GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

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| Subject name and code | Pre-diploma study project, PG_00067347 | | | | | | |
| Field of study | Architecture | | | | | | |
| Date of commencement of studies | October 2025 | | Academic year of realisation of subject | 2025/2026 | | | |
| Education level | second-cycle studies | | Subject group | Optional subject group<br>Subject group related to scientific research in the field of study | | | |
| Mode of study | Full-time studies | | Mode of delivery | at the university | | | |
| Year of study | 1 | | Language of instruction | English | | | |
| Semester of study | 2 | | ECTS credits | 4.0 | | | |
| Learning profile | general academic profile | | Assessment form | assessment | | | |
| Conducting unit | Department of Urban Architecture and Waterside Spaces -> Faculty of Architecture -> Wydziały Politechniki Gdańskiej | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr inż. arch. Jan Cudzik | | | | | |
| | Teachers | | | | | | |

| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|---|
| | Number of study hours | 0.0 | 0.0 | 0.0 | 60.0 | 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 | 8.0 | 32.0 | 100 |

| Subject objectives | The goal of the project is to develop the students interdisciplinary skills in comprehensively addressing architectural and urban design<br>challenges, integrating theoretical knowledge with practical design capabilities. The assignment aims to:<br>Identify and analyze current environmental, social, and cultural challenges within the context of the designed space.<br>Develop an innovative architectural or urban concept that embraces sustainability, climate adaptation, and heritage conservation.<br>Employ modern design toolsfrom traditional drawings and physical models to digital simulation and environmental analysis methods.<br>Implement effective design strategies optimizing functional, structural, and material aspects of the building or urban layout.<br>Collaborate with the supervisor and stakeholders (residents, local authorities, investors) to incorporate user needs and local conditions. |
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Learning outcomes

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [K7_K03] is ready to take responsibility for humanities, social, cultural, architectural and urban values in environmental protection and cultural heritage | can effectively use imagination, intuition, creative attitude and independent thinking to solve complex design problems; | [SK5] Assessment of ability to solve problems that arise in practice |
| [K7_U05] can organize work taking into account all phases of work on the design concept | is ready to conduct reliable selfassessment, formulate constructive criticism of architectural and urban planning activities, as well as accept criticism of the solutions he/she presents, respond to criticism in a clear and objective manner, also using arguments referring to the available achievements in the scientific discipline, and use criticism creatively and constructively. | [SU3] Assessment of ability to use knowledge gained from the subject |
| [K7_U02] is able to use interdisciplinary knowledge and skills acquired during studies to design a complex architectural object or urban complex that meets the aesthetic and technical requirements, creating and transforming space and giving it new values | is able to integrate advanced knowledge from various areas of science, including history, history of architecture, history of art and protection of cultural assets, and spatial management when solving complex engineering tasks; is able to formulate new ideas and hypotheses, analyze and test novelties related to engineering problems and research problems in the field of architectural and urban design and spatial planning; | [SU1] Assessment of task fulfilment |

Subject contents

**Introduction to Design Challenges**
Discussion of major contemporary challenges in architecture and urbanism: sustainable development, climate adaptation, urban regeneration, heritage protection, and social participation. Analysis of global and local urban trends, including spatial policies and citymanagement models.
**Architectural Design Methodology**
Principles of defining design problems at the building, urban ensemble, and landscape scales. Research techniques: context analysis, functional-spatial studies, comparative case studies. Preparation of functional-program briefs and regulatory requirement summaries.
**Building-Scale Design**
Programmatic and functional concepts, selection of structural and material solutions, form optimization for energy efficiency, user comfort,and accessibility. Integration of digital technologies with traditional modeling methods. Use of visualization tools and environmental analysis (light, acoustics, thermal performance).
**Urban and Landscape Design**
Issues at the street, block, and district scales: public-private interfaces, access to green spaces, mobility and transport, infrastructure networks. Creating public spaces that foster social inclusion. Strategies for regenerating post-industrial and degraded areas.
**Sustainability and Innovation**
Implementation of green architecture principles: passive design, renewable energy systems, water management, low-carbon materials.Emerging construction technologies: prefabrication, modularity, and intelligent building management systems. Challenges of accessibility and universal design.
**Heritage Conservation and Adaptation**
Methods for inventory and documentation of historic buildings, analysis of historical and cultural values. Strategies for preservingauthenticity while adapting structures to new functions. Designing hybrid interventions that merge historic fabric with contemporary additions.
**Community Engagement and Design Process**
Participatory techniques: workshops, VR/AR simulations, digital tools for public consultation. The role of dialogue among designers,
clients, and end users in shaping the final built environment.

<table>
<tr><td>Prerequisites and co-requisites</td><td>Completion of minimum 6 semesters of second-cycle studies in Architecture with passed courses in architectural design and basic knowledge of CAD tools. Knowledge of parametric or algorithmic design fundamentals is welcomed. Student should possess skills in working with graphic and computer programs supporting architectural design. Required completion of at least one design course at master's level and basic knowledge of structural and material issues in architecture. Essential ability for independent organization of design work and capacity for creative thinking in the context of solving complex architectural problems.<br>Additional:<br>Recommended knowledge of parametric design software (e.g., Grasshopper, Dynamo) and basics of visual programming. Preferred competencies in environmental analysis, computer simulations, and architectural project optimization. Additional advantage is English<br>language proficiency enabling use of specialized literature and software in English.</td></tr>
<tr><td>Assessment methods and criteria</td><td><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Critical essay – literature review on a theoretical topic</td><td>50.0%</td><td>40.0%</td></tr>
<tr><td>Presentation of own research or literature review</td><td>40.0%</td><td>40.0%</td></tr>
<tr><td>Case study analysis</td><td>50.0%</td><td>20.0%</td></tr>
</table></td></tr>
<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>Groat L., Wang D.: Architectural Research Methods, Wiley, 2013<br>Ching F. D. K.: Architecture: Form, Space, and Order, Van Nostrand Reinhold, 2014<br>Eastman C., Teicholz P., Sacks R., Liston K.: BIM Handbook, Wiley, 2018</td></tr>
<tr><td>Supplementary literature</td><td>Lawson B.: How Designers Think, Routledge, 2006<br>Neufert E.: Podręcznik projektowania architektoniczno-budowlanego, Arkady, 2019<br>Porter T.: Digital Drawing for Landscape Architecture, Laurence King, 2017</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
</table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>Designing a multifunctional academic building incorporating sustainable development principles<br>Analyzing the relationship between the building and its urban context mapping sight lines and circulation routes<br>Adaptive reuse of a historic building complex for cultural functions while respecting conservation values<br>Developing a study-scale spatial model at 1:200 and evaluating its functional performance</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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