GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Information technologies, PG_00049155
Field of study	Spatial Development

Date of commencement of studies	October 2024	Academic year of realisation of subject	2024/2025
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	2	ECTS credits	5.0
Learning profile	general academic profile	Assessment form	assessment

Conducting unit	Department of Visual Techniques -> Faculty of Architecture

Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. arch. Małgorzata Rogińska-Niesłuchowska
	Teachers	

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	30.0	0.0	0.0	60
	E-learning hours included: 0.0						

Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
	Number of study hours	60	9.0	56.0	125

Subject objectives	The aim is to build the students' knowledge about the possibilities of using information and communication techniques in spatial planning practice, to develop basic skills in the area of digital visualization of the natural and built environment and in preparing graphic presentations using computer software.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_W03] has elementary knowledge in the field of mathematics and physics relating to issues related to space management, including the basic mathematical methods used in urban design, as well as analytical and design methods using information technology used in planning processes of settlement structures	The student knows the concepts related to the use of digital methods of design, production and management and their integrated systems in processes related to spatial management (CAD, CAM, CIM and BIM). The student has knowledge about the use of information and communication techniques in planning practice. He knows the types of CAD software used in spatial planning and the possibilities of managing information contained in digital drawings.	[SW1] Assessment of factual knowledge
	K6_U02	Students have basic skills in the field of digital visualization of the natural and built environment, and use CAD computer programs for graphical presentations of studies and design solutions related to spatial development.	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject [SU5] Assessment of ability to present the results of task
	K6_U04	The student has the ability to use CAD tools in practice - in spatial analysis and in the design of urban assumptions related to urban space management. Can use information contained in digital files and exchange digital data between applications. Uses the software features necessary for teamwork.	[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools

Subject contents	The use of CAD software in urban design and spatial planning. The types of software used in spatial planning. The possibilities of using the information contained in digital files from the projects documentation. The exchange of digital data, improvement of the workshop and striving to optimize individual and team design methods.
	1. 2D drawing - AutoCAD 2D in spatial planning
	• AutoCAD 2D - user interface and its settings • Toolbars, ribbons • Window for communication with the program • Navigation tools • Rectilinear objects - creation, edition and modification • Curvilinear objects - creation, edition and modifications • Compound objects • Arranging objects on on drawing layers • Layers management in AutoCAD • Drawing description elements • Description styles management • Line style management • Information about objects and their processing • Blocks - creating, editing, exporting, importing • Blocks with attributes • Parametric objects • Paper space, layouts, viewports • Drawing scale in viewports • Annotation styles • Annotation scales management • Layout printing setting • Preparation for printing a presentation of exercises performed during classes
	2. 3D drawing - 3D modeling in AutoCAD
	• 3D-modeling based on a two-dimensional drawing • Layer management by Layer states • 3D workspace - characteristics and methods of navigation • Isometric view • Applying visual styles • Three-dimensional objects - creating and editing • Creating 3D objects from 2D profiles (extrudes) • Defining and saving perspective views • Rendered Images - Scene Settings, Materials and Lighting • Assembly of a multi-view layout
	3. BIM in spatial planning - the possibility of using it in urban presentations

Prerequisites and co-requisites	

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	substantive and graphical correctness of practical exercises	100.0%	50.0%
	substantive and graphical correctness of practical exercises	100.0%	50.0%

Recommended reading	Basic literature	• 1. Course materials on the course websites • 2. User manuals available from the software and / or online from producers
	Supplementary literature	• 1. Andrzej Pikoń , "AutoCAD 2021(2020, 2019) PL. Pierwsze kroki", wyd. Helion • 2. A. Jaskulski, AutoCAD 2020/LT20120 (2013+) Podstawy projektowania parametrycznego i nieparametrycznego. Wersja polska i angielska, PWN 2019 + ćwiczenia https://it.pwn.pl/Artykuly/AutoCAD-2020-LT-2020-2013 • 3. AutoCAD 2021 PL/EN/LT Metodyka efektywnego projektowania parametrycznego i nieparametrycznego 2D i 3D • 4. Zbigniew Krzysiak, "Modelowanie 3D w programie AutoCAD", wyd. Helion • 5. W. Wrotek, CorelDRAW Graphics Suite, Helion • 6. Pottmann H, Asperl A., Hofer M., Kilian A.: Architectural Geometry. Bentley Institute Press
	eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	Exercises: • Development of vector drawings (.dwg) of historical city plans based on raster underlays - using external references (xref) • Creation of blocks - conventions and symbols (2D) used in the master map • Creating blocks with attributes (text information, quantity variable) - e.g. building plans, plot outlines • Creation of simple dynamic blocks of symbols and conventions used in the master map • Tabular summary of data contained in block attributes • 3D models of simple building objects in an urban layout • Defining views in perspective - frontages of street and / or square • Modeling of the terrain surface Laboratory: • Create a drawing template in .dwt format containing a print layout with the following elements: a table as a block with attributes, scaled viewports, print settings to pdf format • Development of a digital version of a fragment of the local spatial development plan • Performing urban space development analyzes. Presentation in the form of 2D and 3D studies (projections, sections, perspective or 3D isometric view)
Work placement	Not applicable