## Second-cycle studies programme with hours/week in three semesters [15 weeks]

No	Course	Sem. I		Sem. II			Sem. III		I				
-	l – lecture, e – exercices, p – project, E – exam	1	e	р	ICTS	1	e	р	ICTS	1	e	р	ICTS
	General courses				щ				m				H
1	Selected Issues of Economy Law	1			1								
2	Human Rights					1			2				
3	Geodetic and Cartographic Law									1	1		2
4	Specialist Foreign Language										2		1
5	Mathematics		2		3								
6	Selected Topics of Mathematics and Numerical	1	2		4								
7	Geophysics	1	1		2								
8	Selected Topics of Physical Geodesy and			1	2								
9	Geodynamics Digital Image Processing			2	2								
	Profiled courses												
10	Standards in Geographic Information	1			2								
11	Geodetic Frames in Geodesy			1	2								
12	Space Geodetic Techniques /E	1		2	3								
13	Engineering Surveying /E	1		1	2								
14	Geodetic Service of the Construction Process	1		1	3								
15	Surveying studies for legal purposes	2		2	4								
16	Facultative class 1					2			1				
17	Facultative class 2					1		1	2				
18	Facultative class 3					2			1				
19	Facultative class 4					2			1				
	Specialization cour	ses					<u> </u>		<u> </u>				
20	Land Consolidation /E					2			3			3	3
21	Geodesy for Local Development Plans							1	2				
22	Technical Background of Real Estate Valuation					2			2				
23	Real Estate Valuation /E					2	1	1	5	2		1	3
24	Cadastre /E					2		3	5				
25	Selected Sections of Law in Real Estate Appraisal					2			3				
26	Economic Basis of Real Estate Valuation					2	1		3				
24	Land Consolidation 2												
27	Diploma Seminar										2		1
28	Diploma Thesis												20
	TOTAL	9	5	10	30	20	2	6	30	3	5	4	30

## Field of education: Geodesy and Cartography, specialization Cadastre and Land Management

## Courses descriptions

	General courses	
Selected issues of economy law 1001)	(1060-GK000-MSP-	<ol> <li>Basic information on economic law 2. Sources of law, including the economic law 3. Legal entities. an individual and a legal person, methods of their creation and their legal capacity. 4. The principles of representation of legal persons. 5. Basics principles of obligation. Contracts as a source of obligations. The principle of freedom of contracts. Modes of concluding a contract, in particular in the economy. 6. The principles of fulfillment of contractual obligations. Consequences of non- performance or improper performance of the contract.</li> <li>Taking up and running a business. The concept of the entrepreneur. Forms of running and requirements for starting a business. 8. Economic freedom and its limitation 9. Registration of running of an individual entrepreneur in the Central Register of Economic Activity, Polish Classification of Economic Activity 10. Company Law Principles of establishing</li> </ol>

Geodetic and Cartographic Law (1060-GK000-MSP-	Lecture: Tasks of the organs of the geodetic and
3004)	cartographic service. State geodetic and
	licenses. Submission of geodetic and cartographic
	works. Coordination of utilities network projects.
	Protection of geodetic controls. Geodetic works in
	closed areas. Technical standards applicable in
	surveying. Rules for completing technical reports.
	and cartography. Exercises: Preparation of a
	geodetic work application. Preparation of a fee
	calculation document for materials for the submitted
	geodetic work, drawing up a license for the above-
	mentioned geodetic and cartographic materials.
	work and the content of the technical report for a
	specific assortment of surveying work. Preparation
	of an application for authentication of geodetic
	materials resulting from surveying work. Preparation
	of a notice of completed surveying work. Preparation
Specialist foreign language	Achieving the B2+ level of knowledge of a foreigr
opeerarise roreign ranguage	language by expanding the specialist vocabulary
	related to geodesy and cartography and improving
	other skills that will enable students to
	communicate freely in a foreign language, prepare
	master's thesis report or texts in a foreign
	language useful in their professional work.
	July interpreter product work.
Mathematics (1060-GK000-MSP-1003)	Functions of complex variable: function derivative,
	Cauchy-Riemann equations, holomorfic function.
	theorem Cauchy integral formula Laurent series
	residual of the complex function and its application
	for the computation of integrals. Basic equations of
	mathematical physics. Partial differential equations
	of the first and second order and their
	classification. Differential equations of the string
	and of the thermal conductivity. Fourier method of
Selected Topics of Mathematics and Numerical Methods /E (1060-	The main purpose of the course is to give students
GK000-MSP-1016)	methods of random signals analysis. The course will
	present mathematical background and describe
	algorithms of empirical data analysis, both in the
	time and frequency domain. The course will begin
	with a short introduction to the theory of
	probability, random variables and their parameters.
	Next, given is description of the random signals
	with special attention paid to the properties of
	characteristics of the signals are introduced mean
	value and variance, probability density,
	autocorrelation and power spectral density (PSD)
	functions, then the joint characteristics: joint
	probability density, cross correlation and the cross
	power spectral density (CPSD). The data analysis
	on the digital Fourier transform, and the parametric
	methods focusing on the autoregressive (AR) modeling
	of time series. The last part of the course is
	devoted to the application of the linear Kalmar
	filter to the time domain analysis of discrete data.
	suction using the state-space formulation then the
Geophysics (1060-GK000-MSP-1017)	The purpose of this course is to give the students a
	pasic knowledge on the following subjects: The Earth
	as a planet. Internal structure of the Earth. Isostasy - postalecial rebound Plate tectorics.
	oceanic rifts, subduction zones. orogens. transform
	boundary. Rheology. Seismology: seismic waves,
	seismic wave propagation, Richter scale. Earth's
	magnetic field: parameters, units, constituents,
	geodynamo hypothesis. Magnetic surveying: magnetic
	anomalles. Geomagnetic poles, equator and
	polarity reversals. Magnetosphere. magnetic storms
	and solar activity. Hydrological cycle, physical
	properties (density, optical, acoustic) of oceanic
	water. Physical oceanography: thermocline, waves,
	currents, deep-water circulation, oceanic tides.
	Basic OI Ilula aynamics. Particular attention is
	geodesy. That includes those geophysical theories
Colosted Merrice of Director 1 Contractor	Gravimetric measurements - construction of
Selected Topics of Physical Geodesy and	gravimeter, preparation for measurement
Geodynamics (1060-GK000-MSP-1018)	(calibration, adjustment) - calculation exercise:
	determination of the gravimetric factor from
	measurements on a calibration basis. Gravimetric
	measurements - Development of a gravimetric
	measurement with the calculation of the tidal
	correction - coloristics eventies -

		Gravimetric measurements - development of
		measurement results: calculation of the field
		correction, calculation of reductions and
		gravimetric anomalies - calculation exercise:
		preparation of a map of free air anomalies and the
		full Bouguer anomaly. Tidal deformations -
		determination of the deformation of the earth's
		crust caused by tidal phenomena, static and dynamic
		tidal model - computational exercise: determination
		of the deformation of the earth's crust in the neu
		system for a specific point in a given period. Non-
		tidal deformations - determination of deformations
		caused by non-tidal phenomena (atmosphere, hydrology
		or anthropogenic and local factors) - computational
		exercise: determination of the Earth's crust
		deformation in the neu system for a specific point.
		Implementation of the EVRF2007 system -
		determination of the increments of geopotential
		number with the use of real gravimetric measurements
		and geopotential models - accuracy analysis -
		computational exercise: determining the increments
		of geopotential features for a selected leveling
		line, reduction to zero tide. The phenomenon of
		isostasy and its importance for the implementation
		of the geodetic network - computational exercise:
		modeling of the isostatic effect on the basis of the
1		GNSS time series (Fennoscandia). Gravity field of
1		simple geometric solids - elements of geophysical
		interpretation - computational exercise: modeling of
1		gravity field anomalies resulting from anomalies of
⊢	Disital image successing (1000 or000 MOD 1005)	subsurface formations Elements of the gravity field
1	Digital image processing (1060-GK000-MSP-1005)	2 Digital image recording formats 3 Lossy and
		2. Digital image recoluting formats. 5. Lossy and lossless image compression methods ( Basics of
		image processing in Matlah (Computer Vision System
		Toolbox M) 5 Basics of image processing in Python
		6 Preprocessing (Matlab) and automatic image
		vectorization (ArcCIS) 7 Detection and analysis of
		text on images using the function Optical Character
		Person in images using the function optical character
		basics of machine learning for digital image
		classification & Contextual processing: removing
		roise from an image through selected low-pass
		noise from an image childugh selected fow-pass
		filters and detection characteristic elements of the
		filters and detection characteristic elements of the
		filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology 11 Parios of import outpurs
		filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis GLCM granulometric
	Profiled course	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S
	Profiled courses	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S
	Profiled courses Standards in Geographic Information (1060-GK00I-	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms.
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The authors of standardization of the standard and norms.
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization is 2000 characteristic.
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards.
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification UMM Learning and USO 10100 symples of arbitration
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); -
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO 19110); - metadata (ISO 19115); - XML language - GML (TCO 10126 and TCO 10120) E Duble for the up of
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesv (1060-GK00G-MSP-1001)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO 19110); - metadata (ISO 19115); - XML language - GML The content of the exercises: 1. Estimation of a
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO 19110); - metadata (ISO 19115); - XML language - GML (TCO 10126 and TCO 10120) to Fuller for the use of The content of the exercises: 1. Estimation of a station velocity on the basis of position time
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19110); - metadata (ISO 1915); - XML language - GML (TCO 1012C and TCO 1012O) E Dube for the use of The content of the exercises: 1. Estimation of a station velocity on the basis of position time series - introducing discontinuities - estimation of
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO 19110); - metadata (ISO 1915); - XML language - GML (Tro 1012) and TO 10120) for the set of position time series - introducing discontinuities - estimation of seasonal terms - detection of outliers 2.
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO 1910); - metadata (ISO 1915); - XML language - GML (TOC 10126 and TOO 10120) E pulse for the use of The content of the exercises: 1. Estimation of a station velocity on the basis of position time series - introducing discontinuities - estimation of seasonal terms - detection of outliers 2. Extrapolation of coordinates to the desired epoch 3.
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO 19110); - metadata (ISO 19115); - XML language - GML /roo 1012 and roo 10120 for the formation of a station velocity on the basis of position time series - introducing discontinuities - estimation of seasonal terms - detection of outliers 2. Extrapolation of coordinates to the desired epoch 3. Transformation of coordinates between two
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO 19110); - metadata (ISO 19115); - XML language - GML (TCC 10122 and TCO 10120) for the basis of position time series - introducing discontinuities - estimation of a station velocity on the basis of position time series - introducing discontinuities - estimation of seasonal terms - detection of outliers 2. Extrapolation of coordinates to the desired epoch 3. Transformation of coordinates between two terrestrial reference systems 4. Estimation of
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO 19110); - metadata (ISO 19115); - XML language - GML (TCO 10126 and TCO 10120) for the basis of position time series - introducing discontinuities - estimation of seasonal terms - detection of outliers 2. Extrapolation of coordinates to the desired epoch 3. Transformation of coordinates between two terrestrial reference systems 4. Estimation of station velocities using plate tectonics models 5.
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19110); - metadata (ISO 1915); - XML language - GML (TCO 1012C and TCO 10120) E pulse for the use of The content of the exercises: 1. Estimation of a station velocity on the basis of position time series - introducing discontinuities - estimation of seasonal terms - detection of outliers 2. Extrapolation of coordinates to the desired epoch 3. Transformation of coordinates to the desired epoch 3. Transformation of plate rotation pole on the basis of station velocities using plate tectonics models 5. Estimation of plate rotation pole on the basis of
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO 19110); - metadata (ISO 1915); - XML language - GML 7DA 1012C and roo 10120 f nule for the series - introducing discontinuities - estimation of a station velocity on the basis of position time series - introducing discontinuities - estimation of seasonal terms - detection of outliers 2. Extrapolation of coordinates to the desired epoch 3. Transformation of coordinates between two terrestrial reference systems 4. Estimation of station velocities using plate tectonics models 5. Estimation of plate rotation pole on the basis of GNSS velocity field. Estimation of intraplate
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO 19110); - metadata (ISO 19115); - XML language - GML /roo 10120 and roo 10120; for basis of position time series - introducing discontinuities - estimation of a station velocity on the basis of position time series - introducing discontinuities - estimation of seasonal terms - detection of outliers 2. Extrapolation of coordinates to the desired epoch 3. Transformation of coordinates between two terrestrial reference systems 4. Estimation of station velocities using plate tectonics models 5. Estimation of plate rotation pole on the basis of GNSS velocity field. Estimation of intraplate unlocities
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001) Space Geodetic Techniques /E (1060-GK00G-MSP-1002)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO 19110); - metadata (ISO 19115); - XML language - GML (The 10122 and Too 10120) for the basis of position time series - introducing discontinuities - estimation of a station velocity on the basis of position time series - introducing discontinuities - estimation of seasonal terms - detection of outliers 2. Extrapolation of coordinates to the desired epoch 3. Transformation of coordinates between two terrestrial reference systems 4. Estimation of station velocities using plate tectonics models 5. Estimation of plate rotation pole on the basis of GNSS velocity field. Estimation of intraplate inclositions of motions of satellities. The role of the series of Geodetic satellites, classification and history.
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001) Space Geodetic Techniques /E (1060-GK00G-MSP-1002)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO 19110); - metadata (ISO 19115); - XML language - GML (TCO 10125 and TCO 101201 to Fundate for the use of The content of the exercises: 1. Estimation of a station velocity on the basis of position time series - introducing discontinuities - estimation of seasonal terms - detection of outliers 2. Extrapolation of coordinates to the desired epoch 3. Transformation of coordinates between two terrestrial reference systems 4. Estimation of station velocities using plate tectonics models 5. Estimation of plate rotation pole on the basis of GNSS velocity field. Estimation of intraplate using the content of the exercise for the transformation of station of plate rotation pole on the basis of GNSS velocity field. Estimation of intraplate using the content of the exercise for the the basis of GNSS velocity field. Estimation of intraplate using the probability of solution the for the plate for the pla
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001) Space Geodetic Techniques /E (1060-GK00G-MSP-1002)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 1910); - metadata (ISO 19115); - XML language - GML (TCO 1012C and TCO 10120) for the basis of position time series - introducing discontinuities - estimation of seasonal terms - detection of outliers 2. Extrapolation of coordinates to the desired epoch 3. Transformation of coordinates between two terrestrial reference systems 4. Estimation of station velocities using plate tectonics models 5. Estimation of plate rotation pole on the basis of GNSS velocity field. Estimation of intraplate uslacitice Geodetic satellites, classification and history. Equations of motions of satellites The role of atmosphere in satellite geodesy GNSS: GPS, GLONASS, Galileo - error sources, classification -
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001) Space Geodetic Techniques /E (1060-GK00G-MSP-1002)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19110); - metadata (ISO 19115); - XML language - GML /roc 1012 and roc 10120 for the for the use of The content of the exercises: 1. Estimation of a station velocity on the basis of position time series - introducing discontinuities - estimation of seasonal terms - detection of outliers 2. Extrapolation of coordinates to the desired epoch 3. Transformation of coordinates to the desired epoch 3. Transformation of plate rotation pole on the basis of Station velocity field. Estimation of intraplate inclusion. Geodetic satellites, classification and history. Equations of motions of satellites The role of atmosphere in satellite geodesy GNS: GPS, GLONASS, Galileo - error sources, classification - atmospheric effects: ionosphere troopshere
	Profiled course. Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001) Space Geodetic Techniques /E (1060-GK00G-MSP-1002)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO 19110); - metadata (ISO 19115); - XML language - GML from 1012 of the exercises: 1. Estimation of a station velocity on the basis of position time series - introducing discontinuities - estimation of seasonal terms - detection of outliers 2. Extrapolation of coordinates to the desired epoch 3. Transformation of coordinates between two terrestrial reference systems 4. Estimation of station velocity field. Estimation of intraplate unlocities using plate tectonics models 5. Estimation of plate rotation pole on the basis of geodetic satellites, classification and history. Equations of motions of satellites The role of atmosphere in satellite geodesy GNSS: GPS, GLONASS, Galileo - error sources, classification - atmospheric effects: ionosphere, troposphere antenna phase center variations Multimath
	Profiled course. Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001) Space Geodetic Techniques /E (1060-GK00G-MSP-1002)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO 19110); - metadata (ISO 19115); - XML language - GML (Tro 1012) and TSO 101201 for the the use of The content of the exercises: 1. Estimation of a station velocity on the basis of position time series - introducing discontinuities - estimation of seasonal terms - detection of outliers 2. Extrapolation of coordinates to the desired epoch 3. Transformation of coordinates between two terrestrial reference systems 4. Estimation of station velocities using plate tectonics models 5. Estimation of plate rotation pole on the basis of GNSS velocity field. Estimation of intraplate introducing of satellites The role of atmosphere in satellite geodesy GNS: GPS, GLONASS, Galileo - error sources, classification - antenna phase center variations. Multipath differences of observation. Linear combinations -
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001) Space Geodetic Techniques /E (1060-GK00G-MSP-1002)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO 19110); - metadata (ISO 19115); - XML language - GML (TCO 10126 and TCO 101201 C Fuller for the use of The content of the exercises: 1. Estimation of seasonal terms - detection of outliers 2. Extrapolation of coordinates to the desired epoch 3. Transformation of coordinates between two terrestrial reference systems 4. Estimation of station velocities using plate tectonics models 5. Estimation of plate rotation pole on the basis of GNSS velocity field. Estimation of intraplate using intraplate using intraplate the order of atmosphere in satellite geodesy GNSS: GPS, GLONASS, Galileo - error sources, classification - atmospheric effects: ionosphere, troposphere antenna phase center variations. Multipath differences of observation, linear combinations
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001) Space Geodetic Techniques /E (1060-GK00G-MSP-1002)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO 19110); - metadata (ISO 19115); - XML language - GML (TCO 1012C and TCO 10120) for the basis of position time series - introducing discontinuities - estimation of seasonal terms - detection of outliers 2. Extrapolation of coordinates to the desired epoch 3. Transformation of coordinates between two terrestrial reference systems 4. Estimation of station velocities using plate tectonics models 5. Estimation of plate rotation pole on the basis of GNSS velocity field. Estimation of intraplate ualocitice Geodetic satellites, classification and history. Equations of motions of satellites The role of atmosphere in satellite geodesy GNSS: GPS, GLONASS, Galileo - error sources, classification - atmospheric effects: ionosphere, troposphere antenna phase center variations. Multipath differences of observation, linear combinations - GNSS data processing in regional networks SLR and DORTS satellite techniques VIBI - space geodetic
	Profiled courses Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001) Space Geodetic Techniques /E (1060-GK00G-MSP-1002)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19107; ISO 19125-1, ISO 19115); - XML language - GML (roc 1012C and roc 10120) E multer for the use of The content of the exercises: 1. Estimation of a station velocity on the basis of position time series - introducing discontinuities - estimation of seasonal terms - detection of outliers 2. Extrapolation of coordinates to the desired epoch 3. Transformation of coordinates between two terrestrial reference systems 4. Estimation of station velocity field. Estimation of intraplate unclosition Geodetic satellites, classification and history. Equations of motions of satellites The role of atmosphere in satellite geodesy GNSS: GPS, GLONASS, Galileo - error sources, classification - atmospheric effects: ionosphere, troposphere antenna phase center variations. Multipath differences of observation, linear combinations - GNSS data processing in regional networks SLR and DORIS satellite techniques VLBI - space geodetic technique Satellite altimetry and its missions Farth
	Profiled course: Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001) Space Geodetic Techniques /E (1060-GK00G-MSP-1002)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO 19110); - metadata (ISO 19115); - XML language - GML from 1012 and from 1012 for 101
	Profiled course. Standards in Geographic Information (1060-GK00I- MSP-1000) Geodetic Frames in Geodesy (1060-GK00G-MSP-1001) Space Geodetic Techniques /E (1060-GK00G-MSP-1002)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO 19110); - metadata (ISO 19115); - XML language - GML (TCO 10122 and TCO 10120 to Environment series - introducing discontinuities - estimation of station velocity on the basis of position time series - introducing discontinuities - estimation of seasonal terms - detection of outliers 2. Extrapolation of coordinates to the desired epoch 3. Transformation of coordinates between two terrestrial reference systems 4. Estimation of station velocities using plate tectonics models 5. Estimation of plate rotation pole on the basis of GNSS velocity field. Estimation of intraplate using field is a station of intraplate differences of observation, linear combinations - atmospheric effects: ionosphere, troposphere antenna phase center variations. Multipath differences of observation, linear combinations - GNSS data processing in regional networks SLR and DORIS satellite techniques VLBI - space geodetic technique Satellite altimetry and its missions Earth gravity field. CHAMP, GRACE, GOCE missions. Reference frames realized by space geodetic technique Satelite altimetry and its missions Earth gravity field. CHAMP, GRACE, GOCE missions.
	Profiled course:         Standards in Geographic Information (1060-GK00I-MSP-1000)         Geodetic Frames in Geodesy (1060-GK00G-MSP-1001)         Space Geodetic Techniques /E (1060-GK00G-MSP-1002)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO 19110); - metadata (ISO 19115); - XML language - GML (TCO 1026 are too 1020) = Ender for the use of The content of the exercises: 1. Estimation of a station velocity on the basis of position time series - introducing discontinuities - estimation of seasonal terms - detection of outliers 2. Extrapolation of coordinates to the desired epoch 3. Transformation of coordinates between two terrestrial reference systems 4. Estimation of station velocities using plate tectonics models 5. Estimation of plate rotation pole on the basis of GNSS velocity field. Estimation of intraplate unlocities. Gedetic satellites, classification and history. Equations of motions of satellites The role of atmosphere in satellite geodesy GNSS: GPS, GLONASS, Galileo - error sources, classification - atmospheric effects: ionosphere, troposphere antenna phase center variations. Multipath differences of observation, linear combinations - GNSS data processing in regional networks SLR and DORTS satellite techniques VLBI - space geodetic technique Satelite altimetry and its missions Earth gravity field. CHAMP, GRACE, GOCE missions. Reference frames realized by space geodetic techniques. ITRS/ITRF Snace geodetic techniques.
	Profiled course.         Standards in Geographic Information (1060-GK00I-MSP-1000)         Geodetic Frames in Geodesy (1060-GK00G-MSP-1001)         Space Geodetic Techniques /E (1060-GK00G-MSP-1002)	filters and detection characteristic elements of the image through high pass filters 10. Basics of mathematical morphology. 11. Basics of image texture analysis: fractal analysis, GLCM, granulometric S Lectures: 1. Concepts of standard and norms. Objectives and tasks of standardization. 2. The subject, structure, and organization of standardization in GI. OGC standards, ISO standards. 3. Standards formalism, ISO / TS 19103 specification - UML language and ISO 19109 - rules of application schemas. 4. Selected issues from the ISO 19100 series standards: - describing the position (ISO 19107, ISO 19125-1, ISO 19111 and ISO 19112); - temporal scheme (ISO 19108); - data quality (ISO 19157 and ISO 19158); - cataloging methodology (ISO 19110); - metadata (ISO 19115); - XML language - GML (reo 10122 cad reo 10120) f = hubs for the nos of The content of the exercises: 1. Estimation of a station velocity on the basis of position time series - introducing discontinuities - estimation of seasonal terms - detection of outliers 2. Extrapolation of coordinates to the desired epoch 3. Transformation of coordinates to the desired epoch 3. Transformation of plate rotation pole on the basis of GNSS velocity field. Estimation of intraplate unclosifies Geodetic satellites, classification and history. Equations of motions of satellites The role of atmosphere in satellite geodesy GNSS: GPS, GLONASS, Galile - error sources, classification - atmospheric effects: ionosphere, troposphere antenna phase center variations. Multipath differences of observation, linear combinations - GNSS data processing in regional networks SLR and DORIS satellite techniques VLBI - space geodetic technique Satelite altimetry and its missions Earth gravity field. CHAMP, GRACE, GOCE missions. Reference frames realized by space geodetic techniques. ITRS/ITRF. Space geodetic techniques services - IGS, FUBEF. LLBS, IDS, VS GGOS

Engineering Surveying /E	Lectures: Geodetic measurements for construction
	service and operation control of the railways (4
	hours), Specialistic techniques of industrial
	measurements (autocollimation of parallel and
	convergent light rays, autoreflection (5 hours),
	Control measurements of rotary klins (2 nours),
	surveying tasks in underground construction and
	the example of chipbuilding (1 hour) Measurements
	of the special objects. Measurements on the closed
	areas - excluded from local government
	administration (1 hour) Project evercises:
	Measurement and development of the reconstruction
	project on the example of a railway section (5
	hours) Development of the tunnel construction
	measurements service project (4 hours.).
	Autocollimation measurements: azimuth transfer in
	the two-level network, direction transfer through
	1 The presence of properties a construction
Geodetic Service of the Construction Process	investment (mans for design purposes supplementary
	measurements, field interview in the field of
	finding technical equipment for the area 2 GESUT
	3 Local Development Plan and Decision on
	development conditions, 4. Plot development plan,
	preparation for applying for a building permit. 5.
	Workplaces for realization of various building
	objects (formal and technical basics). 6. Geodetic
	elaboration of a construction project. 7. Object
	location staking. 8. Building and assembly control
	systems in servicing the construction of an
	industrial and residential facility. 9. Geodetic
	measurement techniques used at various stages of
	construction implementation. 10. Control
	measurements of assembly elements and structures.
Surveying studies for legal purpeses (1060-CK00C-	Lecture: Surveying procedures and documentation
Surveying scuales for regar purposes (1000-GROOG-	prepared for the purposes of administrative and
MSP-1005)	court proceedings and surveying works related to the
	determination of the course of boundary lines and
	location of crossing points. Real estate
	delimitations - surveying procedures and
	documentation, criteria of determination of the
	course of boundaries, and types of resolutions of
	administrative and court proceedings. Real estate
	administrative and court proceedings. Real estate divisions - surveying procedures and documentation -
	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate
	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of
	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas;
	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and
	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying
	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and
	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation).
	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of
	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of
	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks
	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of
	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of
	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks).
	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundaries of
	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of the course of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and
Facultative class 1 - BIM in Construction Site	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and Lectures: BIM Standards and Initiatives; BIM Guides
Facultative class 1 - BIM in Construction Site	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and Lectures: BIM Standards and Initiatives; BIM Guides and Execution Planning; Uses of BIM; Levels of BIM;
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP-	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and Lectures: BIM Standards and Initiatives; BIM Guides and Execution Planning; Uses of BIM; Levels of BIM; Impact of BIM; The Evolution to Object-Based
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011)	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of the course of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and Lectures: BIM Standards and Initiatives; BIM Guides and Execution Planning; Uses of BIM; Levels of BIM; Impact of BIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011)	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and Lectures: BIM Standards and Initiatives; BIM Guides and Execution Planning; Uses of BIM; Levels of BIM; Impact of BIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of Buildings; Creating a model based on a point cloud;
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011)	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and Lectures: BIM Standards and Initiatives; BIM Guides and Execution Planning; Uses of BIM; Levels of BIM; Impact of BIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of Buildings; Creating a model based on a point cloud; BIM Environments, Platforms, and Tools Overview of
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011)	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of the course of boundary marks). Determination of the course of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and Lectures: BIM Standards and Initiatives; BIM Guides and Execution Planning; Uses of BIM; Levels of BIM; Impact of BIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of Buildings, Creating a model based on a point cloud; BIM Environments, Platforms, BIM for Owners and Description of BIM Design Platforms; BIM for Owners and
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011)	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and Lectures: BIM Standards and Initiatives; BIM Guides and Execution Planning; Uses of BIM; Levels of BIM; Impact of BIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of buildings; Creating a model based on a point cloud; BIM Environments, Platforms, and Tools Overview of the Major BIM Design Platforms; BIM for Owners and Facility Managers; Scope of Design Services; BIM Use in Design Proceeding Services; BIM Use
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011)	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and Lectures: BIM Standards and Initiatives; BIM Guides and Execution Planning; Uses of BIM; Levels of BIM; Impact of BIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of Buildings; Creating a model based on a point cloud; BIM Environments, Platforms, and Tools Overview of the Major BIM Design Platforms; BIM for Owners and Facility Managers; Scope of Design Services; BIM Use in Design Processes; BIM for Contractors; Processes; Develop a Contractor Puilding Categories
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011)	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of the course of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and Lectures: BIM Standards and Initiatives; BIM Guides and Execution Planning; Uses of BIM; Levels of BIM; Impact of BIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of Buildings; Creating a model based on a point cloud; BIM Environments, Platforms, and Tools Overview of the Major BIM Design Platforms; BIM for Owners and Facility Managers; Scope of Design Services; BIM Use in Design Processes; BIM for Contractors; Processes to Develop a Contractor Building Information Model; Construction Analysis and Planping: Integration with
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011)	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and curveying trocedures and Initiatives; BIM Guides and Execution Planning; Uses of BIM; Levels of BIM; Impact of BIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of Buildings; Creating a model based on a point cloud; BIM Environments, Platforms, BIM for Owners and Facility Managers; Scope of Design Services; BIM Use in Design Processes; BIM for Contractors; Processes to Develop a Contractor Building Information Model; Construction Analysis and Planning; Integration with Cost
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011)	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and content of BIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of Buildings; Creating a model based on a point cloud; BIM Environments, Platforms, and Tools Overview of the Major BIM Design Platforms; BIM for Owners and Facility Managers; Scope of Design Services; BIM Use in Design Processes; BIM for Contractors; Processes to Develop a Contractor Building Information Model; Construction Analysis and Planning; Integration with Cost and Schedule Control and Other Management Functions.
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011)	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and division f BIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of Buildings; Creating a model based on a point cloud; BIM Environments, Platforms, and Tools Overview of the Major BIM Design Platforms; BIM for Owners and Facility Managers; Scope of Design Services; BIM Use in Design Processes; BIM for Contractors; Processes to Develop a Contractor Building Information Model; Construction Analysis and Planning; Integration with Cost and Schedule Control and Other Management Functions.
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011) Facultative class 1 - Measuring systems in	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundary marks). Determination of the course of boundary marks). Lectures: BIM Standards and Initiatives; BIM Guides and Execution Planning; Uses of BIM; Levels of BIM; Impact of BIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of buildings, Creating a model based on a point cloud; BIM Environments, Platforms, and Tools Overview of the Major BIM Design Platforms; BIM for Owners and Facility Managers; Scope of Design Services; BIM Use in Design Processes; BIM for Contractors; Processes to Develop a Contractor Building Information Model; Construction Analysis and Planning; Integration with Cost and Schedule Control and Other Management Functions. Measuring systems - automation in land surveying, data integration, multisensor approach. Basics of
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011) Facultative class 1 - Measuring systems in surveying engineering (1060-GK000-MSP-2023)	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and division fBIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of Buildings; Creating a model based on a point cloud; BIM Environments, Platforms, and Tools Overview of the Major BIM Design Platforms; BIM for Owners and Facility Managers; Scope of Design Services; BIM Use in Design Processes; BIM for Contractors; Processes to Develop a Contractor Building Information Model; Construction Analysis and Planning; Integration with Cost and Schedule Control and Other Management Functions. Measuring systems - automation in land surveying, data integration, multisensor approach. Basics of the sensoric. Structural monitoring systems -
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011) Facultative class 1 - Measuring systems in surveying engineering (1060-GK000-MSP-2023)	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and divides and Execution Planning; Uses of BIM; Levels of BIM; Impact of BIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of Buildings; Creating a model based on a point cloud; BIM Environments, Platforms, and Tools Overview of the Major BIM Design Platforms; BIM for Owners and Facility Managers; Scope of Design Services; BIM Use in Design Processes; BIM for Contractors; Processes to Develop a Contractor Building Information Model; Construction Analysis and Planning; Integration with Cost and Schedule Control and Other Management Functions. Measuring systems - automation in land surveying, data integration, multisensor approach. Basics of the sensoric. Structural monitoring vs control
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011) Facultative class 1 - Measuring systems in surveying engineering (1060-GK000-MSP-2023)	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and interfective procedures in the course of BIM; Levels of BIM; Impact of BIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of Buildings; Creating a model based on a point cloud; BIM Environments, Platforms, BIM for Owners and Facility Managers; Scope of Design Services; BIM Use in Design Processes; BIM for Contractors; Processes to Develop a Contractor Building Information Model; Construction Analysis and Planning; Integration with Cost and Schedule Control and Other Management Functions. Measuring systems - automation in land surveying, data integration, multisensor approach. Basics of the sensoric. Structural monitoring vs control measurements, system overview, using different
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011) Facultative class 1 - Measuring systems in surveying engineering (1060-GK000-MSP-2023)	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and content of BIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of Buildings; Creating a model based on a point cloud; BIM Environments, Platforms, and Tools Overview of the Major BIM Design Platforms; BIM for Owners and Facility Managers; Scope of Design Services; BIM Use in Design Processes; BIM for Contractors; Processes to Develop a Contractor Building Information Model; Construction Analysis and Planning; Integration with Cost and Schedule Control and Other Management Functions. Measuring systems - automation in land surveying, data integration, multisensor approach. Basics of the sensoric. Structural monitoring vs control measurements, system overview, using different coordinate types, defining limit classes and
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011) Facultative class 1 - Measuring systems in surveying engineering (1060-GK000-MSP-2023)	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and forest of BIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of Buildings; Creating a model based on a point cloud; BIM Environments, Platforms, and Tools Overview of the Major BIM Design Platforms; BIM for Owners and Facility Managers; Scope of Design Services; BIM Use in Design Processes; BIM for Contractors; Processes to Develop a Contractor Building Information Model; Construction Analysis and Planning; Integration with Cost and Schedule Control and Other Management Functions. Measuring systems - automation in land surveying, data integration, multisensor approach. Basics of the sensoric. Structural monitoring systems - definition, applications, monitoring vs control measurements, system overview, using different coordinate types, defining limit classes and alarming. Measuring systems in metrology -
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011) Facultative class 1 - Measuring systems in surveying engineering (1060-GK000-MSP-2023)	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundary marks). Determination of the course of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and division flanning; Uses of BIM; Levels of BIM; Impact of BIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of Buildings, Creating a model based on a point cloud; BIM Environments, Platforms, and Tools Overview of the Major BIM Design Platforms; BIM for Owners and Facility Managers; Scope of Design Services; BIM Use in Design Processes; BIM for Contractors; Processes to Develop a Contractor Building Information Model; Construction Analysis and Planning; Integration with Cost and Schedule Control and Other Management Functions. Measuring systems - automation in land surveying, data integration, multisensor approach. Basics of the sensoric. Structural monitoring vs control measurements, system overview, using different coordinate types, defining limit classes and alarming. Measuring systems in metrology - instrumentation, interoperability, system designing,
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011) Facultative class 1 - Measuring systems in surveying engineering (1060-GK000-MSP-2023)	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and divides and Execution Planning; Uses of BIM; Levels of BIM; Impact of BIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of Buildings; Creating a model based on a point cloud; BIM Environments, Platforms, BIM for Owners and Facility Managers; Scope of Design Services; BIM Use in Design Processes; BIM for Contractors; Processes to Develop a Contractor Building Information Model; Construction Analysis and Planning; Integration with Cost and Schedule Control and Other Management Functions. Measuring systems - automation in land surveying, data integration, multisensor approach. Basics of the sensoric. Structural monitoring vs control measurements, system overview, using different coordinate types, defining limit classes and alarming. Measuring systems in metrology - instrumentation, interoperability, system designing measurements uncertainty estimation, examples.
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011) Facultative class 1 - Measuring systems in surveying engineering (1060-GK000-MSP-2023)	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and function of BIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of Buildings; Creating a model based on a point cloud; BIM Environments, Platforms, and Tools Overview of the Major BIM Design Platforms; BIM for Owners and Facility Managers; Scope of Design Services; BIM Use in Design Processes; BIM for Contractors; Processes to Develop a Contractor Building Information Model; Construction Analysis and Planning; Integration with Cost and Schedule Control and Other Management Functions. Measuring systems - automation in land surveying, data integration, multisensor approach. Basics of the sensoric. Structural monitoring vs control measurements, system overview, using different coordinate types, defining limit classes and alarming. Measuring systems in metrology - instrumentation, interoperability, system designing, measurement uncertainty estimation, examples. Principles of robotic instruments - design, working
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011) Facultative class 1 - Measuring systems in surveying engineering (1060-GK000-MSP-2023)	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and Lectures: BIM Standards and Initiatives; BIM Guides and Execution Planning; Uses of BIM; Levels of BIM; Impact of BIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of Buildings; Creating a model based on a point cloud; BIM Environments, Platforms, and Tools Overview of the Major BIM Design Platforms; BIM for Owners and Facility Managers; Scope of Design Services; BIM Use in Design Processes; BIM for Contractors; Processes to Develop a Contractor Building Information Model; Construction Analysis and Planning; Integration with Cost and Schedule Control and Other Management Functions. Measuring systems - automation in land surveying, data integration, multisensor approach. Basics of the sensoric. Structural monitoring systems - definition, applications, monitoring vs control measurements, system overview, using different coordinate types, defining limit classes and alarming. Measuring systems in metrology - instrumentation, interoperability, system designing, measurement uncertainty estimation, examples. Principles of robotic instruments - design, working fundamentals, mechanics, modern trends. Fibre
Facultative class 1 - BIM in Construction Site Survey of Building Investments (1060-GK000-MSP- 2011) Facultative class 1 - Measuring systems in surveying engineering (1060-GK000-MSP-2023)	administrative and court proceedings. Real estate divisions - surveying procedures and documentation - administrative proceedings (act on real estate management and special acts concerning regulation of legal statuses of public roads and railway areas; court proceedings and divisions of agricultural and forest real estate. Land consolidation (surveying procedure and documentation). Land consolidation and division (surveying procedure and documentation). Land usucaption. Land easements. Delineations of real estate covered with surface waters. Renewal of boundary marks and designation of boundary marks (surveying procedures and documentation, rules of use of archival materials and accuracy of determination of coordinates of boundary marks). Determination of the course of boundary marks). Determination of the course of boundaries of registered plots (surveying procedure and Lectures: BIM Standards and Initiatives; BIM Guides and Execution Planning; Uses of BIM; Levels of BIM; Impact of BIM; The Evolution to Object-Based Parametric Modeling; Parametric Modeling of Buildings; Creating a model based on a point cloud; BIM Environments, Platforms, and Tools Overview of the Major BIM Design Platforms; BIM for Owners and Facility Managers; Scope of Design Services; BIM Use in Design Processes; BIM for Contractors; Processes to Develop a Contractor Building Information Model; Construction Analysis and Planning; Integration with Cost and Schedule Control and Other Management Functions. Measuring systems - automation in land surveying, data integration, multisensor approach. Basics of the sensoric. Structural monitoring vs control measurements, system overview, using different coordinate types, defining limit classes and alarming. Measuring systems in metrology - instrumentation, interoperability, system designing, measurement uncertainty estimation, examples. Principles of robotic instruments - design, working fundamentals, mechanics, modern trends. Fibre optical measuring systems. Standards and procedures

Pacultative class 2 - Generation and Application       Indication of bibling modeling (the 2-bibling (th		Facultative class 2 - UAV Technologies in Situational and Altitude Surveying (1060-GK000-MSP- 2010)	1. Introduction to the class. Basic information on unmanned aerial vehicles (2h) 2. Legal provisions regarding the use of UAV aviation law (2h) 3. Review of photogrammetric UAV platforms and RGB, NIR, multispectral, hyperspectral, LIDAR sensors (2h) 4. Planning and development of photogrammetirc missions with the use of UAV (2h) 5. Processing of photogrammetric data obtained from the UAV (2h) 6. Regulations in the field of geodesy and cartography
Pacultative class 2 - Generation and Application of 3D Buildings Model			Presentations of exemplary geodetic works using UAV
Particular of the second se		Eacultative class 2 Concration and Application	data (2b) "1 Introduction to 3D building modelling (1b) 2
D1 30 001101119 #00001       Boild models of boildings in Bornard Starback and the additional and the second starback and the second s		Facultative class 2 - Generation and Application	Approaches and methods of building modelling (3h) a.
Pacultative class 3 - Property Valuation Methodology (1060-GK000-MSP-2012) Facultative class 3 - Property Valuation Methodology (1060-GK000-MSP-2012) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Facultative class 4 - Applications 4 - Applicati		or 3D Buildings Model	Solid models of buildings b. Surface models of
Dec analysis overall of data in 0 erry model of the second of complexences of replexences of contents determine of the second direction directi			buildings c. Parametric approach 3. Standards and
i. Sessement of yourget accuracy of provides in second processing of production accuracy of approaches in approximation accuracy of approaches in approximation accuracy of approaches and approximation accuracy of approaches and approaches and approaches and approaches accuracy of approaches and approaches and approaches accuracy of approaches accuracy provides in the accuracy of approaches accuracy provides in a accuracy of approaches accuracy provides and accuracy accuracy of approaches accuracy provides accuracy of approaches accuracy of approaches accuracy provides accuracy of a accuracy a			and quality control of data in 3D city models (3h)
Pacultative class 3 - Property Valuation Methodology (1060-GK000-MSF-2012)       The second of the sec			a. Assessment of completeness of models b.
Facultative class 3 - Property Valuation           Methodology (1060-GK000-MSP-2012)           Facultative class 3 - Property Valuation           Methodology (1060-GK000-MSP-2012)           Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013)           Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013)           Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013)           Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013)           Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013)           Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013)           Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013)           Facultative class 5 - The class 5 - Septemetry for a Sept			Assessment of geometric accuracy c. Approaches in
Facultative class 3 - Property Valuation         Methodology (1060-GK000-MSF-2012)         Hatdweiner, and the property is a the toxis for the second of the			spatial data in advanced three-dimensional
Facultative class 3 - Property Valuation         Mathematical Strength S			analyzesa. acquiring 3D models (transforming 2D data
Facultative class 3 - property Valuation       Introduction to the lasense or trail extate approximation to the inserve or trail extate approximation to the property on the inserve or trail extate approximation. The property is the inserve or trail extate approximation to the property on the inserve or trail extate approximation. The property is the inserve of the inse			to 3D), downloading data from the resourceb. data
Methodology (1060-GK000-MSP-2012) important, approximation, and techniques of real- enter of approximation, and techniques of real- restored approximation, and techniques of real- method of statistical enalysis of the marker - income-oriented approximation, approximatio		Facultative class 3 - Property Valuation	Introduction to the issues of real estate appraisal.
Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry in apricable of aerial and periate class and a satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Application of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Application of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Application of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Application Are Application Are		Methodology (1060-GK000-MSP-2012)	appraisal. Approaches, methods, and techniques of
Facultative class 4 - Applications of Aerial and techniques of real interaction provide a second and the interaction of the transfer of the control of a control of a second and the interaction of the transfer of the control of the transfer of the transfe			real estate appraisal in Poland, including: - types
Facultative class 4 - Application: - a statistic production of a service prior, covering investment of application, - ast-original and statistic photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and statistic photogrammetry in the ISI system of a statistic photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and statistic photogrammetry in the ISI system of a statistic photogrammetry (1060-GK000-MSP-2013) Facultative class 4 - Applications of Aerial and statistic photogrammetric works within F191 3. The use of photogrammetric works are hold, and the photogrammetric works are hold in a crisis nonsigned line are prior do the photogrammetric works are hold in a statistic photogrammetric and the photogrammetric works are hold in a statistic application of photogrammetric are hold and register using photogrammetric as a statistic photogrammetry in the statistic are are applied and a statistic photogrammetry in the statistic are are applied as a statistic photogrammetry in the statistic are applied as a statistic photogrammetry in a statistic are applied as a statistic photogrammetry in a statistic are are applied as a statistic photogrammetry in a statistic are applied as a statistic photogrammetry in a statistic are applied as a statistic photogrammetry in a statistic are applied as a statistic photogrammetry in a statistic are applied as a statistic photogrammetry in a statistic are applied as a statistic photogrammetry in a statistic are applied as a statistic photogrammetry in a statistic are applied as a statistic photogrammetry in applied astatistic applied as a statistic photogrammet			of approaches, methods, and techniques of real
Package       Interbod. method or Statisfical analysis of the markets - interm-ensinge approach, covering: investment method, profits method, covering: investment method, profits method, covering: investment method, profits method, covering: investment method, method or setting and integrated circuits, index includes and method.         Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013)       Integrated circuits, index includes of esting and circuits, index includes and method, met			estate appraisal, and rules of their application; - comparative approach. covering: pairwise comparison
Internet and the second seco			method, method of correction of average price,
Implementation       Implementation       Implementation       Implementation         Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013)       Implementation       Implementation       Implementation         Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013)       Implementation       Implementation       Implementation         Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013)       Implementation       Implementation       Implementation         Facultative class 4 - Applications of Aerial and Satellite Photogrammetry in the lite of the sate in crisis management (splication, standard, sxemples of decommentation of photogrammetry in the lite of the sate in crisis management (splication) for the sate of photogrammetry in the lite of the sate sate of the sate of the sate of the sate of the sate sate of the sate of the sate of the sate of the sate sate sate of the s			method of statistical analysis of the market; -
Pacultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013)       Integrated circuits, index technique of elements of integrated circuits, index techniques - mixed metallites: I. Products or series and satellite photogrammetry (1060-GK000-MSP-2013)         Pacultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013)       Technics, exceptes of documentation of photogrammetry (1060-GK000-MSP-2013)         Ind arbitic photogrammetry (1060-GK000-MSP-2013)       Technics, exceptes of documentation of photogrammetric or set in crisis management (Giacussion of selected flood prevention and contrearce using photogrammetric eschod, Assessment of the possibility of using GANs in the building and land register using photogrammetric eschaece of the possibility of using GANs in the building and land register using photogrammetric eschaece of the possibility of using GANs in the building and land register update 5. Project of the transformetry in documentation, contractors within 180% (6. Ffective use of photogrammetric data in hydroulic modeling 7. Application of photogrammetry. In Obstar and setellite photogrammetry. In Discussion of the role of arrial photogrammetry. In Discussion of patial plannido.         Land Consolidation /E (1060-GKKGN-MSP-3000)       Specialization courses         Land Consolidation /E (1060-GKKGN-MSP-3000)       Secture Characteristics of the order regulares in the land consolidation as esthod of improvement of rate application site of cort of cerial and consolidation in EU courses in the land consolidation in EU courses in the land consolidation in EU course in the land consolidation in EU course in the land consolidation in EU course in the land consolidation in EU course; hence an eselected vada serverk, were molioscians, and selecible value. Form			method, profits method, technique of simple
Example a set of the set of th			capitalisation, technique of discounting streams of
Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013)       Besterse: 1. Products of serial and setellite Photogrammetry (1060-GK000-MSP-2013)         Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013)       Besterse: 1. Products of serial and setellite photogrammetry in the DFIS system (epplication, standard, examples of documentation of photogrammetric works within DFIS) 3. The use of photogrammetric works within DFIS 3. The use of photogrammetric data and register update 5. Project of the DFIS System for County Protocolon against extraordinary threats (scope of photogrammetric works, examples of odd obcumentation, contractor's reports, photogrammetry in urban and photogrammetry in BOY100 production 45. Aerial and settlite photogrammetry in urban and spatial planning.         U. Measurements of engineering structures with the use of photogrammetry in BOY100 production 45. Aerial and settlite photogrammetry in urban and spatial planning.         Land Consolidation /E (1060-GKKGN-MSP-3000)       Secture: Characteristics of the ownership and spatial structure of agricultural farms in Foland, find concellistion as method of improvements of rural spatial layout. Detailed rules of development of the concept of all consolidation project considering the modern requirements of rural spatial structure of agricultural farms in Foland, find concellidation project considering in the modern requirements of rural spatial structure of agricultural farms in Foland, find concellidation and neal estate works, Scologinal prodectin of the layout consolidation prodection of th			income; - cost-oriented approach, covering:
Facultative class 4 - Applications of Aerial and setellite photogrammetry in agriculture 2. The role of serial and satellite photogrammetry in agriculture 2. The role of serial application standards, examples of documentation of photogrammetric atta in crisis management in a setellite photogrammetry in the LPIS system (application examples of documentation of photogrammetric atta in crisis management in the control of the consolidation of the			detailed technique, technique of elements of
Facultative class 4 - Applications of Aerial and Satellite Photogrammetry (1060-GK000-MSP-2013)       Lettres: 1. Products of aerial and astellite had astellite photogrammetry in the LPIG system of photogrammetric works within LPIG) 3. The use of of photogrammetric works within LPIG) 3. The use of of photogrammetric works within LPIG) 3. The use of of photogrammetric works within LPIG) 4. The vector of photogrammetric works within LPIG) 4. The vector of photogrammetric works within LPIG) 5. The use of photogrammetric works within LPIG) 5. The use of photogrammetry in the modernization of building and load register using photogrammetric works, examples of country Protection against extraordinary threats (acope of photogrammetric works, examples of country Protection against extraordinary in the ord aerial and astellite works, examples of country fraction, contractor's works, examples of country Protection against extraordinary in storention, contractor's works, examples of country fraction, contractor's works, examples of country fraction, contractor's works, examples of country in BOG100, production of photogrammetry in country in BOG100, production of photogrammetry in country in BOG100, production of adefance 0. The role of aerial and astellite photogrammetry in BOG100, production of the ChAP project (examples of specification, contractor reports and control protocols of 3D building models) 12. Products of aerial and apatial structure of agricultural farms in Polad, and consolidation /E (1060-GKKGN-MSP-3000)         Land Consolidation /E (1060-GKKGN-MSP-3000)       Interesting true development is a real development of true is patial algorither of a rual development project. In a consolidation as a method of inprovement of true is portal-large procedures in the land consolidation in BU countries based on selected vamples with particular consideration of the issue scales of a rual development project. Is an origidation in algorither with			integrated circuits, index technique; - mixed
Satellite Photogrammetry (1060-GK000-MSP-2013) biologrammetry in a photogrammetry in the LME system of photogrammetric works within LHES 3. The use of photogrammetric works within LHES 3. The use of photogrammetric and in crisis management (discussion of selected flood prevention and and register using photogrammetric works within LHES 3. The role of photogrammetric works within LHES 3. The use of photogrammetric works within LHES 3. The role of photogrammetric works, examples of order documentation, contractor? respondentic data and products in security of photogrammetric data and productions. Nearent and production in security of photogrammetric data and productions. Nearent and control protocols of a photogrammetric data and productions. Nearent of engineering structures with the use of photogrammetry in sub-inductions of a security of photogrammetric data in the implementation of the CARAP project (examples of specifications, contractoreficity and control protocols of 3D building models) 12. Products of a secial and accounters Land Consolidation /E (1060-GKKGN-MSP-3000) Secure of photogrammetry in sub-induction project consolidation as a method of ingricultural farms in Foland land consolidation register and control protocols of rural development. Soil classification, soil agricultural suitai attructure of as and consolidation project. Land consolidation rural development rural development is of a sub-induction project. Satellization courses is the land consolidation rural development - as an element of a rural development. As and consolidation of the information of streams, designation of ecological protocolins, shaping the agricultural-Forent boundary, and landsceppent rural photogrammetric on the ma		Facultative class 4 - Applications of Aerial and	Lectures: 1. Products of aerial and satellite
<pre>(application, similarida, examples of documentation of photogrammetric data in crisis management (discussion of selected flood prevention and counteraction programs) 4. The role of photogrammetry in the modernication of building and lend register using photogrammetric method. A buildings of and register using photogrammetric in the modernication of photogrammetric extraordinary threats (scope of photogrammetric extraordinary threats (scope of photogrammetric data in hydraulic modeling). Application of photogrammetric data and products in security and defence 8. The role of aerial and astellite photogrammetry in foreating topographic studies. The use of photogrammetric data and products in security and defence 8. The role of aerial and astellite photogrammetry in creating topographic studies. The use of photogrammetric data and products of astellite photogrammetry in urban and define 8. The role of aerial and astellite photogrammetry in urban and in hydraulite photogrammetry in urban and in hydraulite photogrammetry in urban and define 8. The role of aerial and astellite photogrammetric data in the implementation of the CARP project (examples of agecifications, contractor reports and control protocols of 3D building models) 12. Products of aerial and apatial structure of agricultural forms in Poland. In document, Soil classification, soil agricultural attrabuter of a concept of a land consolidation project. Considering the moder reguirements of the land consolidation are estate of the concept of a land consolidation project. Land consolidation projects. Effects of consolidation the land consolidation in the land setate of a rural development is as a block of a graves and network, water meliores hased on esteted or provers which particular maideration of the issues of an entwork, water meliores hased on esteted and and consolidation in of astreams, designation of ecological grounds, shaging the agricultural-forest boundary, and landscope management. Becision on the environmental conditions</pre>		Satellite Photogrammetry (1060-GK000-MSP-2013)	and satellite photogrammetry in the LPIS system
Land Consolidation /E (1060-GKKGN-MSP-3000) Decialization courses Enderging and provide a mathematical and real set or consolidation projection and consolidation protection of the land consolidation projection of the consolidation protection of the land consolidation protection of the conset work and the land consolidation protection of the land consolidation protection as a method of improvement and consolidation protection of the concet of a contribution to the land consolidation protection of the land consolidation protection and land consolidation protection as a method of development and consolidation protection of the concet of the land consolidation protection of the land consolidation protection of the land consolidation protection and concet work were main protection of			(application, standards, examples of documentation
Land Consolidation /E (1060-GKKGN-MSP-3000) A spatial structure of agricultural farms in Poland, Land consolidation project. Indication again agricultural farms in Foland, Land consolidation again			of photogrammetric works within LPIS) 3. The use of
Land Consolidation /E (1060-GKKGN-MSP-3000) Contaction programs of the overlap of the solution of the overlap of the concept of a land consolidation for development of the concept of a land consolidation project change of the concept of a land consolidation project change of the concept of a land consolidation project consolidation in SU contracts of the concept of a land consolidation project consolidation in SU contracts of the concept of a land consolidation project consolidation in SU contracts of the concept of a land consolidation project consolidation for the set consolidation of the concept of a land consolidation for the larger of the consolidation of the concept of a land consolidation for the set consolidation of the concept of a land consolidation for the set project. Land consolidation in SU countries based on selected acamples which contacts the selected acamples which contacts the selected acamples which contacts and the lange consideration of the selected acamples which contacts the concept of a land consolidation for the selected acamples which contacts and the lange consideration of the selected acamples which contacts the selected acamples which contacts and the lange consideration of the selected acamples which contacts and the lange consideration of the selected acamples which contacts and the lange consideration of the selected acamples which contacts the concept of a land consolidation project. Lange construction which contacts a			(discussion of selected flood prevention and
Land Consolidation /E (1060-GKKGN-MSP-3000) Land Consolidation / E (1060-GKKGN-MSP-3000) Land Consolidation / A maximum is the maximu			counteraction programs) 4. The role of
kseesment of the possibility of using UNA in the building and land register update 5. Project of the IT System for Country Protection against extraordinary threats (scope of photogrammetric extraordinary threats (scope of photogrammetric extraordinary threats (scope of photogrammetric data and products in security and photogrammetric data and products in security and defense 8. The role of aerial and satellite photogrammetry in creating topogrammetry in creating topogrammetry in creating topogrammetry in the use of photogrammetry in creating topogrammetry in the use of photogrammetry in the use of aerial and satellite photogrammetry in the use of aerial photogrammetry in the use of aerial photogrammetric data in the implementation of the CARA project (scamples of specifications, contractor reports and control protocols of 3D building models) 12. Products of aerial and spatial structures of agricultural farms in Poland.         Land Consolidation /E (1060-GKKGN-MSP-3000)       Lecture: Characteristics of the ownership and spatial structure of agricultural farms in Poland.         Land Consolidation /E (1060-GKKGN-MSP-3000)       Lecture: Characteristics of the ownership and spatial structure of agricultural farms in Poland.         sitebility complexes, factors contributing to the use of development of rural spatial layout. Detailed rules of development of rural spatial layout. Detailed rules of consolidation project considering the modern requirements of rural spatial layout.         sitebility complexes, factors contributing to the land consolidation process.       Secient of a rural development.       Secient of a rur			photogrammetry in the modernization of building and land register using photogrammetric method
billding and land register update 5. Project of the strate of system for Country Protection against extraordinary threats (scope of photogrammetric data and products in security and defense of order documentation, contractor's reports, photogrammetric data and products in security and defense 8. The role of aerial and satellite photogrammetry in creating topographic studies. The use of photogrammetry in creating topographic studies. The use of photogrammetry in a satellite photogrammetry in a satellite photogrammetry.         Specialization       Courses         Specialization       Courses         Land Consolidation /E (1060-GKKGN-MSP-3000)       Lecture: Characteristics of the ownership and spatial structure of agricultural farms in Poland, and consolidation registications, considering the use of a rule and consolidation rogenet of the concept of a land consolidation project (considering the modern requirements of rule spatial layout. Detailed rules of development of rule spatial layout. Detailed rules of rule spatial layout. Detailed rules of rule spatial layout. Products of consolidation project considering the modern requirements of rule spatial layout. Detailed rules of consolidation works. Multifunctional rural development - as an encloid of a rural development. Shaping the spatial ruce considering the modern requirements of spatial spatial spatial spatial spatial development. Shaping the spatial ruce considering the relications, anti-erosion measures, cological protection of streamy effects of ecision on the environmental conditions.			Assessment of the possibility of using UAVs in the
Land Consolidation /E (1060-GKKGN-MSP-3000) Land Consolidation /E (1060-GKKGN-MSP-3000) Land Consolidation /E (1060-GKKGN-MSP-3000) Land Consolidation /E (1060-GKKGN-MSP-3000) Land Consolidation and real state state of the modern and the state of the state of the state of the modern and the state of the			building and land register update 5. Project of the
Image: construction of the control protocolssectors, photogrammetric data control protocolssetting in the control protocols of the control proto			extraordinary threats (scope of photogrammetric
Land Consolidation /E (1060-GKKGN-MSP-3000)SpecializationConsolidation /E (1060-GKKGN-MSP-3000)SpecializationSpecializationConsolidation /E (1060-GKKGN-MSP-3000)SpecializationSpecializationSpecializationConsolidation /E (1060-GKKGN-MSP-3000)SpecializationSpecializationSpecializationConsolidation /E (1060-GKKGN-MSP-3000)SpecializationSpecializationSpecializationSpecializationSpecializationSpecializationSpecializationSpecializationSpecializationSpecializationSpecializationSpecializationSpecialization <th></th> <th></th> <th>works, examples of order documentation, contractor's</th>			works, examples of order documentation, contractor's
Land Consolidation /E (1060-GKKGN-MSP-3000) Land Consolidation /E (1060-GKKGN-MSP-3000) Land Consolidation /E (1060-GKKGN-MSP-3000) Land Consolidation is Courses Land Consolidation is a considering the consolidation is a consolidation of the issues of a cology and landscape management. Scienci on the issues of a cology and landscape management. Sologi a ground, shaping the road network, water meliorations, shaping the measures, cological protection of stream, measures, cological protec			reports, photogrammetric data control protocols
pbctogrammetric data and products in security and defense 8. The role of arial and satellite photogrammetry in creating topographic studies. The use of photogrammetry in BDCT10k production. 9.         Aerial and satellite photogrammetry in BDCT10k production. 9.         IO. Measurements of engineering structures with the use of aerial photogrammetry. 11. Discussion of the role of aerial adding models) 12. Products of aerial and satellist photogrammetry of aerial and stating models 12. Products of aerial and consolidation /E (1060-GKKGN-MSP-3000)         Land Consolidation /E (1060-GKKGN-MSP-3000)       Lecture: Characteristics of the ownership and patial structure of agricultural farms in Foland. Land consolidation as a method of improvement of rural spatial structure of agricultural farms in foland. Land consolidation project considering the modern requirements of rural development. Soil classification, soil agricultural development - as an element of a rural develop			data in hydraulic modelling 7. Application of
defense 8. The role of aerial and satellite photogrammetry in creating topographic studies. The use of photogrammetry in BDOTION production. 9. Aerial and satellite photogrammetry in urban and spatial planning. 10. Measurements of engineering structures with the use of aerial photogrammetry. 11. Discussion of the role of photogrammetry data in the implementation of the CAPAP project (examples of specifications, contractor reports and control protocols of 3D building models) 12. Products of aerial and spatial structure of agricultural farms in Poland. Land Consolidation /E (1060-GKKGN-MSP-3000) Lecture: Characteristics of the ownership and spatial structure of agricultural farms in Poland. Land consolidation as method of improvement of rural spatial layout. Detailed rules of development of the concept of a land consolidation project considering the modern requirements of rural suitability complexes, factors contributing to the difficulty of soil cultivation and real estate value. Formal-legal procedures in the land consolidation project. Land consolidation in SU countries based on selected examples with particular consideration, anti-erosion measures, ecological protection of the issues of ecology and landscape management. Shaping the road network, water meliorations, anti-erosion measures, ecological protection of streams, designation of ecological grounds, shaping the agricultural-forest boundary, and landscape management. Decision on the environmental conditions designation of ecological grounds, shaping the agricultural-forest boundary, and landscape			photogrammetric data and products in security and
Land Consolidation /E (1060-GKKGN-MSP-3000) Land Consolidation /E (1060-GKKGN-MSP-3000) Land Consolidation /E (1060-GKKGN-MSP-3000) Land Consolidation in EU consideration of the concept of a land consolidation protection of the concept of a land consolidation project to the development. Soil classification, soil agricultural development of rules of actors of rules of consolidation in EU consolidation in the land consolidation project. Land consolidation in the land consolidation in the land consolidation of solution of the same of a rural development - as an element of a rural development - a			defense 8. The role of aerial and satellite
Aerial and satellite photogrammetry in urban and spatial planning.10. Measurements of engineering structures with the use of aerial photogrammetry. 11. Discussion of the use of aerial photogrammetry. 11. Discussion of the use of aerial in the implementation of the CAPAP project (examples of specifications, outractor reports and control protocols of 3D building models) 12. Products of aerial andLand Consolidation /E (1060-GKKGN-MSP-3000)Lecture: Characteristics of the ownership and spatial structure of agricultural farms in Poland. Land consolidation as a method of improvement of the concept of a land consolidation project considering the modern requirements of rural suitability complexes, factors contributing to the development. Soil classification, soil agricultural ficultural suitability of soil cultivation and real estate value. Formal-legal procedures in the land consolidation in SU countries based on selected examples with particular consideration of the issues of consolidation project. Soil cultivation and free issues of ecology and landscape management. Shaping the road network, water meliorations, anti-erosion measures, ecological grounds, shaping the agricultural-forest boundary, and landscape management. Decision on the environmental conditions or substructural-constitution shaping the agricultural-forest boundary, and landscape management. Becision on the environmental conditions process based and protection of streams, designation of ecological grounds, shaping the agricultural-forest boundary, and landscape management. Becision on the environmental conditions and consolidation protection of streams, designation of ecological grounds, shaping the agricultural-forest boundary.			use of photogrammetry in BDOT10k production. 9.
<pre>spatial planning. IO. Measurements of engineering structures with the use of aerial photogrammetry. 11. Discussion of the role of photogrammetric data in the implementation of the CAPAP project (examples of specifications, contractor reports and control protocols of 3D building models) 12. Products of aerial and spatial structure of agricultural farms in Poland. Land Consolidation /E (1060-GKKGN-MSP-3000) Lecture: Characteristics of the ownership and spatial structure of agricultural farms in Poland. Land consolidation as a method of improvement of rural spatial layout. Detailed rules of development of the concept of a land consolidation project considering the modern requirements of rural development. Soil classification, soil agricultural suitability complexes, factors contributing to the difficulty of soil cultivation and real estate value. Formal-legal procedures in the land consolidation in EU countries based on selected examples with particular consideration of the issues of ecology and landscape management. Shaping the road network, water meliorations, anti-erosion measures, ecological grounds, shaping the agricultural-forest boundary, and landscape management. Decision on the environmental conditions.</pre>			Aerial and satellite photogrammetry in urban and
Land Consolidation /E (1060-GKKGN-MSP-3000)  Land Consolidation /E (1060-GKKGN-MSP-3000)  Land Consolidation /E (1060-GKKGN-MSP-3000)  Land Consolidation /E (1060-GKKGN-MSP-3000)  Lecture: Characteristics of the ownership and spatial structure of agricultural farms in Poland. Land consolidation as a method of improvement of the concept of a land consolidation project (considering the modern requirements of rural spatial layout. Detailed rules of development of the concept of a land consolidation project (considering the modern requirements of rural suitability complexes, factors contributing to the difficulty of soil cultivation and real estate value. Formal-legal procedures in the land consolidation in EU countries based on selected examples with particular consideration of the souse of ecology and landscape management. Shaping the road network, water meliorations, anti-erosion measures, ecological grounds, shaping the agricultural-forest boundary, and landscape management. Decision on the environmental conditions			spatial planning. 10. Measurements of engineering structures with the
role of photogrammetric data in the implementation of the CAPAP project (examples of specifications, contractor reports and control protocols of 3D building models) 12. Products of aerial and Specialization courses Land Consolidation /E (1060-GKKGN-MSP-3000) Leture: Characteristics of the ownership and spatial structure of agricultural farms in Poland. Land consolidation as a method of improvement of rural spatial layout. Detailed rules of development of the concept of a land consolidation project considering the modern requirements of rural development. Soil classification, soil agricultural suitability complexes, factors contributing to the difficulty of soil cultivation and real estate value. Formal-legal procedures in the land consolidation in EU countries based on selected examples with particular consideration of the issues of ecology and landscape management. Shaping the road network, water meliorations, anti-erosion measures, ecological protection of streams, designation of ecological grounds, shaping the agricultural-forest boundary, and landscape management. Decision on the environmental conditions			use of aerial photogrammetry. 11. Discussion of the
Land Consolidation /E (1060-GKKGN-MSP-3000) Land Consolidation /E (1060-GKKGN-MSP-3000) Lecture: Characteristics of the ownership and spatial structure of agricultural farms in Poland. Land consolidation as a method of improvement of rural spatial layout. Detailed rules of development of the concept of a land consolidation project considering the modern requirements of rural development. Soil classification, soil agricultural suitability complexes, factors contributing to the difficulty of soil cultivation and real estate value. Formal-legal procedures in the land consolidation in EU countries based on selected examples with particular consideration of the issues of ecology and landscape management. Shaping the road network, water meliorations, anti-erosins measures, ecological protection of streams, designation of ecological grounds, shaping the mode management. Decision on the environmental conditions			role of photogrammetric data in the implementation
building models) 12. Products of aerial and Specialization courses Land Consolidation /E (1060-GKKGN-MSP-3000) Land consolidation as a method of improvement of rural spatial layout. Detailed rules of development of the concept of a land consolidation project considering the modern requirements of rural development. Soil classification, soil agricultural suitability complexes, factors contributing to the difficulty of soil cultivation and real estate value. Formal-legal procedures in the land consolidation in EU countries based on selected examples with particular consideration of the issues of ecology and landscape management. Shaping the road network, water meliorations, anti-erosion measures, ecological grounds, shaping the agricultural-forest boundary, and landscape management. Decision on the environmental conditions			contractor reports and control protocols of 3D
Specialization courses         Land Consolidation /E (1060-GKKGN-MSP-3000)         Lecture: Characteristics of the ownership and spatial structure of agricultural farms in Poland. Land consolidation as a method of improvement of rural spatial layout. Detailed rules of development of the concept of a land consolidation project considering the modern requirements of rural development. Soil classification, soil agricultural suitability complexes, factors contributing to the difficulty of soil cultivation and real estate value. Formal-legal procedures in the land consolidation in EU countries based on selected examples with particular consideration of the issues of ecology and landscape management. Shaping the medures, water meliorations, shaping the agricultural-forest boundary, and landscape management. Constitution	L		building models) 12. Products of aerial and
Land Consolidation /E (1060-GKKGN-MSP-3000) Lecture: Characteristics of the ownership and spatial structure of agricultural farms in Poland. Land consolidation as a method of improvement of rural spatial layout. Detailed rules of development of the concept of a land consolidation project considering the modern requirements of rural development. Soil classification, soil agricultural suitability complexes, factors contributing to the difficulty of soil cultivation and real estate value. Formal-legal procedures in the land consolidation in EU countries based on selected examples with particular consideration of the issues of ecology and landscape management. Shaping the road network, water meliorations, anti-erosion measures, ecological protection of streams, designation of ecological grounds, shaping the agricultural-forest boundary, and landscape management. Decision on the environmental conditions		Specialization cour	rses
spatial structure of agricultural farms in Poland. Land consolidation as a method of improvement of rural spatial layout. Detailed rules of development of the concept of a land consolidation project considering the modern requirements of rural development. Soil classification, soil agricultural suitability complexes, factors contributing to the difficulty of soil cultivation and real estate value. Formal-legal procedures in the land consolidation process. Effects of consolidation works. Multifunctional rural development - as an element of a rural development project. Land consolidation in EU countries based on selected examples with particular consideration of the issues of ecology and landscape management. Shaping the agricultural-forest boundary, and landscape management. Decision on the environmental conditions		Land Consolidation /E (1060-GKKGN-MSP-3000)	Lecture: Characteristics of the ownership and
rural spatial layout. Detailed rules of development of the concept of a land consolidation project considering the modern requirements of rural development. Soil classification, soil agricultural suitability complexes, factors contributing to the difficulty of soil cultivation and real estate value. Formal-legal procedures in the land consolidation process. Effects of consolidation works. Multifunctional rural development - as an element of a rural development project. Land consolidation in EU countries based on selected examples with particular consideration of the issues of ecology and landscape management. Shaping the road network, water meliorations, anti-erosion measures, ecological protection of streams, designation of ecological grounds, shaping the agricultural-forest boundary, and landscape management. Decision on the environmental conditions			spatial structure of agricultural farms in Poland.
of the concept of a land consolidation project considering the modern requirements of rural development. Soil classification, soil agricultural suitability complexes, factors contributing to the difficulty of soil cultivation and real estate value. Formal-legal procedures in the land consolidation process. Effects of consolidation works. Multifunctional rural development - as an element of a rural development project. Land consolidation in EU countries based on selected examples with particular consideration of the issues of ecology and landscape management. Shaping the road network, water meliorations, anti-erosion measures, ecological protection of streams, designation of ecological grounds, shaping the agricultural-forest boundary, and landscape management. Decision on the environmental conditions			rural spatial layout. Detailed rules of development
considering the modern requirements of rural development. Soil classification, soil agricultural suitability complexes, factors contributing to the difficulty of soil cultivation and real estate value. Formal-legal procedures in the land consolidation process. Effects of consolidation works. Multifunctional rural development - as an element of a rural development project. Land consolidation in EU countries based on selected examples with particular consideration of the issues of ecology and landscape management. Shaping the road network, water meliorations, anti-erosion measures, ecological protection of streams, designation of ecological grounds, shaping the agricultural-forest boundary, and landscape management. Decision on the environmental conditions			of the concept of a land consolidation project
suitability complexes, factors contributing to the difficulty of soil cultivation and real estate value. Formal-legal procedures in the land consolidation process. Effects of consolidation works. Multifunctional rural development - as an element of a rural development project. Land consolidation in EU countries based on selected examples with particular consideration of the issues of ecology and landscape management. Shaping the road network, water meliorations, anti-erosion measures, ecological protection of streams, designation of ecological grounds, shaping the agricultural-forest boundary, and landscape management. Decision on the environmental conditions			considering the modern requirements of rural
difficulty of soil cultivation and real estate value. Formal-legal procedures in the land consolidation process. Effects of consolidation works. Multifunctional rural development - as an element of a rural development project. Land consolidation in EU countries based on selected examples with particular consideration of the issues of ecology and landscape management. Shaping the road network, water meliorations, anti-erosion measures, ecological protection of streams, designation of ecological grounds, shaping the agricultural-forest boundary, and landscape management. Decision on the environmental conditions	1		suitability complexes, factors contributing to the
value. Formal-legal procedures in the land consolidation process. Effects of consolidation works. Multifunctional rural development - as an element of a rural development project. Land consolidation in EU countries based on selected examples with particular consideration of the issues of ecology and landscape management. Shaping the road network, water meliorations, anti-erosion measures, ecological protection of streams, designation of ecological grounds, shaping the agricultural-forest boundary, and landscape management. Decision on the environmental conditions	1		difficulty of soil cultivation and real estate
works. Multifunctional rural development - as an element of a rural development project. Land consolidation in EU countries based on selected examples with particular consideration of the issues of ecology and landscape management. Shaping the road network, water meliorations, anti-erosion measures, ecological protection of streams, designation of ecological grounds, shaping the agricultural-forest boundary, and landscape management. Decision on the environmental conditions			value. Formal-legal procedures in the land
element of a rural development project. Land consolidation in EU countries based on selected examples with particular consideration of the issues of ecology and landscape management. Shaping the road network, water meliorations, anti-erosion measures, ecological protection of streams, designation of ecological grounds, shaping the agricultural-forest boundary, and landscape management. Decision on the environmental conditions			works. Multifunctional rural development - as an
consolidation in EU countries based on selected examples with particular consideration of the issues of ecology and landscape management. Shaping the road network, water meliorations, anti-erosion measures, ecological protection of streams, designation of ecological grounds, shaping the agricultural-forest boundary, and landscape management. Decision on the environmental conditions			element of a rural development project. Land
of ecology and landscape management. Shaping the road network, water meliorations, anti-erosion measures, ecological protection of streams, designation of ecological grounds, shaping the agricultural-forest boundary, and landscape management. Decision on the environmental conditions			consolidation in EU countries based on selected
road network, water meliorations, anti-erosion measures, ecological protection of streams, designation of ecological grounds, shaping the agricultural-forest boundary, and landscape management. Decision on the environmental conditions			of ecology and landscape management. Shaping the
measures, ecological protection of streams, designation of ecological grounds, shaping the agricultural-forest boundary, and landscape management. Decision on the environmental conditions			road network, water meliorations, anti-erosion
agricultural-forest boundary, and landscape management. Decision on the environmental conditions			measures, ecological protection of streams, designation of ecological grounds, shaping the
management. Decision on the environmental conditions	1		agricultural-forest boundary, and landscape
	L		management. Decision on the environmental conditions

		Practical classes: Conducting study analyses for the
		consolidation project for an existing object:
		Research on land use structure and ownership
		of analyses of spatial structures of agricultural
		farms, including analyses of the area structure of
		agricultural farms, land fragmentation, and geometry
		of registered plots; Preparation of individual
		land layout for selected agricultural farms.
		Preparation of project proposals for existing
		objects in the scope of shaping a functional
		agricultural transport road network, division into
		building development and for public purposes.
		Preparation of surveying documentation related to
		the necessity of issuing the decision on the
		consolidation investments; Consideration of design
		concepts regarding design of buffer belts along
		water streams and along melioration ditches, design
		of tree stands and shrubs along rural transportation and technological roads. Implementation in the
Geodesy for Local Devel	opment Plans (1060-GKKGN-	Basic information concerning local spatial
MSP-2008)		management plans. Surveying preparation of a
		Interpretation of decisions on conditions of
		building development and land management. Surveying
		preparation of a development plan for a plot/land -
		designs of buildings, design of linear objects, designs of the infrastructural network- preparation
		of documentation for delineating designs in the
Technical Background of	Real Estate Valuation	Review of technologies in construction, including
(1060-GKKGN-MSP-2009)		among others types of structures in terms of used
		buildings, finish technologies in buildings,
		internal installations in buildings. Investment
		process in construction - participants of the
		stages of the investment process, documentation of
		the investment process (construction design,
		building permit, reporting construction of a
		the completion of construction of a building, change
		in use of a building, demolition of buildings).
		Operation of real estate, including among others
		defects of buildings, technical, functional, and environmental wear and tear of buildings provision
		of technical infrastructure. Basics of cost
		estimation - types of cost estimates, role, tasks
		and functions of cost estimates, regulatory and
		pricing framework (techniques of regulating human
Real Estate Valuation /E (1060-	-GKKGN-MSP-3007)	Lecture: Legal status of the property surveyor,
		professional activity in the scope of real estate
		estimation, granting professional entitlements and
		recognising qualifications obtained outside of the
		of a property surveyor, forms of providing
		professional activity, performing professional
		activities outside the Republic of Poland,
		improvement of professional skills by a property surveyor, professional, civil, and legal liability
		of a property surveyor. Real estate appraisal and
		enterprise appraisal. Appraisal of property rights
		and contractual obligations, covering: appraisal of
		right; appraisal of limited property rights.
		including: use, easement (land, personal,
		transmission), pledge, cooperative member's

Economic effects of passing or amending local plans.
Appraisal of urbanised real estate, including:
single-family housing, land built-up with multi-
family housing and apartments, land built-up with
commercial, service, and industrial objects. Real
estate appraisal for special purposes and appraisal
of special real estate, including: appraisal of real
defined in the accountancy act, appraisal of real
estate for the purposes of securing receivables,
including for the determination of the bank-mortgage
value of the real estate, appraisal of real estate
facilities appraisal of real estate allocated or
seized for public roads, appraisal of real estate
for planning purposes, appraisal of real estate for
the purposes of determination of betterment levy,
appraisal of real estate for the purposes of
determination of the value of real estate for the
purposes of an individual investor, determination of
the value of damage caused by the construction of
underground and on-ground infrastructure,
Appraisal of machinery and equipment permanently
related to the real estate, including: subject of
appraisal - definitions, quantitative and
revision and anticipatory assessment in the
assessment of the process of operation of machinery
and equipment, methods of assessment of the
technical state, ways of determination of technical
wear and tear, concept of the cost approach in the appraisal of machinery and equipment methods of
determination of the initial price, ways of
determination of the liquidation value, procedure of
appraisal by means of the pairwise comparison
method, method of statistical analysis of the market
equipment. Economic model and its elements,
including: selection of the analytical form of the
model, estimation of parameters by means of the
smallest squares method, model verification. Bulk
including: definition of a professional
organisation, legal basis for the operation of
professional organisations, entitlements of
professional organisations. Professional standards
including: definition of professional standards.
determination and arrangement of professional
standards, legal status and structure of national
and international appraisal standards. Modern
British. American, and German school Participants
of the process of real estate appraisal. Studies and
expert opinions not constituting an estimation
report, including: thematic scope and content and
the real estate market, including: area and scope of
activity of a consultant in the real estate market,
Basics of water management, including: waters in the
objective and subjective approach, shoreline,
encumbrances on real estate adjacent to flowing
surface waters, rules of use of waters and water
agricultural land, orchards, and ornamental plant.
plantations, as well as land under waters, covering:
appraisal of agricultural real estate and its parts
constituting arable land under permanent
appraisal of orchards, garden allotments boy
wicker, and Christmas tree plantations; appraisal of
greenhouses and cold frames; appraisal of
agricultural land occupied by residential and
nomestead buildings and other agricultural
production factificies; appraisal of fand under ponds, appraisal of land under ditches fulfilling

	Basics of forestry, covering: basic concepts
	arrangement plan, simplified forest arrangement plan
	and inventory of the state of the forest, spatial
	division of forests, land with tree stands and
	bushes, parks, ornamental and public gardens, basic
	land turnover management of forest real estate
	under management of the State Forests. Appraisal of
	forest real estate and real estate with trees and
	bushes, including: appraisal of forest real estate
	in comparative approach and income approach;
	appraisal of forest real estate in mixed approach,
	covering: determination of the value of forest land,
	determination of the value of trees and tree stands
	forest real estate in cost approach; appraisal of
	real estate with trees and bushes; appraisal of real
	estate with trees, bushes, or forest real estate
	located in the urban investment zone, available to
	the public; appraisal of real estate with trees,
	bushes, or forest real estate fulfilling protection
	available to the public: appraisal of parks
	ornamental and public gardens, and protected forests
	located in the urban investment zone, available to
	the public. Practical classes: Calculation tasks in
	the scope of appraisal of property rights and
	contractual obligations. Calculation task in the
Cadastre /F (1060-GKKGN-MSP-2011)	Lecture: Detailed rules of obtaining data on
	buildings for purposes related to the modernisation
	of the real estate cadastre - case studies,
	legislature, determination of compliance of object
	construction with the land development plan.
	classifying land to particular land uses - case
	legal effects. Rules of calculation of the useful
	floor area of premises for purposes related to
	running a cadastre and for purposes related to real
	estate management. Polish (PN-70/B-02365, PN-ISO
	9836:1997, PN-ISO 9836:2015-12) and foreign industry
	standards (ANSI/BOMA Z65.1-2010, norm GIF, RISC
	standards, norm IPMS - Office Buildings). Rules of
	objects (premises) - detailed analysis Current
	procedures of cadastral information flow in Poland -
	between the cadastre and land and mortgage register
	systems. Integrated System of Information on Real
	Estate (ZSIN) - concept of the system, programme of
	development of ZSIN in Poland. Historical aspect
	related to the development of the Integrated
	implemented Integration Electronic Platform and
	programmes MATRA 1, MATRA 2). Cadastral systems in
	selected EU countries (Holland, Austria, Sweden,
	Germany - selected lands) - organisational and
	technical aspects, connection of the component of
	the physical cadastre with land and mortgage
	Visualisation of cadastral data, including for the
	purposes of modern 3D cadastral systems. Design
	practice: Preparation of documentation of the
	modernisation of the land and building register,
	including establishment of a registry data base in
	programmes Ewmapa and Ewopis, and preparation of
	technical report documents. Technical report
	particularly including the analysis of records of
	technical conditions of an object in terms of their
	compliance with binding legal provisions, reports
	from analysis of land and mortgage registers,
	Calculations of the surface area of registered plots
	and building development surface area, Extract from
	a cauastrai map, Extracts from the land register,
	Exclude from the Duriding register, Extracts from
	the premises register. Obtaining data for the
	the premises register. Obtaining data for the numerical description of registered plots based on
	the premises register. Obtaining data for the numerical description of registered plots based on source documentation (field sketches, sketches of
	the premises register. Obtaining data for the numerical description of registered plots based on source documentation (field sketches, sketches of plot delineation after consolidation, etc.), and
	the premises register. Obtaining data for the numerical description of registered plots based on source documentation (field sketches, sketches of plot delineation after consolidation, etc.), and preparation of documentation in the form of a report
	the premises register. Obtaining data for the numerical description of registered plots based on source documentation (field sketches, sketches of plot delineation after consolidation, etc.), and preparation of documentation in the form of a report from the determination of the course of boundaries
	the premises register. Obtaining data for the numerical description of registered plots based on source documentation (field sketches, sketches of plot delineation after consolidation, etc.), and preparation of documentation in the form of a report from the determination of the course of boundaries of registered plots pursuant to the provisions of
	the premises register. Obtaining data for the numerical description of registered plots based on source documentation (field sketches, sketches of plot delineation after consolidation, etc.), and preparation of documentation in the form of a report from the determination of the course of boundaries of registered plots pursuant to the provisions of the Minister of Regional Development and Construction of 20 Moreh 2001 security the larger
	the premises register. Obtaining data for the numerical description of registered plots based on source documentation (field sketches, sketches of plot delineation after consolidation, etc.), and preparation of documentation in the form of a report from the determination of the course of boundaries of registered plots pursuant to the provisions of the Minister of Regional Development and Construction of 29 March 2001 regarding the land and building register with calculations a sketch for
	the premises register. Obtaining data for the numerical description of registered plots based on source documentation (field sketches, sketches of plot delineation after consolidation, etc.), and preparation of documentation in the form of a report from the determination of the course of boundaries of registered plots pursuant to the provisions of the Minister of Regional Development and Construction of 29 March 2001 regarding the land and building register, with calculations, a sketch for calculations, notifications of parties on the
	the premises register. Obtaining data for the numerical description of registered plots based on source documentation (field sketches, sketches of plot delineation after consolidation, etc.), and preparation of documentation in the form of a report from the determination of the course of boundaries of registered plots pursuant to the provisions of the Minister of Regional Development and Construction of 29 March 2001 regarding the land and building register, with calculations, a sketch for calculations, notifications of parties on the aforementioned activities, and technical report.

Selected Sections of Law in Real Estate Appraisal (1060-GKKGN-MSP-2012)	Concept of property rights, examples of property rights on real estate, property - concept, protection, and joint ownership, perpetual usufruct, limited property rights, with particular consideration of rights on real estate. General rules of acquiring real estate by foreigners. Obligation contracts regarding real estate use (rent, tenancy, leasing, timesharing). Selected issues in the scope of family and inheritance law, including: matrimonial property regimes, management of spouses' joint property; management of a child's property by parents, spouses' liability for debts, premises of real estate inheritance. Housing economy and law on cooperatives, including: management of housing real estate of the State Treasury and territorial government units, management of premises real estate, management of cooperative housing, governmental programmes of housing support and financing. Personal data protection, including: basic concepts related to personal data protection, personal data protection authorities, rules of processing personal data. Public procurement, including: basic terms in the scope of public procurement act, material exemptions and limitations of the application of the public procurement, and procedures of granting public procurements, and procedures of granting public procurements.
Economic Basis of Real Estate Valuation (1060- GKKGN-MSP-2013)	1. Basics of economy: - Introduction to economy Market definition and elements (Demand, Supply, Price, Supply and demand curve, Market equilibrium; Short- and long-term flexibility of supply and demand, State intervention vs. market mechanisms) - Price, value, income, and cost - Decisions of the consumer and producer - Production factors - work, land, and capital 2. Economic basics of the real estate market - Real estate as economic goods (Features and functions of real estate in the market economy, Value vs. price of real estate. Types of value, Factors affecting real estate value) - Real estate market (Definition and classification of the real estate market, Specific features of the real estate market, Functions of the real estate market, Participants of the real estate market, Factors affecting the functioning of the real estate market, Research and analysis of the real estate market, functioning of real estate in Poland and in selected member states of the European Union) 3. Assessment of investment economic efficiency - Definition, classification, and role of investment -
	- Criteria and examples of the assessment of investment economic efficiency 4. Elements of finances and banking - Selected aspects of the financial system (Financial market and its functions, Entities and structure of the financial market, Role and functions of money, Characteristics of basic financial instruments) - Selected aspects of the banking system (Legal basics of the banking system in Poland, purpose and objectives of a bank in the market economy, Bank products, Assessment of creditworthiness of a bank's clients) - Financing investments and real estate (Sources of financing - own and external, Criteria of selection of sources of financing, Organisation of financing of investments and real estate). 5. Basics of financial mathematics - Basics of the time value of money concept - Sources of changes in money value - Future money value (Simple interest, compound interest, Types of interest rates, Calculation examples) - Current money value (Concept of discounting, discount rate, and discount factor, Current value of one-off income, Concept of money flow, Current value of fixed and variable income). 6. Elements of the
Diploma Seminar (1060-GKKGN-MSP-3008)	Issues related to major cadastre and real estate management that were implemented in the course of the 2nd degree programme and are related to the Master's degree diploma examination. Preparation and scope of the Master thesis. Editing of the Master thesis. Presentation of individual solutions of the thesis and discussion of the presented issues.

Diploma Thesis	Methodology of scientific work, guidelines
prbrowd incore	writing scientific texts and thesis. Puttin
	scientific thesis, the ability to verify
	selection of appropriate research methods, met
	of presenting results. Review of literature sour
	selection and analysis of literature related to
	topic of the thesis. General overview of issue
	the field of geodesy and cartography, incl
	related topics with diploma theses undertake
	part of the Cadastre and Land Manaq
	specialization, as well as accompanying issue
	particular in the field of intellectual propert
	converget Propagation and dolivery of propagat