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 od akad. roku 2024/25

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:

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*** *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*** *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** *Zdeněk Valenta* ***Zdeněk Valenta*** *Zdeněk Valenta (Gar.)*	KZ	2	2C	Z	z
155KAT3	**Cartography 3** *Jiří Cajthaml, Tomáš Janata, Petra Justová, Josef Münzberger* ***Jiří Cajthaml*** *Jiří Cajthaml (Gar.)*	Z,ZK	5	2P+2C	Z	z
155TGD3	**Theoretical geodesy 3** *Jan Holešovský* ***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/bobok/			
124UPST	Introduction to Civil Engineering	ZK	2
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.			
154ACIG	AutoCAD for Engineering Surveying	KZ	2
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.			
154ING2	Engineering Surveying 2	Z,ZK	5
Planning 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 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 and deformations.			

155DPRZ	Remote Sensing	Z,ZK	5
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	KZ	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	Cartography 3	Z,ZK	5
Advanced cartography, web map services and applications, dynamic maps, spatial data formats, data sources, standardization, web maps, trends in cartography.			
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.			

Code of the group: NG20240002
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:

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
154IGE3	**Engineering Surveying 3** *Jaroslav Braun* ***Jaroslav Braun*** *Jaroslav Braun (Gar.)*	Z,ZK	6	2P+3C	L	z
154LASK	**Laser Scanning** *Tomáš Křemen* ***Tomáš Křemen*** *Tomáš Křemen (Gar.)*	Z,ZK	4	1P+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** *Jiří Cajthaml, Tomáš Janata* ***Jiří Cajthaml*** *Jiří 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** *Zdeněk Vyskočil* ***Zdeněk Vyskočil*** *Zdeněk Vyskočil (Gar.)*	KZ	1	2C	L	z

Characteristics of the courses of this group of Study Plan: Code=NG20240002 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) 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 track.			
154IGE3	Engineering Surveying 3	Z,ZK	6
Legislative regulations for geodetic activities in the capital construction, technical standards, geodetic ground for designing, geodetic activities in the building structures, transportation engineering, water resource management, industry and energetics (specificities of setting-out, check of geometrical parameters of structures, rectification of technological equipment etc.).			
154LASK	Laser Scanning	Z,ZK	4
Principles and theory of laser scanning systems (LSS), main types of LSS, influences impact on the accuracy of measuring, general sequence of point cloud processing, information about the most important LSS, practical applications in civil engineering and related branches, economical advantages, work safety.			
154VYIG	Engineering Surveying Fieldwork Training (2 weeks)	KZ	2
Measurement and calculation of the geodetic micronetwork for industry purposes, precise height measurements, method of the temporary station, calculation of the setting out data, setting out of the construction with check measurement, setting out of the road with arcs and transition curves, measurement and processing of the cross sections and longitudinal profile. Measurement and 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. Photogrammetric methods in mapping. Orthophoto, its accuracy. Photo triangulation, AAT, block and bundle adjustments, analytical photogrammetry. Digital photogrammetry, digital orthophoto, digital photogrammetric stations, optical correlation systems, aerial laser scanning, using of drones (RPAS).			
155PKAR	Project - Cartography	KZ	5
Map creation in GIS, geodatabase, data model, symbology, compositional elements of maps, geographical nomenclature, errors in maps.			

155TG4	Theoretical geodesy 4	Z,ZK	5
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.			
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. 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: NG20240003
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
Requirement courses in the group: In this group you have to complete at least 9 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
154EZKA	**Economy in Land Surveying and Cadastre of Real Estates** *Rudolf Urban* ***Rudolf Urban*** *Rudolf Urban (Gar.)*	Z,ZK	3	2P+1C	Z	z
154GBIM	**BIM in Surveying** ***Jaroslav Braun***	Z,ZK	3	1P+2C	Z	z
154ING4	**Engineering Surveying 4** *Tomáš Křemen, Tomáš Jiřikovský* ***Tomáš Křemen*** *Martin Štroner (Gar.)*	Z,ZK	5	2P+2C	Z	z
154KONM	**Control Measurement** ***Tomáš Jiřikovský***	KZ	3	3C	Z	z
154MC3D	**Microstation 3D** *Martin Štroner* ***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*** *Iveta Bláhová (Gar.)*	ZK	2	2P	Z	z
155VFG	**Photogrammetry -Project** *Karel Pavelka, Jindřich Hodač* ***Karel Pavelka*** *Karel Pavelka (Gar.)*	KZ	5	3C	Z	z

Characteristics of the courses of this group of Study Plan: Code=NG20240003 Name=Geodézie a kartografie, spec. Inženýrská geodézie, 3. semestr

154EZKA	Economy in Land Surveying and Cadastre of Real Estates	Z,ZK	3
The subject summarizes general economic terms with a specialization in the field of geodesy and cartography.			
154GBIM	BIM in Surveying	Z,ZK	3
Basic information about BIM and the link to geodetic measurements. Ways of obtaining and processing geodetic data for the BIM model. Measurement methods in relation to LOG and LOD. Creation of a simple BIM model.			
154ING4	Engineering Surveying 4	Z,ZK	5
The subject deals with the topic of mining surveying in Czechia.			
154KONM	Control Measurement	KZ	3
Accuracy of geometric parameters in construction, control measurement of construction objects, accuracy of geodetic methods in control measurement and determination of displacements of construction and natural objects, determination of stability of reference points. Interpretation of displacement measurement results and relevance for monitoring geometric and physical properties and for diagnostics of structures and natural objects. Links to other non-geodetic monitoring methods.			
154MC3D	Microstation 3D	KZ	2
Drawing in the system Bentley Microstation, creation, editing and visualisation of objects. A subject is concluded by a project, and it is a base for the classification of students.			
154MEGE	Metrology in Geodesy	KZ	2
The basis of the course is metrological terminology and statistical tests used in geodesy. The course is focused on application of standard ISO 17123 Optics and optical instruments Field procedures for testing geodetic and surveying instruments. Participants get both practical and theoretical experience with testing of geodetic instruments. They perform measurements with total stations and 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 sensing and its methods, about hyperspectral imaging. Further, it focuses on the progressive method in geomathics - on RPAS. It informs about types, usage,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	ZK	2
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	KZ	5
practical metrical documentation of historical objects and sites, technology of documentation and data processing by modern methods			

Name of the block: Povinně volitelné předměty, doporučení 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, Jiří Cajthaml, Tomáš Janata, Jan Holešovský, Jindřich Hodač, Zdeněk Vyskočil, Lena Halounová, Martin Tauchman, Petr Souček, ...* ***Jiří Cajthaml*** *Jiří Cajthaml (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 according to the assignment.			
155DPM	Diploma Thesis	Z	30
in accordance with the thesis proposal			

List of courses of this pass:

Code	Name of the course	Completion	Credits
101MM4G	Mathematics 4G https://mat.fsv.cvut.cz/bobok/	Z,ZK	4
124UPST	Introduction to Civil Engineering	ZK	2
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	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) 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 track.			
154ACIG	AutoCAD for Engineering Surveying	KZ	2
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.			

154DPM	Diploma Thesis	Z	30
	Final thesis, prepared according to the assignment.		
154EZKA	Economy in Land Surveying and Cadastre of Real Estates	Z,ZK	3
	The subject summarizes general economic terms with a specialization in the field of geodesy and cartography.		
154GBIM	BIM in Surveying	Z,ZK	3
	Basic information about BIM and the link to geodetic measurements. Ways of obtaining and processing geodetic data for the BIM model. Measurement methods in relation to LOG and LOD. Creation of a simple BIM model.		
154IGE3	Engineering Surveying 3	Z,ZK	6
	Legislative regulations for geodetic activities in the capital construction, technical standards, geodetic ground for designing, geodetic activities in the building structures, transportation engineering, water resource management, industry and energetics (specificities of setting-out, check of geometrical parameters of structures, rectification of technological equipment etc.).		
154ING2	Engineering Surveying 2	Z,ZK	5
	Planning 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 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 and deformations.		
154ING4	Engineering Surveying 4	Z,ZK	5
	The subject deals with the topic of mining surveying in Czechia.		
154KONM	Control Measurement	KZ	3
	Accuracy of geometric parameters in construction, control measurement of construction objects, accuracy of geodetic methods in control measurement and determination of displacements of construction and natural objects, determination of stability of reference points. Interpretation of displacement measurement results and relevance for monitoring geometric and physical properties and for diagnostics of structures and natural objects. Links to other non-geodetic monitoring methods.		
154LASK	Laser Scanning	Z,ZK	4
	Principles and theory of laser scanning systems (LSS), main types of LSS, influences impact on the accuracy of measuring, general sequence of point cloud processing, information about the most important LSS, practical applications in civil engineering and related branches, economical advantages, work safety.		
154MC3D	Microstation 3D	KZ	2
	Drawing in the system Bentley Microstation, creation, editing and visualisation of objects. A subject is concluded by a project, and it is a base for the classification of students.		
154MEGE	Metrology in Geodesy	KZ	2
	The basis of the course is metrological terminology and statistical tests used in geodesy. The course is focused on application of standard ISO 17123 Optics and optical instruments Field procedures for testing geodetic and surveying instruments. Participants get both practical and theoretical experience with testing of geodetic instruments. They perform measurements with total stations and levelling instruments in the field and they also use statistical methods for determining precision of the instruments.		
154VYIG	Engineering Surveying Fieldwork Training (2 weeks)	KZ	2
	Measurement and calculation of the geodetic micronetwork for industry purposes, precise height measurements, method of the temporary station, calculation of the setting out data, setting out of the construction with check measurement, setting out of the road with arcs and transition curves, measurement and processing of the cross sections and longitudinal profile. Measurement and calculation of the 3D network with use of the electronic tachymeter.		
155DPM	Diploma Thesis	Z	30
	in accordance with the thesis proposal		
155DPRZ	Remote Sensing	Z,ZK	5
	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.		
155FTG2	Photogrammetry 2	Z,ZK	5
	Aerial photogrammetry. Relative and absolute orientation of aerial photos. Analogue, analytic and digital interpreting devices, computer support. Photogrammetric methods in mapping. Orthophoto, its accuracy. Photo triangulation, AAT, block and bundle adjustments, analytical photogrammetry. Digital photogrammetry, digital orthophoto, digital photogrammetric stations, optical correlation systems, aerial laser scanning, using of drones (RPAS).		
155GPL2	Survey Sketches 2	KZ	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	Cartography 3	Z,ZK	5
	Advanced cartography, web map services and applications, dynamic maps, spatial data formats, data sources, standardization, web maps, trends in cartography.		
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 sensing and its methods, about hyperspectral imaging. Further, it focuses on the progressive method in geomathics - on RPAS. It informs about types, usage,legislation as well as about sensors and software for automatically processing for image data. Finally, geophysical methods and virtual reality technologies are presented.		
155PKAR	Project - Cartography	KZ	5
	Map creation in GIS, geodatabase, data model, symbology, compositional elements of maps, geographical nomenclature, errors in maps.		
155PKAZ	Law in Cadastre and Surveying	ZK	2
	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.		
155TG4	Theoretical geodesy 4	Z,ZK	5
	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.		

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.			
155VFG	Photogrammetry -Project	KZ	5
practical metrical documentation of historical objects and sites, technology of documentation and data processing by modern methods			
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. 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			

For updated information see http://bilakniha.cvut.cz/en/FF.html
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