Karel Pavelka (Gar.)	Z,ZK	5	2P+2C	L	Z
155PKAR	Project - Cartography Ji í Cajthaml, Tomáš Janata Ji í Cajthaml Ji í Cajthaml (Gar.)	KZ	5	3C	L	Z
155TG4	Theoretical geodesy 4 Jakub Kostelecký Jakub Kostelecký Leoš Mervart (Gar.)	Z,ZK	5	2P+2C	L	Z
155VTTG	Fieldwork Training in Theoretical Geodesy Zden k Vysko il Zden k Vysko il Zden k Vysko il (Gar.)	KZ	1	2C	L	Z

Characteristics of the courses of this group of Study Plan: Code=NG20180002 Name=Geodézie a kartografie, spec. Inženýrská geodézie,

2. semestr			
136UDST	Introduction to Transportation Facilities Engineering	ZK	2
The subject is designed	as a course containing basic knowledge of transport construction. The lectures are divided into two parts, road (9 lectures) a	nd railway (4 lecti	ures). In the road
part, students will learn	about the Road Act and related legislative and technical regulations, their impact on road design. Design categories of roads	and highways, d	esign speed,
alignment and elevation	, road and highway layout in cross section, earthwork - dimensions, shapes, drainage. Urban roads, division and designation, o	definition of MK sp	pace, differences
in design, operation and	equipment. Pavement, division, design principles. Safety equipment, junctions and crossings. In the lectures devoted to rail	transport, basic te	erminology from
the field of rail transport	, design parameters of the track, basic shapes of the earth body, composition of the railway top and bottom, including the Ac	t on Railways, wil	I be presented.
Furthermore, the basic	design parameters of urban rail transport - trams and subways, history, principles and principles of tram line and subway con	struction will be p	resented. The
interaction of rail transpo	ort with the environment will be mentioned. The final lecture will be devoted to railway geodesy, geodetic foundations for ensu	uring the spatial lo	ocation of the
track.			
154ING3	Engineering Surveying 3	Z,ZK	5
Legislative regulations for	or geodetic activities in the capital construction, technical standards, geodetic ground for designing, geodetic activities in the	building structure	s, transportation
engineering, water reso	urce management, industry and energetics (specificities of setting-out, check of geometrical parameters of structures, rectific	cation of technolo	gical equipment
etc.).			
154SPG	Land Surveying in Civil Engineering and Industry	Z,ZK	5
Subject 154SPG belong	s to the group of engineering geodesy subjects. It builds on previous studies. It is devoted to the issue of surveying work in som	e specific areas c	of documentation
and preparation of recor	nstruction of historic and other construction, transport, water management and industrial objects.		
154VYIG	Engineering Surveying Fieldwork Training (2 weeks)	KZ	2
Measurement and calcu	lation of the geodetic micronetwork for industry purposes, precise height measurements, method of the temporary station, c	alculation of the s	etting out data,
setting out of the constru	uction with check measurement, setting out of the road with arcs and transition curves, measurement and processing of the	cross sections an	d longitudinal
profile. Measurement ar	d calculation of the 3D network with use of the electronic tachymeter.		
155FTG2	Photogrammetry 2	Z,ZK	5
Aerial photogrammetry.	Relative and absolute orientation of aerial photos. Analogue, analytic and digital interpreting devices, computer support. Phot	ogrammetric meth	nods in mapping.
Orthophoto, its accuracy	. Photo triangulation, AAT, block and bundle adjustments, analytical photogrammetry. Digital photogrammetry, digital orthoph	oto, digital photo	grammetric
stations, optical correlat	ion systems, aerial laser scanning, using of drones (RPAS).		

Map creation in GIS, geodatabase, data model, symbology, compositional elements of maps, geographical nomenclature, errors in maps.

ΚZ

Theoretical geodesy 4 Theoretical Geodesy 4 introduces students to the field of space geodesy, i.e. using satellite observations of the Earth to define and maintain global coordinate systems, the Earth

orientation parameters, models of the Earth's gravity field and ocean topography. The outputs of space geodesy form the basis from which one of the most widely used measurement techniques in geodesy GNSS is based

Landsurveying in terrain is intended for the practice of measurement methods of geodesy and data processing work in the creation of a point field. Includes tasks: Long Range Triangulation and Trilateration (TRG) Determining the course of the quasi-geoid (GEO) Remeasurement and adjustment of height points with very precise leveling (VPN) Azimuth determination using the gyrotheodolite, gravimetric measurements

Code of the group: NG20230003

Name of the group: Geodézie a kartografie, spec. Inženýrská geodézie, 3. semestr Requirement credits in the group: In this group you have to gain at least 30 credits

Fieldwork Training in Theoretical Geodesy

Requirement courses in the group: In this group you have to complete at least 10 courses

Credits in the group: 30 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
154BIMG	BIM in Surveying Jaroslav Braun Jaroslav Braun (Gar.)	Z,ZK	2	1P+1C	Z	Z
154EZKA	Economy in Land Surveying and Cadastre of Real Estates Rudolf Urban Rudolf Urban Rudolf Urban (Gar.)	Z,ZK	3	2P+1C	Z	Z
154ING4	Engineering Surveying 4 Tomáš Ji ikovský, Tomáš K emen Tomáš K emen Martin Štroner (Gar.)	Z,ZK	5	2P+2C	Z	Z
154KOME	Control Measurement Tomáš Ji ikovský Tomáš Ji ikovský Martin Štroner (Gar.)	KZ	2	2C	Z	Z
154LSK	Laser Scanning Tomáš K emen Tomáš K emen Martin Štroner (Gar.)	KZ	2	1P+1C	Z,L	Z
154MC3D	Microstation 3D Martin Štroner Martin Štroner (Gar.)	KZ	2	2C	Z	Z
154MEGE	Metrology in Geodesy Lenka Línková Martin Štroner Martin Štroner (Gar.)	KZ	2	1P+1C	Z	Z
155MSPD	Modern Methods of Spatial Data Acquisition Karel Pavelka, Jan Pacina Karel Pavelka Karel Pavelka (Gar.)	Z,ZK	5	2P+2C	Z	Z
155PKAZ	Law in Cadastre and Surveying Iveta Bláhová Iveta Bláhová (Gar.)	ZK	2	2P	Z	Z
155VFG	Photogrammetry -Project Karel Pavelka, Jind ich Hoda Karel Pavelka (Karel Pavelka (Gar.)	KZ	5	3C	Z	Z

Characteristics of the courses of this group of Study Plan: Code=NG20230003 Name=Geodézie a kartografie, spec. Inženýrská geodézie,

3. semestr	,	, , ,	J
154BIMG	BIM in Surveying	Z,ZK	2
Basic information a	bout BIM and the link to geodetic measurements. Ways of obtaining and processing geodetic data for the BIM model. Measureme	nt methods in rela	tion to LOG and
LOD. Creation of a	simple BIM model.		
154EZKA	Economy in Land Surveying and Cadastre of Real Estates	Z,ZK	3
The subject summa	urizes general economic terms with a specialization in the field of geodesy and cartography.	<u> </u>	
154ING4	Engineering Surveying 4	Z,ZK	5
The subject deals	vith the topic of mining surveying in Czechia.		
154KOME	Control Measurement	KZ	2
Accuracy of geome	ric parameters in construction, control measurement of construction objects, accuracy of geodetic methods in control measurement a	and determination o	of displacements
of construction and	natural objects, determination of stability of reference points. Interpretation of displacement measurement results and relevance	for monitoring geo	ometric and
physical properties	and for diagnostics of structures and natural objects. Links to other non-geodetic monitoring methods.		
154LSK	Laser Scanning	KZ	2
Principles and thed	ry of laser scanning systems (LSS), main types of LSS, influences impact on the accuracy of measuring, general sequence of po	oint cloud processi	ing, information
about the most imp	ortant LSS, practical applications in civil engineering and related branches, economical advantages, work safety.		
154MC3D	Microstation 3D	KZ	2
Drawing in the syst	em Bentley Microstation, creation, editing and visualisation of objects. A subject is concluded by a project, and it is a base for the	classification of s	tudents.
154MEGE	Metrology in Geodesy	KZ	2
The basis of the co	urse is metrological terminology and statistical tests used in geodesy. The course is focused on application of standard ISO 1712	3 Optics and optic	cal instruments
Field procedures fo	testing geodetic and surveying instruments. Participants get both practical and theoretical experience with testing of geodetic instrum	nents. They perform	n measurements
with total stations a	nd levelling instruments in the field and they also use statistical methods for determining precision of the instruments.		
155MSPD	Modern Methods of Spatial Data Acquisition	Z,ZK	5
The course focuses	on new modern and unconventional methods of geospatial data collection and presentation. Contains information on terrestrial,	aerial and mobile	laser scanning,
about remote sens	ng and its methods, about hyperspectral imaging. Further, it focuses on the progressive method in geomathics - on RPAS. It infor	ms about types, u	sage,legislation

as well as about sensors and software for automatically processing for image data. Finally, geophysical methods and virtual reality technologies are presented.

155PKAZ Law in Cadastre and Surveying

Public and private, substantive and procedural law. Overview of legal regulations governing the cadastre of real estate (CN) and land surveying. Predecessors of surveying and cadastral authorities in the past. Surveying and cadastral authorities today. Thing, thing in the legal sense, division of things, immovable things, part of a thing and accessories of a thing. Land, parcel of land, land in jurisprudence, building, building in jurisprudence, small buildings, temporary buildings, building, unit. Origin of the CN and its predecessors, the Cadastral Act and implementing regulations, definition and purpose of the CN. Content of the CN, cadastral register, registration of rights in the CN, basic provisions. Rights entered into the CN by deposit, title deed, proposal for deposit, annexes to the proposal, deposit procedure. Deposit procedure, record, note. Administration of the CN, entries of other data, acceptance of data, time limits for entry in the CN, deposit of documents in the collection of documents, revision of the CN, correction of errors, obligations of owners and other beneficiaries, municipalities and public authorities. Surveying activities and geometrical plans, publicity of the CN, provision of CN data, offences, common, transitional and final provisions of the Cadastral Act. Real estate contracts. Previous legislation on land surveying, Land Surveying Act, introductory provisions, surveying activities. Rights and obligations in carrying out surveying activities, verification of results of surveying activities, geodetic reference systems and state mapping works, offences. Visit to the land register in the building of the Surveying and Cadastral Authorities in Prague Kobylisy.

155VFG Photogrammetry - Project ΚZ

practical metrical documentation of historical objects and sites, technology of documentation and data processing by modern methods

Name of the block: Povinn volitelné p edm ty, doporu ení S1

Minimal number of credits of the block: 30

The role of the block: S1

Code of the group: NG20180004

Name of the group: Geodézie a kartografie, spec. Inženýrská geodézie, diplomová práce

Requirement credits in the group: In this group you have to gain at least 30 credits

Requirement courses in the group: In this group you have to complete at least 1 course

Credits in the group: 30 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
154DPM	Diploma Thesis Martin Štroner Martin Štroner (Gar.)	Z	30	24C	Z,L	S1
155DPM	Diploma Thesis Eva Matoušková, Ji í Cajthaml, Tomáš Janata, Jan Holešovský, Jind ich Hoda , Zden k Vysko il, Lena Halounová, Martin Tauchman, Petr Sou ek, Ji í Caithaml Ji í Caithaml (Gar.)	Z	30	24C	Z,L	S1

Characteristics of the courses of this group of Study Plan: Code=NG20180004 Name=Geodézie a kartografie, spec. Inženýrská geodézie, diplomová práce

154DPM	Diploma Thesis	Z	30
Final thesis, prepared a	cording to the assignment.	•	•
155DPM	Diploma Thesis	Z	30
in accordance with the t	hesis proposal	•	

List of courses of this pass:

Name of the course	Completion	Credits
Mathematics 4G	Z,ZK	4
https://mat.fsv.cvut.cz/bobok/		
Introduction to Civil Engineering	ZK	2
	Mathematics 4G https://mat.fsv.cvut.cz/bobok/	Mathematics 4G Z,ZK https://mat.fsv.cvut.cz/bobok/ Introduction to Civil Engineering ZK

Basic classification of building structures, basics of building structures - construction elements, construction systems, construction technology, construction process. Technical documentation - levels of technical documentation, principles of technical documentation, Foundation structures of buildings - construction trenchs, surface foundations, deep foundations. Substructure - construction, expansion, waterproofing. Load-bearing tructures of buildings - vertical land horizontal oad-bearing structures, roof structures - building technical solutions. Overhanging structures, stairs and ramps - structural and material solutions. Completion construction - types, technology, construction technical solutions

136UDST Introduction to Transportation Facilities Engineering

The subject is designed as a course containing basic knowledge of transport construction. The lectures are divided into two parts, road (9 lectures) and railway (4 lectures). In the road part, students will learn about the Road Act and related legislative and technical regulations, their impact on road design. Design categories of roads and highways, design speed, alignment and elevation, road and highway layout in cross section, earthwork - dimensions, shapes, drainage. Urban roads, division and designation, definition of MK space, differences in design, operation and equipment. Pavement, division, design principles. Safety equipment, junctions and crossings. In the lectures devoted to rail transport, basic terminology from the field of rail transport, design parameters of the track, basic shapes of the earth body, composition of the railway top and bottom, including the Act on Railways, will be presented. Furthermore, the basic design parameters of urban rail transport - trams and subways, history, principles and principles of tram line and subway construction will be presented. The interaction of rail transport with the environment will be mentioned. The final lecture will be devoted to railway geodesy, geodetic foundations for ensuring the spatial location of the

AutoCAD for Engineering Surveying

Basics of AutoCAD - working with files, file types, compatibility, user interface, control, drawing, grips, tracing, levels, measurements, dimensions, blocks, tables, external references, working with rasters, auxiliary commands.

154BIMG	BIM in Surveying	Z,ZK	2
	about BIM and the link to geodetic measurements. Ways of obtaining and processing geodetic data for the BIM model. Measurement m	,	1
	LOD. Creation of a simple BIM model.		
154DPM	Diploma Thesis	Z	30
	Final thesis, prepared according to the assignment.		1
154EZKA	Economy in Land Surveying and Cadastre of Real Estates The subject summarizes general economic terms with a specialization in the field of geodesy and cartography.	Z,ZK	3
154ING2	Engineering Surveying 2	Z,ZK	5
	luating of precision of the geodetic activities, evaluation of precision of measurement and setting-out of distances, angles and vertical	•	_
Geodetic setting-o	ut networks positional, altimetric and spatial (derivation of precision), evaluation of precision of positional and altimetric setting-out of	elementary parts	of a building
structure, derivation	n of main elements of transition curve including solution of circular arcs with transition curves, evaluation of precision and provablene	ss of building stru	ctures shifts
	and deformations.		
154ING3	Engineering Surveying 3	Z,ZK	5
-	ons for geodetic activities in the capital construction, technical standards, geodetic ground for designing, geodetic activities in the buil	_	-
engineering, water	resource management, industry and energetics (specificities of setting-out, check of geometrical parameters of structures, rectification	on of technologica	ıl equipmen
4541004	etc.).	7.71/	
154ING4	Engineering Surveying 4	Z,ZK	5
4541/01/45	The subject deals with the topic of mining surveying in Czechia.	1/7	
154KOME	Control Measurement	KZ	2
	tric parameters in construction, control measurement of construction objects, accuracy of geodetic methods in control measurement and control measurem		•
oi construction a	and natural objects, determination of stability of reference points. Interpretation of displacement measurement results and relevance for physical properties and for diagnostics of structures and natural objects. Links to other non-geodetic monitoring methods	n monitoring geor	neurc and
1541 017	physical properties and for diagnostics of structures and natural objects. Links to other non-geodetic monitoring methods.	1/7	
154LSK	Laser Scanning	KZ	2
-micipies and the	ory of laser scanning systems (LSS), main types of LSS, influences impact on the accuracy of measuring, general sequence of point	-	miormatioi
15111000	about the most important LSS, practical applications in civil engineering and related branches, economical advantages, work s	KZ	2
154MC3D	Microstation 3D		1
-	system Bentley Microstation, creation, editing and visualisation of objects. A subject is concluded by a project, and it is a base for the		
154MEGE	Metrology in Geodesy	KZ	2
	ourse is metrological terminology and statistical tests used in geodesy. The course is focused on application of standard ISO 17123 C	•	
ieia procedures io	r testing geodetic and surveying instruments. Participants get both practical and theoretical experience with testing of geodetic instruments with total stations and levelling instruments in the field and they also use statistical methods for determining precision of the instru		easuremen
454CDC			
154SPG	Land Surveying in Civil Engineering and Industry	Z,ZK	5
Subject 1545PG b	elongs to the group of engineering geodesy subjects. It builds on previous studies. It is devoted to the issue of surveying work in some sp and preparation of reconstruction of historic and other construction, transport, water management and industrial objects.	becilic areas of do	cumentatio
454)0//0		1/7	_
154VYIG	Engineering Surveying Fieldwork Training (2 weeks)	KZ	2
	calculation of the geodetic micronetwork for industry purposes, precise height measurements, method of the temporary station, calculation with check measurement, setting out of the road with arcs and transition curves, measurement and processing of the cru		-
setting out or the	profile. Measurement and calculation of the 3D network with use of the electronic tachymeter.	oss sections and i	origitudiriai
155DPM	Diploma Thesis		
133DF W		7	30
	ļ ·	Z	30
155DPR7	in accordance with the thesis proposal		
155DPRZ	in accordance with the thesis proposal Remote Sensing	Z,ZK	5
	in accordance with the thesis proposal Remote Sensing sed on explanation of physical bases allowing to use remote sensing, on technical explanation of methods of data collection/measurer	Z,ZK	5
he subject is focu	in accordance with the thesis proposal Remote Sensing sed on explanation of physical bases allowing to use remote sensing, on technical explanation of methods of data collection/measurer materials/land covers as an interaction with electromagnetic radiation, and on possibility to use RS for many applications.	Z,ZK ment, on behavior	5 of individua
The subject is focu	in accordance with the thesis proposal Remote Sensing sed on explanation of physical bases allowing to use remote sensing, on technical explanation of methods of data collection/measurer materials/land covers as an interaction with electromagnetic radiation, and on possibility to use RS for many applications. Photogrammetry 2	Z,ZK ment, on behavior Z,ZK	5 of individua
The subject is focu 155FTG2 Aerial photogramm	in accordance with the thesis proposal Remote Sensing sed on explanation of physical bases allowing to use remote sensing, on technical explanation of methods of data collection/measurer materials/land covers as an interaction with electromagnetic radiation, and on possibility to use RS for many applications. Photogrammetry 2 netry. Relative and absolute orientation of aerial photos. Analogue, analytic and digital interpreting devices, computer support. Photogram	Z,ZK ment, on behavior Z,ZK ammetric methods	5 of individua
The subject is focu 155FTG2 Aerial photogramm	in accordance with the thesis proposal Remote Sensing sed on explanation of physical bases allowing to use remote sensing, on technical explanation of methods of data collection/measurer materials/land covers as an interaction with electromagnetic radiation, and on possibility to use RS for many applications. Photogrammetry 2	Z,ZK ment, on behavior Z,ZK ammetric methods	5 of individua
The subject is focu 155FTG2 Aerial photogramm Orthophoto, its	in accordance with the thesis proposal Remote Sensing sed on explanation of physical bases allowing to use remote sensing, on technical explanation of methods of data collection/measurer materials/land covers as an interaction with electromagnetic radiation, and on possibility to use RS for many applications. Photogrammetry 2 letry. Relative and absolute orientation of aerial photos. Analogue, analytic and digital interpreting devices, computer support. Photograccuracy. Photo triangulation, AAT, block and bundle adjustments, analytical photogrammetry. Digital photogrammetry, digital orthophostations, optical correlation systems, aerial laser scanning, using of drones (RPAS).	Z,ZK ment, on behavior Z,ZK ammetric methods	5 of individua
155FTG2 Aerial photogramm Orthophoto, its	in accordance with the thesis proposal Remote Sensing sed on explanation of physical bases allowing to use remote sensing, on technical explanation of methods of data collection/measurer materials/land covers as an interaction with electromagnetic radiation, and on possibility to use RS for many applications. Photogrammetry 2 letry. Relative and absolute orientation of aerial photos. Analogue, analytic and digital interpreting devices, computer support. Photogramcy. Photo triangulation, AAT, block and bundle adjustments, analytical photogrammetry. Digital photogrammetry, digital orthophore.	Z,ZK ment, on behavior Z,ZK ammetric methods oto, digital photogr	5 of individual 5 in mapping ammetric 2
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155FTG2 Aerial photogramm Orthophoto, its: 155GPL2 Students will lea	in accordance with the thesis proposal Remote Sensing sed on explanation of physical bases allowing to use remote sensing, on technical explanation of methods of data collection/measurer materials/land covers as an interaction with electromagnetic radiation, and on possibility to use RS for many applications. Photogrammetry 2 netry. Relative and absolute orientation of aerial photos. Analogue, analytic and digital interpreting devices, computer support. Photogramce. Photo triangulation, AAT, block and bundle adjustments, analytical photogrammetry. Digital photogrammetry, digital orthophostations, optical correlation systems, aerial laser scanning, using of drones (RPAS). Survey Sketches 2 In about the preparation of geometric plans through practical exercises. It is mainly about the orientation of changes for updating the decirity of the preparation of changes for updating the decirity of the preparation of changes for updating the decirity of the preparation of changes for updating the decirity of the preparation of	Z,ZK ment, on behavior Z,ZK mentric methods oto, digital photogr	5 of individua 5 in mapping rammetric 2 by various
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155TG4	Theoretical geodesy 4	Z,ZK	5
Theoretical Geo	lesy 4 introduces students to the field of space geodesy, i.e. using satellite observations of the Earth to define and maintain global co	ordinate systems	the Earth
orientation parame	eters, models of the Earth's gravity field and ocean topography. The outputs of space geodesy form the basis from which one of the m	ost widely used m	easurement
	techniques in geodesy GNSS is based.		
155TGD3	Theoretical geodesy 3	Z,ZK	5
Vector and scalar	description of gravitational field of the Earth. Properties of gravitational potential and its derivatives for basic bodies. Description of gra	avity field of the Ea	rth. Normal
gravity field of nor	nal bodies. Approximation of the shape of the Earth in form of geoid or level ellipsoid. Stokes´ and Molodensky´s solution of the shap	e of the Earth. Co	nsequences
	of this procedures for geodesy (geoid, quasigeoid, heights). Construction and models of (quasi)geoid. Physical priciples of gravity s	urveying.	
155VFG	Photogrammetry -Project	KZ	5
	practical metrical documentation of historical objects and sites, technology of documentation and data processing by modern me	ethods	•
155VTTG	Fieldwork Training in Theoretical Geodesy	KZ	1
Landsurveying	in terrain is intended for the practice of measurement methods of geodesy and data processing work in the creation of a point field. Ir	ncludes tasks: Lor	g Range
Triangulation and	d Trilateration (TRG) Determining the course of the quasi-geoid (GEO) Remeasurement and adjustment of height points with very pre	cise leveling (VPN	N) Azimuth
	determination using the gyrotheodolite, grayimetric measurements		

For updated information see http://bilakniha.cvut.cz/en/FF.html Generated: day 2025-08-08, time 17:11.