Type of programme: bachelor master 7-semesters with no of hours /week and ECTS

_			Field			Spatia	l Plann				Jrban D	lesign ir		l Plann																
	Course	Plan		Sem	. I			Sem	. II			Sem.	III			Sem.	IV			Sem	. v			Sem.	VI			Sem.	VII	Ξ
	1 - lecture, e - exercices, p - project, E - exam		1	e	p	SILC	1	e	р	STO	1	e	р	SILO	1	e	p	SHO	1	e	р	SILO	1	e	р	SEC	1	e	p	SIL
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1	Facultative class 1 HES	30	1					Ge	anera	aı									2			2			_			_		
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3.	Intellectual Property Law /HES/	15												_	1			1	-	\vdash	-	\vdash			\vdash		-	-+		-
4.	Information Technologies	30										2		2	-			_	\dashv	\vdash		\vdash					=	-		-
5.	Foreign language (selected one) /E (B2) /E (B2)	180	1					4		4		4		4		4		4	\dashv	\vdash	$\overline{}$	†					$\neg \uparrow$	-		1
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8	Mathematics /E	60	2	2		5														П										
	Computer Science	45	1		2	4																								
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	History of Architecture and Urban Planning	30	2			3														$oldsymbol{\sqcup}$	└	ш								
12	Jurisprudence, civil law	30	2			3														ш	<u>—</u> '	ш								ļ
	Ecology and Environmental Protection /E	60	2	2		5													$\overline{}$	$\vdash \sqcup$	<u></u> '	ш								
	Physics /E	105	2	3		6	2			2	_	$\vdash \vdash$		_						\vdash	— [!]	igspace					\rightarrow	\rightarrow		▙
	Spatial Databases	45						2	_	3				_						$\vdash \vdash$	\vdash	ш			\blacksquare		\rightarrow	_		_
16	Statistics /E Economic and Social Geography, Public Statistics and	30 30					1 2	1		2		\vdash		-					-	\vdash		$\vdash \vdash$					\rightarrow	\rightarrow		⊢
1 /	Demography /E	30	1				2			2										, !	, I									
16	Engineering Graphics	30						2		2		\vdash		-					\dashv	\vdash	-	\vdash					\rightarrow	\rightarrow		⊢
10	Economics	30								1-	2			2					\dashv	\vdash		\vdash					-+	-		┢
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20	Introduction to Geology and Physical Geography	60					2	2		4																		$\overline{}$		
21	Land Information Systems	45					1	2		3									-	\vdash		\vdash					\neg	-+		†
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	Fundamentals of Cartography / E	60					2		2										\dashv	\vdash		\vdash					\rightarrow	-		\vdash
24	Introduction to Architecture and Town Planning / E	30					1			1	1			2					\neg	\vdash		М					$\neg \uparrow$	-		T
25	Land Use and Spatial Planning System in Poland	30									2			2					\neg	\Box		\vdash						-		
26	Social and Cultural Aspects of Spatial Economy	30									2			2					\neg	\sqcap	$\overline{}$									
27	Soil Science /E	60									2		2	5					\neg	\Box										
28	Introduction to Urban Planning	45											3	4					\neg	\Box										
29	3D Visualisations	45									1		2	2																
30	Geodetic Fundamentals in Spatial Location of Objects	30									1		1	2																
31	Geodetic Preparation for Investment	15									1			2						لـــــا	<u> </u>									
	Basic Technical Knowledge on Construction 1	15									1			1						لـــــا	<u> </u>									
	Environmental basis for spatial planning and design /E	60													2		2			لــــا	∟_'									
	Economics of cities and regions	30													2			2		لــــا	∟_'									
	Local government	15													1			1		ш	<u>—</u> '	ш								
	Civil, Administration, Business Law	30													2			1		ш	<u>—</u> '	ш								
	Urban inventory	30								-							2	2	لب	$\vdash \sqcup$	<u></u> '	Щ								
	Geographic Information System /E	45	ļ											_					1	ш	2	4			\blacksquare					₩.
39	Land management / E	60							_	-				_		2		4		\vdash		\vdash			\vdash			\rightarrow		-
	Fundamentals of Remote Sensing	45	-						_	1				_	2	2	2	4	-	$\vdash\vdash$		\vdash			\blacksquare		\rightarrow	\rightarrow		₩
41	Revitalization /E	60														1	2	2	1	1	—	3			\vdash		_	-		⊨
	Theory of urban design and spatial planning /E	60 60	1	-	-	-						\vdash		-	1	•		1	_	ائم	3	4					\rightarrow	\rightarrow		\vdash
	Urban project 1 Law Issues in Environmental Protection / E	30										\vdash		-	-			-	2	\vdash		3					\rightarrow	\rightarrow		\vdash
	Conditions of Communes Development Strategy	45												-					1	2		4					\dashv	-+		\vdash
	Rural Areas Development 1	30										\vdash							1	H	1	3					\rightarrow	-+		H
47	Geodetic and Cartographic Resources	15																	1	\vdash		2					\dashv	-+		t
48	Revitalization project	30																	\dashv	\vdash	2	3					\rightarrow	-		t
	Spatial Planning (Planning Project)	45	1																-	\vdash		\vdash			3	4		-t		H
	Planning of technical infrastructure /E	30																	\dashv	\vdash		М	2			3	=	\neg		Г
	Spatial Analyses and Modelling	45																	\dashv	\Box			1		2	4	\Box	\neg		
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52	Basic Technical Knowledge on Construction 2	15																					1			2				
53	Urban design 2	45																							3	5				
	The Latest Realizations of Town Planning Projects /E	30																		لت			2			3				
	Practical Aspects of Spatial Planning	45																		لت			2			5				
56	Diploma seminar	30]	لب	—¹	$oxed{oxed}$		1		2	[1		2
		45																		igspace	└	$oxed{oxed}$					لـــــ		3	
57	Urban Project of a Residential Complex 3				1	l .					1	i l	i 1						ı	, 1	, '	1 1					2	1		3
58	Urban Project of a Residential Complex 3 Social and Cultural Aspects of Spatial Economy 2	30									_	-	_	_					-	بسا		-	_		-	_		-	-	
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58 59	Urban Project of a Residential Complex 3 Social and Cultural Aspects of Spatial Economy 2 Public space design Diploma work	30												_														2		1
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58 59	Urban Project of a Residential Complex 3 Social and Cultural Aspects of Spatial Economy 2 Public space design Diploma work	30				30				30				30				30				30				28		2		5 15 4

	General courses
Intellectual Property Law 1060-GP000-ISP-4005	 The origin and concept of intellectual property, the subject and types of intellectual property plaw, East assumptions and principles intellectual property law. 2. The concept of works. Creator and co-author of the works. The concept and subject of copyright protection. Types of copyright protection and performance. 4. Copyrights - subject, scope, duration and performance. 5. Transfer of the copyright Copyright protection 7. Limitations Copyright Protection 8. Entivative rights - concept, types and protection. 9. Transfer of protection 5. Transfer of protection 7. Limitations
Information Technologies 1060-GP000-ISP-3011	The sim of the course is to gain knowledge of CAD and BIN technologies used in engineering design and the shility to use applications based on these technologies for planning coning purposes. Introduction to Information Technology Advanced CAD Technology Tools 2.1. 2.1 owneries of function keys and common keyboard shortcuts 2.2 Permanent and tempor location modes 2.3 Dimensioning, changing dimensioning style, polyline referencing 2.4 Design parameters 2.5 Frint and publish options (DMF) 2.6 Tables in different forms: 18 Design of BIN technology using Authority Properties of the Computer of the Comp
	Basic courses
Computer Science 1060-GP000-ISP-1003	Frinary Learning Outcome: has elementary knowledge of computer systems and networks architecture and operating systems, necessary to install, operate and maintain IT tools a manage relational databases and spatial information systems. LECTURE: 1. introduction to computer science. 2 Operating systems, installation and maintenance of comput applications. 3. computer systems 4. Technologies used in spatial planning and management 5. Computer security and network operation 6. Computer graphics (rester and vector) Visual programming 8. Introduction to Spatial Information Systems and GIS applications FROUNCE EXEMPLESS: 1. computer graphics - GIMP/Fibtoshop 2. CAB technology - TVIsual programming 9. SIM technology - SIMMyisinologibilit Model Viewer 4. Visual programming - pomos 5. GIS technology - Tably Simologibilit Model Viewer 4. Visual programming - pomos 5. GIS technology - Tably Simologibilit Model Viewer 4. Visual programming - pomos 5. GIS technology - Tably Simologibilit Model Viewer 4. Visual programming - Visual Progra
Technical and Planning Drawing 1060-GP000-ISP-1007	The curriculus program of the exercises corresponds to the contemporary integration of disciplines in the field of town planning, architecture, drawing, and graphics. This goal achieved through a drawing analysis of various forms while developing artistic sensitivity as well as the ability to compose a technical sheat. As part of the course, studies learn the basic concepts related to technical and planning drawings as well as technical standards. Them, students proceed to the practical implementation of technical assumptic and standards in a freshand drawing form. The course is a supplement to other subjects, implemented in the study program, related to drawing, graphics, and computer modeling.
History of Architecture and Urban Planning 1060-GP000-ISP-1002	Lectures on the history of architecture cover the chronological order of architecture common from antiquity to the industrial revolution (second half of the 18th century), we reference to Toliah architecture. It presents a general outline of the development of forms of construction and architecture as veel as selected key principles of shaping them the context of time, place and conditions. The arrangement of the lectures is chronological and presents selected examples. Lecture topics 1. Ancient architectures. Expyp. Green the context of time, place and conditions, the arrangement of the lectures is chronological and presents selected examples. Lecture topics 1. Ancient architectures. Expyp. Green the context of the selecture of the interest of the selecture of the interest of the selecture of the context of time and composition in the context of time and context of the selecture of the cycle covers the period from antiquity to the outbreak of World Mar 1. Selected examples and problems are presented. Lecture topics 1. Nistory of city building introduction. The beginnings of urban civilization. Utban factors of the formation and development of cities. 2. The achievements of ancient urban planning 3. Early medical treaties, reconstruction and founding of cities. Isamocr. Fortreases and castles. The city of the Barque period, residential premises, city gaures; Rome, Paris, Versailla Warraw in the 17th - 18th centuries. 6. Cities in the days of the Enliphement and the Prench Revolution. The development of Repolemic for the industrial revolution. Runopean capitals in the aliententh century and the development of warraw 8. Two mplanning at the turn of the 18th and 20th centuries. The impact of the industrial revolution.
Jurisprudence, civil law 1060-GP000-ISP-1010	1. The concept and systemtics of law. 2. Sources of law, including EU law and legal interpretation. 3. Basic concepts of law - legal norm and its types, provision and norm, les relationship. 4. Law-making, building a normative eart, the law-making process in Foland. 5. Basic information on civil law and subjective law, concepts and division as well principles of civil law. 6. Legal entities - an individual and a legal person, methods of their creation and their legal capacity, representation of legal persons and their type and online determination of persons surhorized to represent legal persons on the basis of the relation and their legal capacity, representation of legal persons and the hasis of the relation of the types of goods, the concept of thing, division of things, components and affiliations of things, the principle of superficies solo cedit, the concept of an enterprise 8. Declaration of will - concept and types, legal active concept and features that distinguish them from property, types and features of description of real estate. Il. Mays of acquiring oversthip features of the ownership transfer contract and its example. 12. Contracts as a source of chigations. The principle of freedom of contract. Modes of concluding a contract. Fulfillment of contractual chigations. Consequences of non-performance or improper performance of the contract. 14. Land and most tages registers and the land and building
Ecology and Environmental Protection 1060-GP000-ISP-1011*	INCTUME: Basic concepts: natural environment, environmental protection, degradation, revitamination, reclamation. Natural environment - its basic elements subsystems: atmosphere, lithosphere, hydrosphere, blurval resources as the basis of management and determinant of spatial solutions. Environmental limitations of soci economic development. Influence of anthropogenic factors on the functioning of geococaystems. Ecological threats or ecological catastrophs. Ecological systems from tentioning of geococaystems. Ecological threats or ecological catastrophs. Ecological systems from tentioning of the structure of the biocenceis. Biogeochemical cycles. Environmental factors limiting the occurrence of organisms. Features and structure of the population. Interactions between the populations. Types of atmospheric air pollutions, and environmental effects. Characteristics of natural and anthropogenic sources of air pollution. Megative phenomena such as; pollutions - the control of the pollution of the spatial physical, biological. Sources of pollution of rainwater, groundwater, surface water, See water pollution. Environmental effects of water pollution. Features and the pollution of soils in the environment. Geococahical soil degradation of the relief. Physical degradation of soils, Biological sidegradation of soils. Strategy for sustainable socio-economic development - genesis and essence of this strategy. Environmental impact assessment as determinant for spatial management. Regional and international cooperation in the field of environment feet pollutions.
Spatial Databases 1060-GP000-ISP-2001	Project: Ebasic functions of the software used to maintain databases of land information systems. Conventional signs, information layers, ways of visualization. Basic operations land information system objects: selection of the presentation area, measurements of geometric quantities, printing of a map fragment. Data analysis in land information system search and selection of data based on geometric and descriptive conditions. Making a fragment of a digital basic map on the basis of field sketches. Creation of DTM for a fragment of certain. Calibration of ratares using various transformation models. Vectorization of a fragment of the base map.
Economic and Social Geography, Public Statistics a Demography 1060-GP000-ISP-2004	The aim of the course is to equip the student of the field of spatial economy studies with basic information on economic and social geography of public statistics and demograph the selection of topics and the content of the education were adepted to the needed of education in the field of spatial Management at a university with a technical profile. The state of the s

Engineering Graphics (AutoCAD) 1060-GP000-ISP-2005	The aim of the course is to acquire knowledge of modern techniques of preparing and reading technical drawings used in spatial management, including: preparation of plannin construction and technical studies and reading technical documentation. The classes are also aimed at acquiring the ability to use AutoCAD for works related to urban design an spatial planning. Students prepare architectural, technical and construction drawings (floor plans, elevations, building cross-sections) and urban drawings (urban inventory, land).
	development plan) using AutoCAD. Students acquire the ability to read symbols and markings used on maps, architectural and construction drawings, create technical drawings and usarchitectural, urban and construction markings. Students learn techniques useful for the preparation of planning and construction studies. Cl. (2 AutoCAD basics - downloading student learn and account of the period and account of the application installation, operation of the application, open and awayer files, import and export files, application settings C2 Creating a new drawing - observations.
	student licenses and application installation, operation of the application, open and save files, import and export files, application settings C2 Creating a new drawing - obser robocry, units, dimension, precision, occordinate system C3 Attaching raster images - calibration, cale, crop, transparency C4 Layer options - creating and editing, lay
	roboczy, units, dimension, precision, coordinate system Cl Attaching raster images - calibration, scale, crop, transparency Cl Layer options - creating and editing, lay properties, transparency, color, type and width of the line, display order Cl, C6 Vector objects - basic objects, characteristic points, simple editing of objects of Teaching and editing of objects and type of the companies of objects and the companies of the
	insett and editing, using the block library CII Create annotations and dimensions - adding dimensions, texts, tables and references, geometric tolerance, calculation of area values. Learnths, analog all library control and adding attribute apparatus attribute CII Create a lamout a model vide and almost wise. Justing insparion and
Economics 1060-GP000-ISP-3015	whites. Learths, soules (12 Arributes - creation and adding Arributes, expection attributes (1 Treats a layout - model wise and layout size. Layout arributes, Insertion and 1. Freliaminary issues 2. Demand, supply and market 3. Demand responses to changes in prices and income 4.7th theory of consumer choice 5.cots and production 6.Perfect competition and oligopoly8. Determinants of the national income 9.0lobal demand, fiscal policy and foreign trade 10.Money and the modern banking syst 11. Central Bank and money systems12. Demaployment and inflation 13.8.Comonal growth and business cycles 14. International trade
	Profile courses
Introduction to Geology and Physical Geography 1060-GP000-ISP-2012	This course introduces the basics of geology and physical geography. Students will learn about the principles and mechanisms of geological processes, landforms and earth surfar processes, climate and weather, soils, vegetation, and ecosystems at global and regional scales. Lectures will also address global environmental problems such as "greenhouse warming and climatic change, the strateopheric cornel payer, the El Niño/La Niña oceani-catmospheric increlation pattern, and other extreme weather events. LECTURE: Indiamentals:
	warning and climatic change, the stratospheric conce layer, the El NinO/La Nina oceanic-atmospheric circulation pattern, and other extreme weather events. LECTURE: Fundamentals; geology mineral, rock and soil; structure of the Earth, plate tectonics, formation and destruction of the lithosphere; basics of tectonics; igneous processes; weathering, erosi and sedimentation; metamorphic processes; basics of the geological structure of Foland; the elements of physical geography; climate, climatic diversity of regions, microclimate
	global warming and extreme weather events; hydrology and hydrogeology; biosphere and soil; potential and actual vegetation; natural landscapes. CLASSES; hypsometric may topographic profile; geological profile; description of selected areas based on the analysis of spatial data from topographic, geological and hydrogeological may be a selected areas to the control of the control
Land Information Systems	Lectures: Characteristics of spatial data. Spatial data models. Spatial data infrastructure (data and services). The service www.geoportal.gov.pl and its role in the infrastructur of spatial information. Technical aspects of NMS/NMTS/NTS network services. Spatial information systems. Division of spatial information systems. A large-scale numerical map as
1060-GP000-ISP-2013	basic element of the land information system. Legal bases to ensure that data in field information systems is up to date. Basic information about rasters: resolution, recording method, compression, scanning, calibration. Organization of spatial data. Bounding rectangles. Spatial indexing. Methods of obtaining data for terrain information systems. Analysis
Cadastre	of spatial data. Mathematical mechanism of data analysis (elements of computational geometry). Theoretical foundations of the digital terrain model (DTM). Sharing data fractional accounts in proceedings of the digital terrain model (DTM). Sharing data fractional personal basics of functioning of the codastre and organisational structures of cadastre functionings. Cadastral division of the country: cadastral unit, surveying district
1060-GP000-ISP-2014	parcel. Basic concepts: real estate, land real estate and registered parcel, building real estate and building, premises real estate and independent residential or other purpor premises, parcel. Collections of information and, buildings, and premises in the cadastra and sources of data, attributes of cadastra objects. Data of entities in the cadastra and sources of entity data in the cadastre. Reports reflecting cadastral data. Connections of the cadastre with other public registers, including; land register, TREATY, REGOU
	PESEL registers, and the fiscal cadastre system. Exchange of information between the registers, and rules of continuous updating of the real estate cadastre. Practical classes Analysis of compliance of the content of the cadastral map of a selected district which requirements of the requisation of the Minister of Development, Work and Technology of
	July 2021 regarding cadastre. Analysis of the validity of a cadastral map in terms of land use, with application of other sources of information (orthophotomap, base map). Fractical use of the existing information systems in which the cadastre is run (EMMARA, EMDRIS and others) - work on sets included in computer data bases, preparation of except
Fundamentals of Cartography	from computer cadastral data bases. Determination of the useful floor area of premises, preparing a documentation file for premises, as well as calculation of the share of the premises year designated in common prompture. Premaration of documentation of files fare huldings. Here of the common prompture. Premaration of documentation of the share of the premises year designation. Cartography, map - as a source of information and as a research tool, the role of cartography in spatial management. Basic features of the major that the premise of the same premises the premises the premises the premises the premises the premises the premise of the same premises the premises the premise of the premises the premises the premise of the premises the premise of the premises the premise of the premises the premises the premises the premise of the premises the premise
1060-GP000-ISP-2007	and altitudes. Database of Topographic Objects. Sources of cartographic data. Geodetic and cartographic documentation centers and Geoportal. National Infrastructure for Spatis
	Information. Cartographic source data used in spatial management. The mathematical canvas of the map: the concept of a reference surface, basic coordinate systems, the concept of projection, grids. The concept of distortions and mapping reductions. The concept of map scale. Coordinate systems and projections used today in Poland. Geographic informatic systems (GIS) - as a cartographer's work tools. Vector and raster data. Data visualization, creating a cartographic presentation, map composition. The content and the scale of the scal
	map, elements of generalization. Cartography as a means of transmitting the information. Graphical language of the map. Map reading process. Graphical means of expressia (graphical variables). The role of color in cartography. Stages of developing a cartographic presentation. Socio-economic manoing - methods of presenting qualitative data
	signature method, range method, chorochromatic method; methods of quantitative data presentation: choropleth map, cartodiagram, isolines, and dot method. Methods of presenting tirelief. Digital terrain model. LBS: Morking with a topographic map: getting to know the map layout, searching for information about topographic objects, reading coordinates altitudes. Locating objects. Working with the map service, searching for an address, parcels, obtaining information. Development of catographic presentation in Arcoffs: 1) for
	topographic data based on BODTIOK data, including elements of generalization; 2) presenting socio-economic issues. Data and spatial reference units selection, proper choice cartographic presentation and cartographic presentation preparation, the adequate composition of the man layout, correct construction of
Land Use and Spatial Planning System in Poland 1060-GP000-ISP-3010	Basic terms connected with planning. History of planning and development of Folish cities divided into historical periods. Spatial planning at the national level - the concept the spatial development of the country, programmes containing overnmental teaks. Spatial planning in a region - a spatial development plan of a province. Spatial planning in the spatial evelopment of the country, programmes containing overnmental teaks. Spatial planning in the spatial evelopment of the country, programmes containing overnmental teaks.
Social and Cultural Aspects of Spatial Economy	commune - a study of the conditions and directions of spatial development in the commune, a local spatial development plan. Administrative decisions and special laws. 1. Initial issues. 2. Entities of creating social space. 3. Tools of social space production. 4. Social functions of architecture. 5. Relations between man and space. 6. Condition
1060-GP000-ISP-3016	1. Initial issues. 2. Entities of creating social space. 3. Tools of social space production. 4. Social functions of architecture. 5. Relations between man and space. 6. Condition for the organization of space. 7. Goals and social needs in spatial management. 8. Polish society in the process of change, part. 1. 9. Polish society in the process of change, part. 1. 9. Polish society in the process of change part. 2. 10. Cultural changes in Poland. The most important trends. 11. Socio-cultural effects of space management in Poland, part. 1. 12. Socio-cultural effects of space management in Poland, part. 1. 13. Directions and prospects for the development of Polish spatial management. in the context of uniting Europe, part 1. 14. Directions and prospect
Soil Science	for the development of Polish spatial management, in the context of uniting Europe, part 2, 15. Test of the acquired knowledge.
1060-GP000-ISP-3004	LECTURES: Soil science as a natural science about soil, branches of soil science, soil definition. Soil functions: natural, economic and social, and the importance of ration spatial planning. Soil-forming factors: lithosphere - rocks, climate, biosphere - living organisms, hydrosphere - water, topography - topography, man and time. Characteristics as distribution of soil parent rocks in the territory of Foland, connection with soil-forming processes and the quality of soil being formed, as well as the fertility and fertility in the soil being formed, as well as the fertility and fertility in the soil being formed, as well as the fertility and fertility in the soil being formed, as well as the fertility and fertility in the soil being formed, as well as the fertility and fertility in the soil being formed, as well as the fertility and fertility in the soil being formed, as well as the fertility in the soil being formed.
	habitats. Soil formation processes occurring in the soils of Poland. The components of the soil - a brief description. Physical, chemical, air and thermal properties of soils Morrhological structure (mentic levels) and properties of the more many processes. Systematics and characteristics of the more more processes. Systematics and characteristics of the more more processes and characteristics of the more more processes.
	important types of soil. Spatial distribution of Polish soils, zoning. Soil index assessment - valuation and agricultural usefulness of soils in relation to their functions nature and national economy. PAO-MRS soil classification in relation to the systematics of Polish soils. Soil goegaphy of Europe. Soil and agricultural, classification at thematic mappe, their content and practical application. EXERCISES: SOIl parent rocks - distribution in selected regions of Poland, detailed description and identification using
	thematic maps, their content and practical application. EXERCISES: Soil parent rocks - distribution in selected regions of Foland, detailed description and identification using specimens from the collection of the Department of Spatial Menagement and Environmental Sciences. Mechanical fractions and groups, determination of machinical groups in accordance with the guidelines of Systematics of Folish Soils (FTG, 1989) and Classification of Soil and Mineral Formation (FTG, 2008). Determination of machinical groups by the field method (organoleptic). Determination of pB by methods: colorimetric and potentiometric determination of content by field and Schebiler methods. Determination
	hydrolytic actidity and sum of basic cations by the Kappen method. Assessment of sorption properties of soils. Theoretical basis of soil description on the example of rendrinar assessment of its quality and agricultural usefulness. Descriptions of selected types of soils in Poland: black earth, chernozem, brown, actidic, fawn, rusty, with the use of
Introduction to Urban Planning	monoliths. Theoretical basis for the development of a classification map and a soil-agricultural map. Determining the soil definition, assessing its quality and agricultural. The aim of the course is to acquire knowledge in various forms of residential and service development, communication and public spaces, such as a park and a square. Student
1060-GP000-ISP-3017	acquire knowledge and skills in determining their dimensions, purpose, social role, technical requirements and urban composition. Classes include design exercises for small urban composition. Service and recreational development with the use of elements of urban composition. Classes include: PI, PZ Multiensnory assessment of the development area of a part of Fragas Pédinoc in Narsaw 97, P4 Public appear development project - city park, including - recreational and sports tierms for different age groups - communication.
	system and forms of landscaping PS, PG, P7, P8 Spatial development project for a single-family housing estate including: - public space (park) - parking space - development rejlets of various types of buildings and technical equipment P9, P10, P11, P12, P13, P14 Spatial development project for a multi-family housing estate including: - public space:
3D Visualisations	the form of a square with services, designing the square floor, greenery and urban details - design of the underground car park with a technical drawing of the plan - designing the Lectures in a remote system: Characteristics of photogrammetric technologies and developed photogrammetric products and examples of their applications in selected branches of the economy. Definition of Digital Terrain Model (DTM), Digital Surface Model (DDM), Demailed Digital Surface Model (DDM), and the principles of generating orthoinages and Tru
1060-GP000-ISP-3018	Orthos. Overview of airborne laser scanning (LiDAR) technology and processing of acquired data. CityOML standards, 3D building modelling. Foland 3D + and CAFAF programs photogrammetric products sources (FOGK). Project in a stationary system: Morking in ArctIS Fro. Downloading data from FOGK. Visualization of the point cloud. Generation of
	slevation models (ISM, DTM). Working with prater data - visualization of a shaded relief in combination with elevation models. Rater layers draping, Modelling LODD building Generation of land cover amp based on BODT. Downloading and displaying LODZ models. The use of sphintal analysis (innoslation analysis, visibility analysis, and visibility range:
Geodetic Fundamentals in Spatial Location of Objects 1060-GP000-ISP-3002	Lecture: Introduction to geodesy - a historical outline. Measure units - elements of quodestic metrology. Coordinate systems used in geodesy global, regional, and loc implementations of coordinate systems. Spatial reference systems used in Poland - 1992, 2000 systems. Basic geodetic calculations on a plane.
1000 01000 101 5001	Methods of determining the position: global and local; satellite positioning technologies (GMSB); Satellite positioning accuracy support systems. Reights in geodesy; Projects: Basic geodetic calculations (angular and line indentations, calculation of areas) Elements of the theory of errors, measurement of elevation differences using the geometric leveling technology, measurements, and development of tachymetric observations, rules of using instruments for determining the position in satellite measurement systems.
	measuring the position of objects using satellite systems (GFS); accuracy of goodetic measurements in terms of technical requirements, time-consuming and costs, and the use of various types of maps for updating; transformation of the results of satellite and terrestrial measurements (electronic total station) to the selected coordinate system
Geodetic Preparation for Investment	projection; LECTURE: Introduction to geodesy - a historical outline. Measure units - elements of geodetic metrology Coordinate systems used in geodesy; global, regional, and local control of the contro
1060-GP000-ISP-3003	implementations of coordinate systems. Spatial reference systems reference systems used in Poland - 1992, 2000 systems. Basic geodetic calculations on a plane. Methods determining the position: global and local; satellite positioning technologies (GMSS) Satellite positioning accuracy support systems. Reights in geodesy; Projects: Basic geodet. calculations (angular and inle indentations, calculation of areas) Elements of the two-yof errors, measurement of elevation differences using the geometric leveling technology
	measurements, and development of tachymetric observations, rules of using instruments for determining the position in satellite measurement systems, measuring the position objects using satellite systems (GES) accuracy of geodetic measurements in terms of technical requirements, time-consuming and costs, and the use of various types of maps for updating; transformation of the results of satellite and terrestrial measurements (electronic total stat) to the selected coordinate system and projection;
Basic Technical Knowledge on Construction 1	The lecture cycle covers the following topics: Introducing students to the principles of architectural design in Foland, Discussion of selected building materials (concret
1060-GP000-ISP-3008	ceramics, wood, steel, etc.), construction systems used depending on the function of the building. Students learn information about foundations, walls, ceilings and roofs or residential buildings. In addition, they gain knowledge about the construction of stairs and cranes.
Environmental basis for spatial planning and design 1060-GP000-ISP-4016	LECTURE: 1. Design in harmony with nature - environmentalism in spatial planning. 2. System approach to the environment in spatial planning. Understanding the structure at functioning of nature. 3. Biological conditions of development; the importance of plant cover in spatial planning biological performance of areas; changes in the natural structure and their consequences. Planning and design instruments and tools aimed at improving the biological performance of the areas. 4. Geomorphological and geological conditions or
	development; geodiversity and geo-heritage in spatial development; geological resources and geodynamic processes in spatial development, building conditions. 5. Hydrologic conditions of development. Usable resources of the hydrosphere; the ecological and economic importance of waters and aquatic ecosystems; hydrological threats in spatial management
	hydrological performance of areas, planning and design instruments and tools simed at improving the hydrological performance of areas, hydrological conditions in planning at spatial development. 6. Climatic conditions of development. Foland's climatic resources; climatic threats, phenomena, processes and climatic functioning of areas; climate of telty and neighborhood; Instruments and tools to improve climatic conditions on a local scale; adaptation to climate change using nature-based solutions. Climatic conditions
	spatial development. 7. Syntheses and valorization of natural environment. Substantive scope and methodology of the preparation of an environmental study. 8. Natural conditions: the spatial planning system - legal basis in Poland. 9. Natural conditions in planning documents - polish case studies. Regional level - green belts; spatial policy of communes
	natural systems and green infrastructure planning, taking into account natural conditions in local spatial development plans. PROJECT: Sources of information about natural conditions of development and their application in spatial planning. Methodology of the environmental study at the level of the local spatial policy (the study of conditions and directions of spatial development). Aim of the project: indication of areas predestined to perform natural functions and recommendations for land development resulting from the
	functions. Study areas - small catchments. The scope of the exercises: a) Analysis of the vertical structure of nature; b) Analysis of anthropopressure. Identification restrictions resulting from legal conditions; o) Analysis of the horizontal structure of nature and he natural (speck)nymanic, climatic, hydrological, biological and speckmentals.
Economics of cities and regions 1060-GP000-ISP-4012	1. Freliminary issues 2. Spatial management as a science 3. City as a system 4. Population as city users 5. Economic units 6. Urban areas 7. City development mechanisms in a mark economy 8. Spatial structure and functioning of the city 9. Development thresholds 10. City size 11. Spatial dimensions of the economy 12. Phenomena and dynamic processes :
Local government	spatial management 13. Review of the main theories of spatial management 14. Sustainable development 15. Checking knowledge 1. Preliminary issues. 2. The concept and essence of local government. 3. The shape and functioning of the Polish local administration in the years 1918-1939. 4. Organization
1060-GF000-ISP-4018 Civil, Administration, Business Law	structure of the commune. 5. The poviat system. City with poviat rights. 6. Organizational structure of the self-government voivodship. 7. Forms of cooperation of local government units. Tasks of the local government. 8. Knowledge test 1. The concept, systematics and sources of law, including EU law. 2. Basic concepts of law - legal norm and its types, legal regulation and legal norm, legal relationship,
1060-GP000-ISP-4014	Principles of civil law. The concept of subjective rights and their types. 4. Representation and statute of limitations. Declaration of intent. Disadvantages of declarations will. 5. Subjects of law and objects of law 6. Rights in rem - division, types and features, 7. Property and other rights in rem 8. Contracts as a source of obligations. The principle of freedom of contract. Ways for contract. Campa contrac
	The courts - their structure and scope of examined cases. Dispute settlement 10. Basic information on administrative law 11. Administrative authorities and their structure
Geographic Information System /E	Government and local government administration and the authorities performing tasks in the field of geodesy and cartography within its. 12. Administrative proceedings. Their types and structure. Delivery in administrative proceedings and instinctive proceedings. Administrative proceedings of the proceedings of the proceedings. Administrative proceedings of the proceedi
1060-GP000-ISP-5013	general principles of GIS and practical experience in its use. Overview of GIS: Definitions, components, applications. GIS Data Models. Data Sources and Data Entry.Implementation Issues and the Future of GIS. Project: the project is intended to provide a deeper understanding of a GIS application through hands-on experience. The project will investigate particular research problem using GIS software from class. You should acquire (and, if necessary, create) the spatial and attribute data required to complete the project. Ti
Real estate management /E	particular research problem using GIS software from class. You should acquire (and, it necessary, create) the spatial and attribute data required to complete the project. To project will involve some type of spatial analysis (compactness ratio, Jaccard index, Hexagonal Grid Analysis). Real estate management - introduction, key definitions, forms and procedures. The review of the sources of information about property covered by real estate management (i.
1060-GP000-ISP-4002	cadaster, land and mortgage registers, master plan, utility infrastructures database, examples of spatial planning and management, orthophotomap). The real estate valuation : Poland - procedures. The property valuation for various purposes of spatial planning - selected case studies
Fundamentals of Remote Sensing 1060-GP000-ISP-4004	*Lecture: Physical basics of remote sensing. Energy relations between Sun - object - sensor. Absorption bands in the electromagnetic spectrum and atmospheric windows used in remose sensing. Spectral characteristics of objects: measurement methods, spectral curves of typical objects and the influence of various factors on their course, the meaning of spectra characteristics knowledge in remote sensing. Aerial images: panchromatic, black-and-white infrared, color, color-infrared and multispectral. Characteristics of images in terms of the contract of the color
	interpretation tasks. Methodology of serial image interpretation, typical relations: object - the look of object in different images. Visual and digital methods of interpretation the logic of image interpretation. Aerial and satellite scanners: methods of imaging using scanners; the essence of digital format, but the logic of image interpretation.
	information on meteorological, optical and radar satellites. Characteristics of selected satellite systems, including Landant, SPOT, Sentimel-2, WorldView, GeoEyw, Plajade Radarsat, TerraSAR-X. General information concerning digital image processing, color composite, image classification, creating a satellite map. Examples of remote sensit techniques usage in various fields of the economy. Remote sensing data as a data source for GTS. Exercises: 1. Identification of topographic objects using green (G) and new
	infrared (NIR) bands of aerial images; 2. Preparation of land use map using color (RGB) and color-infrared (CIR) aerial images; 3. Update of selected elements in the Poll National Database of Tonographic Objects (RDTOM) using open-across remote sensing data; 4. Extraction of landscape units using Sentinel-1 satellite images; 5. Preparation of the Color of the Color of Tonographic Objects (RDTOM) using open-across remote sensing data; 4. Extraction of landscape units using Sentinel-1 satellite images; 5. Preparation of the Color of Tonographic Objects (RDTOM) using open-across remote sensing data; 4. Extraction of landscape units using Sentinel-1 satellite images; 5. Preparation of the Color of Tonographic Objects (RDTOM) using the Color of Tonographic Objects (RDTOM)
Revitalization / E	image interpretation key based on Sentinel-2 satellite images according to Corine Land Cower legend on the 3rd level 6. Identification of places in the city with high heat emission [301] - its functions, the importance of soil science in geodetic works. The components of the soil - a short description. Physical and chemical properties of soils. Factors and the soil of the soi
1060-GP000-ISP-4017	processes shaping soil, its quality and usefulness. Characteristics and distribution of soil parent rocks occurring in the territory of Poland. Soil Dorphology. Characteristics didagnostic levels. Soil formation processes. Systematics and characteristics of the most important types of soil. The geography of Polish soils. Soil index assessment - valuation and agricultural usefulness of soils, valorization of agricultural production space. FRD-MRS soil classification in relation to the systematics of Polish soils. Identification as
Theory of urban design and spatial planning /E	inventory of soil degradation threats. Lectures: Theory and practice of urban design and spatial planning. Analysis of urban development processes. The lectures are devoted to city structure, development rules, soci
1060-GP000-ISP-4019 1060-GP000-ISP-5014	and technical infrastructure, problems of the contemporary city, spatial policy, spatial planning, planning systems, housing, operational urbanism. The analysis of development processes and issues discussed will be presented using examples of selected cities: Krakow, Stockholm, Berlin, London, Vienna, Helsinki, Stuttgart, Copenhagen, Dresden, Brussell Marsaw, Manchauter, Espos and others.
Urban project 1 1060-GP000-ISF-4015	Mains, Manumentum, rapport and University student design works from previous years, determination of pass requirements, characteristics of design topics. Characteristics of single family housing development. The functional program of the housing complex (basic services, playgrounds, leisure and recreation areas, transport and utility facilities). Selected utpain indicators and parameters of the development. Selected repulsations concerning the development of buildings and lan
1060-GP000-ISP-4015 1060-GP000-ISP-5015	areas, transport and utility facilities). Selected urban indicators and parameters of the development. Selected regulations concerning the development of buildings and las development. Flamming, natural and existing development conditions that must be taken into account during creating a design concept. Components of the estate development (residential and service buildings, transport infrastructure and green areas) and the determinants of its situation and technical solution. Frinciples of urban composition, it
	role of urban details in shaping the open spaces of a housing estate and techniques of communicating the design concept. Financial analysis of the profitability of the investment
Law Issues in Environmental Protection 1060-GP000-ISP-5009	The lecture cycle includes: Discussion of the legal status in Poland and the EU in the field of environmental protection acts. Historical approach to Polish environments protection law. Definition and goals of law making. Legislative bodies and their powers. Place of environmental protection law in the legal system. Basic legal provision regulating environmental protection issues. The Code of Administrative Procedure as a normative act regulating the issues of proceedings before administrative bodies. Principles
	issuing permits for the use of the environment. Responsibility for non-complicance with environmental protection regulations (civil, administrative, criminal and employed liability). Environmental aspect in the Folish Constitution. Frinciples of environmental protection law and sustainable development. Public participation in environment
Conditions of Communes Development Strategy	protection. Financial and legal measures of environmental protection. Administrative bodies and environmental protection institutions. Permits to use the environment. Fees as
1060-GP000-ISP-5008	LECTURE: 1. Local development: definition, factors, dimensions, Legal basis of integrated strategy; channing, What is a development strategy? Why do local governments need strategy - system thinking. 2. Project strategy. Strategy - Strategy. Citical aspects of the organization of work on the strategy. The ma methodological approaches to creating a strategy. Diagnosis: definition, types, functions, data sources, research methods. The issues and scope of analyzes in the strategy.
	diagnosis. Frinciples of constructing a strategy. 3. Internal conditions of development. Definition and types of resources. Sustainable development indicators. Local development plans. Ecosystem services. Challenges and problems of housing policy - the role of local government. Clusters, the part of local government. 4. External conditions for development International, community, national, and regional strategic documents; Relationships of strategic and planning documents; Foresight, megatrends and their impact on local problems of the strategic community.
	sewilepsen: 5. The paradigm of sustainable development and its implementation in roland limition is enhanced in the property of the state of implementation of sustainable development. The paradigm of sustainable development and its implementation of instainable development in Poland, Compensoral Poland, Compensoral Compensoral Poland, Compensoral Compe
	Totalid. United Mattons diobat Satisfactor Contemporary of the Development of Development in Totalid. Contemporary
	NR challenges in Poland 6. SMOT analysis, problem tree, system mapping. 7. Competitiveness - instruments and financing of development. Dimensions and factors of the self-government unit competitiveness. Wechanisms and tools for building competitiveness.
	HR challenges in Poland 6. SWOT analysis, problem tree, system mapping. 7. Competitiveness - instruments and financing of development. Dimensions and factors of the self-government

Rural Areas Development 1 1060-GP000-ISP-5004 Geodetic and Cartographic Resources 1060-GP000-ISP-5010	Instrure: Directions of rural development in Foland in the light of sustainable economic development. The concept of sustainable development of rural areas, factors influencing sustainable development of rural areas. The post-war period and the results of the latest statistical research related to Changes in rural areas. Tasks of government and local government administration in shaping and development of rural areas as a consequence of economic and utrial rural appears. Postitive and negative impact functions for rural areas as a consequence of economic and utrial into processes. Positive and negative impact of particular functions on areas. The Idea of Smart Villages. Development of villages and rural areas in EU legislation. Act on shaping the agricultural system. Strategic Plan for the Common Agricultural Policy. The design exercises: Students perform three short design exercises in which they exercises: Students perform three short design exercises in the state of the Macrowichie Volvodeship, which allows students to familiarize themselves with the various needs and problems related to the development of these areas. Students work in project teams of 3-4, gaining the sality to work in a team. The area constant of: A Manylayis of the soil conditions of the selected area from the point of view of particular planning on the hasis of a soil quality map in the scale of is 3000. Sensal provisions of the Surveying and cartographic law. Surveying and cartographic services. Surveying and cartographic services and scipilinary remonsibility. Register of muricialities, streets, and
1060-GP000-1SP-5010	sidersees. Fenal provisions and fines. Fees for surveying and cartographic activities. Technical standards of performing site and height measurements, and processing and reporting results of south measurements to the national surveying and cartographic resources.
Revitalization project 1060-GP000-ISP-5016	Framework program: 1. Selection of a research area - introduction and getting to know the subject. 2. Diagnosis of the research area a. Field research for the identification of residents b. Survey on the needs of residents of International Comments; and the research area: - Inventory of the current state of development; - Analysis of planning documents; - Analysis of related strategic documents; - Analyses of the area's connections including; environment, demographic, functional and spatial analysis, service availability, transport accessibility, analysis of gapstail conflicts, etc. 3. Research of the literature in terms of the identification of revious used in areas of similar specificity - theoretical study. Identification of "good practices" of the most important elements and activities related to the selected type of area to be transformed. 4. Revitalization project. 5. Presentation of solutions. 6. The Oxford debate. The classes have been prepared and will be considered with the use of innovative and creative forms of educations.
Spatial Planning (Planning Project) 1060-GP000-ISP-6020	DESIGN EXERCISES: Preparation of a draft drawing of a local spatial development plan for a selected area of a city or commune, along with the text of detailed arrangements for selected areas, with the use of applicable standards and legal provisions used in spatial planning.
Spatial Analyses and Modelling 1060-GP000-ISP-6001	EXTENSE Spatial analysis and modeling - introduction and seview of basic terms and definitions. The adopted data model (nevertor), and the specificity and scope of analyzes, topological data model. Overview of the basic types of analyzis, capacitions, operators and functions of spatial analyzes in the reaster and vector environment. Multi-criteria snalyzes, definition of the problem and determination of the purpose of the analyzis, definition of decision criteria and selection of the analyzis method, correct identification of the input data, evaluation and normalization of the response (images) to the criteria, veighting, combining the responses to the criteria. Methodology of solving tasks in the field of land suitability analyzes for a specific activity, investment. Comparative analyzes. Development and presentation of analyzis results. Overview of practical applications in the field of land suitability analyzes. Designing optimal connections on the ground surface; cost veight distance, relative and cumulative cost areas. Introduction to analyzes using NMT and NMT data, examples. Introduction to network analyzis, applications, Landscape analyzis, study of changes, methods of analyzis of temporal changes. Development of the concepts: model, modeling, modeling in the GIS environment, modeling entertain of various of selected issues in the field of environmental impact assuments of investments, examples of the use of spatial analyzes. The quality of the input and the accuracy of the senits of spatial analyzes. Fergier. **Section of investments, examples of the use of spatial analyzes in the field of analyzis of the senits of spatial analyzes in the field of analyzis of the senits and the accuracy of the senits of spatial analyzes in the field of province and the senit and the contractive of the senits and the accuracy of the senits of spatial analyzes in the senit of a spatial province of the senits and the senit of a spatial province of the senits of the senit and the senit of the senit and the senit of the se
	Specialization courses
Basic Technical Knowledge on Construction 2	The subject is to deepen the students' knowledge of building and construction. The lectures will discuss service facilities in the field of trade, offices, industry, education, ecological solutions in construction, sustainable development in construction.
Urban design 2	The educational task of the project is a detailed analysis of a city in the scope of its spatial conditions, cultural values, environmental and functional relations, and identify of the city. In the second part, the task is to develop a concept of forecretion of departed urban space" or "urban voids" with consideration of good residential conditions based on the concept of the city of well-being and 15-minute city, and city resistant to climate change. Students present a detailed concept of an area of approximately 5 ha showing types of building development, solutions for details of public spaces, and development of streets of the existing and planned building development based on well selected impiration. The final effect is the preparation of guidelines concerning modernization of the entire area.
The Latest Realizations of Town Planning Projects /E	The lectures present current trends in the design and implementation of larger urban planning systems over the recent decades that are considered best, reflecting the valid rules of implementation and composition. The presented implementations concern activities such as: transformation of spatial structures of cities after natural disasters and resulting from development activities, revitalisation of post-industrial and post-port areas, development of new housing complexes, development of trban sequences in urban agglomerations, changes in management of central service nodes in districts of cities and satellite cities, and others. Urban planning implementations are discussed in a broader context of history, development conditions, and planning activities. Particular emphasis is put on pro-ecolopical proless and those implementing the principles of space saving.
Practical Aspects of Spatial Planning	INSTRUMENT 1. Legal validation of planning documents prepared at the local level. 2. Frocedures for preparing a study of the conditions and directions of spatial development and a local spatial development plan. 3. Urban and Architectural Commission of . Coverage of Marsaw and sub-Marsaw communes with local plans. 5. The degree of detail in planning arrangements reparding, inter alia: the principles of division into building plots; lines, bodywork parameters and indicators, and communication services. 6. Recording of an urban design in the planning convention. EXERCISES 1. Compile part - an except from the Study deading, considering the functional and spatial structure. Part of the study on: functional and spatial structure in the study of the study of functional and spatial structure. Protection of the study on: functional and spatial structure, protection of the study of the
Diploma seminar	As part of the diploma seminar, there is a presentation on the topic, scope and subject of the diploma thesis. During the seminar, students also obtain information about the general principles of the diploma thesis process, the rules of editing and the structure of the study, as well as information about the course of the diploma examination. These classes also allow the graduate to improve the skills of presenting the results of his / her work and suiting them to public discussion.
Social and Cultural Aspects of Spatial Economy 2	Man and space - shaping and using space, conflict resolution. Urban space - selected elements: contemporary trends in the development of urban space, urbanization and its effects. Entities creating social space - human spatial needs, functions of entities (human, social group, society), the role of social capital. Space amanagement, exhibit of space management and use. "Case studies" - City identity, Genius loci - city spirit based on selected cities: 1. Bistory of the city in a nutshell 2. City center - diversity of functions 3. Public space of the city i. Diversity and order of streats - the easence of urbanity of the public as a structure, ethnic st