Attachment no. 5 to ZW 8/2020

Attachment no. **1** to studies program

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| **FACULTY OF ARCHITECTURE**  **COURSE SYLLABUS**  Course title in Polish: **Projektowanie architektoniczne - Architektura mieszkaniowa przyjazna środowisku**  Course title in English: **Architecture Design - Environmentally Friendly Dwelling Architecture**  Specialization (if applicable): **Architecture**  Profile (if applicable): **Architecture and Urban Planning**  Level and form of studies: **2nd level, full-time**  Semester: **1**  Course type: **optional**  Course code: **AUA117744P**  Group of courses: **NO** |

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|  | **Lecture** | **Tutorial** | **Laboratory** | **Project** | **Seminar** |
| Number of hours of organized classes in University (ZZU) |  |  |  | **105** |  |
| Number of hours of total student workload (CNPS) |  |  |  | **225** |  |
| Form of crediting |  |  |  | **Crediting with grade\*** |  |
| For group of courses mark (X) final course |  |  |  |  |  |
| Number of ECTS points |  |  |  | **9** |  |
| including number of ECTS points for practical (P) classes |  |  |  | **5** |  |
| including number of ECTS points for direct teacher-student contact classes or other people conducting classes (BU) |  |  |  | **6,75** |  |

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| **PREREQUISITES RELATED TO KNOWLEDGE, COMPETENCES AND SOCIAL SKILLS** |
| **No prerequisites.** |

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| **COURSE OBJECTIVES** |
| **C1** development of creative and workshop skills in the field of designing the architecture of pro-social multifunctional complexes in an urbanized environment.  **C2** getting acquainted with the basic issues of designing the architecture of multifunctional complexes in relation to the existing spatial order and cultural heritage of the place.  **C3** presentation of issues related to pro-social trends (co-living, cooperative) in the process of shaping architectural objects and the universal design trend in relation to multifunctional complexes.  **C4** presentation of the contemporary needs of shaping multifunctional complexes as social and center-forming catalysts.  **C5** showing the integrating role of multifunctional complexes in the functioning of the local community and the functional and spatial structure of the city.  **C6** getting acquainted with the principles of designing and verifying the correctness of functional-spatial and structural-technical solutions for the architecture of multifunctional complexes as well as the issues of energy efficiency and economic efficiency of architectural solutions. |

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| **COURSE LEARNING OUTCOMES** |
| **Relating to knowledge:**  1.1.2) The graduate knows and understands detailed issues in the field of architecture and urban planning related to solving complex design problems.  1.1.6) The graduate knows and understands regulations and procedures that are necessary to implement building projects and integrate buildings with the overall urban planning project.  1.1.7) The graduate knows and understands methods and measures for the implementation of ecologically responsible and sustainable design and the protection and conservation of the surrounding environment.  1.1.10) The graduate knows and understands issues related to architecture and urban planning in the context of the interdisciplinary nature of architectural and urban design as well as the need to cooperate with other specialists.  1.1.12) The graduate knows and understands principles of professional presentation of architectural and urban planning concepts.  1.1.13) The graduate knows and understands the nature of the architectural profession and its role in society.  A.W1. The graduate knows and understands architectural design that varies in the level of complexity, ranging from simple tasks to structures with complex functions in a complex context, in particular simple buildings that satisfy basic needs of users, single-family and multi-family residential buildings, service facilities in residential complexes, public use buildings and complexes of such buildings with a varying scale and level of complexity in an open landscape or in an urban environment.  A.W2. The graduate knows and understands urban design related to completing tasks that vary in scale and level of complexity, in particular building complexes, and local development plans that take local conditions and relations into account.  A.W4. The graduate knows and understands provisions of local land-use plans to the extent that is necessary for architectural design.  A.W5. The graduate knows and understands the principles of universal design, including the concept of designing spaces and buildings accessible to all users, in particular to people with disabilities, in architecture, urban planning and spatial planning, and the principles of ergonomics, including ergonomic parameters necessary to provide full functionality of the space and structures under design to all users, in particular for people with disabilities.  A.W6. The graduate knows and understands advanced methods of analysis, tools, techniques and materials necessary to develop design concepts in an interdisciplinary environment, with particular emphasis on cross-industry collaboration.  A.W8. The graduate knows and understands the interdisciplinary nature of architectural and urban design and the need to integrate knowledge from other disciplines and to apply it in the designing process in cooperation with specialists in these disciplines.  **Relating to competences:**  1.2.2) The graduate is able to use interdisciplinary knowledge and skills acquired during studies to design a sophisticated architectural structure or urban complex that meets the aesthetic and technical requirements, creating and transforming space and giving it new values.  1.2.3) The graduate is able to prepare an advanced graphic, written and oral presentation of his or her original design concepts in the field of architecture and urban planning, using a convention that satisfies the requirements of professional architectural and urban design.  1.2.5) The graduate is able to organize the work including all phases of design concept development.  A.U1. The graduate is able to design a simple and complex architectural structure, creating and transforming space so as to give it new values – in accordance with the assigned or adopted program which takes into account the requirements and needs of all users, the spatial and cultural context, and the technical and non-technical aspects.  A.U2. The graduate is able to design a simple and compound urban complex.  A.U5. The graduate is able to evaluate the usefulness of advanced methods and tools for solving simple and complex engineering tasks that are typical in architecture, urban planning and spatial planning, and choose and apply appropriate methods and tools in designing.  A.U8. The graduate is able to think and act creatively, with an understanding that designing is a complex and multi-faceted endeavor, and express his or her own artistic concepts in architectural and urban design.  A.U9. The graduate is able to integrate information obtained from various sources, interpret and critically analyse it in detail and use it to draw conclusions, as well as formulate and justify opinions and demonstrate their relationship with the designing process on the basis of available scientific achievements in the discipline.  A.U10. The graduate is able to communicate by means of various techniques and tools in a professional and interdisciplinary environment to the extent that is appropriate for architectural and urban design and spatial planning.  A.U11. The graduate is able to work individually and in a team, including collaborating with specialists from other industries, and take on a leadership role in such teams.  A.U12. The graduate is able to estimate the time needed to complete a complex design task.  A.U13. The graduate is able to formulate new ideas and hypotheses, analyse and test novelties related to engineering and research problems in the field of architectural and urban design and spatial planning.  A.U14. The graduate is able to prepare architectural and construction documentation using appropriate scales and in relation to the conceptual architectural design.  A.U15. The graduate is able to implement the principles and guidelines of universal design in architecture, urban planning and spatial planning.  **Relating to social skills:**  1.3.3) The graduate is ready to take responsibility for humanistic, social, cultural, architectural and urban planning values in the protection of the environment and the cultural heritage.  A.S1. The graduate is ready to effectively use imagination, intuition, creative attitude and independent thinking to solve complicated design problems.  A.S2. The graduate is ready to peak and make presentations in public.  A.S3. The graduate is ready to take on the role of coordinator of activities in the design processes, manage team work and use interpersonal skills (conflict resolution, negotiation, task delegation), follow teamwork principles and take responsibility for joint tasks and projects.  A.S4. The graduate is ready to take responsibility for shaping the natural environment and cultural landscape, including preservation of the heritage of the region, the country and Europe. |

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| **PROGRAMME CONTENT** | | |
| **Form of classes - project** | | **Number of hours** |
| Proj 1 | Introduction: defining the topic, purpose and scope of the project and the requirements for completing the course, presenting the research and design method.  **Task 1. -** environmentally friendly architecture in extreme climatic zones.  Knowledge:  Presentation of the main trends in the theme of environmentally friendly architecture, combined with the idea of a productive landscape, within which it is possible to implement the design concept. Presentation of examples of global implementations. Defining and searching for typologies and models: dwelling architecture with a high degree of self-sufficiency - urban farms (housing + plant-based food production - permaculture, hydroponics, horizontal and vertical gardens), dwelling architecture technologically and materially related to the environment, including artificial land topography architecture implemented including plant structures (movable facade structures, biomimetics, bionics, low - tech, high - tech).  Emphasizing ecological problems in the designed dwelling architecture and the unity of functional and spatial, constructional and technological solutions. | 7 |
| Proj 2 | Design task:  Analytical research of the selected design area. Searching for sources of inspiration. The idea of "deep ecology", eco - architecture. Functional and spatial analysis of examples from the literature. Formulating detailed design guidelines: ideological sketches, ideograms, program taking into account the profile and specificity of the housing development.  **Inventive workshops -** work in groups of 2-3 students.  Discussion. | 7 |
| Proj 3 | Design task:  Landscape analyzes and studies, perspective sketches, reductive architectural and urban schemes, variants of the urban composition of an environmentally friendly dwelling architecture. Searching for the right concept that fits into one or several trends, taking into account the environmental and cultural conditions of the place.  Work using manual and computer techniques (using specialized CAD / BIM software).  Work on a mock-up.  Work in thematic groups of 2,3 students. | 7 |
| Proj 4 | Design task:  Social, psychological and sociological research and analyzes of users of environmentally friendly dwelling architecture. Choosing the character of the building complex: open - associative or closed with a varying degree of community and privacy. Analyzes and design studies conducted with the use of ecological aspects of buildings and dwelling architecture.  Work using manual and computer techniques (using specialized CAD / BIM software).  Work on a mock-up.  Work in thematic groups of 2,3 students. | 7 |
| Proj 5 | **Design review no. 1**  Presentation of projects.  Discussion. | 7 |
| Proj 6 | **Task 2** - - greenhouse and wind tower - as passive and productive elements of environmentally friendly dwelling architecture.  Work in groups of 2-3 students. | 7 |
| Proj 7 | Design task:  Creating innovative solutions for communication service of an environmentally friendly dwelling architecture. Shaping the architectural form and spatial-functional systems based on the issues of innovation - new technologies and architectural solutions. Development of variants of housing units (house, flat) - complementary elements of the designed complex, creating a micro housing environment.  Work using manual and computer techniques (using specialized CAD / BIM software).  Work on a mock-up.  **Inventory workshops -** work in groups of 2-3 students.  Discussion. | 7 |
| Proj 8 | Design task:  Introduction of innovative functions extending the scope of shaping environmentally friendly dwelling architecture. Variant development of the functional and spatial program of selected housing units. Plans, sections and elevations of the entire complex with land development (scale 1: 200).  Work using manual and computer techniques (using specialized CAD / BIM software).  Work on a mock-up.  **Inventory workshops -** work in groups of 2-3 students.  Discussion. | 7 |
| Proj 9 | Design task:  Variants of solid, material and technological solutions for the designed complex of environmentally friendly housing. Searching for forms, textures and colors that establish a dialogue with the existing context of the place: cultural patterns and environmental conditions. Ecological, technological and material solutions.  Work using manual and computer techniques (using specialized CAD / BIM software).  Work on a mock-up.  **Inventory workshops -** work in groups of 2-3 students.  Discussion. | 7 |
| Proj 10 | **Design review no. 2**  Presentation of projects.  Discussion. | 7 |
| Proj 11 | Design task:  Detailed design solutions - construction and material.  Preparation of a cross-section of a fragment of a dwelling architecture with elements of a construction design (scale 1: 100).  Work using manual and computer techniques (using specialized CAD / BIM software).  Work on a mock-up.  **Inventory workshops -** work in groups of 2-3 students.  Discussion. | 7 |
| Proj 12 | Design task:  Detailed design solutions - interior arrangement of a house or apartment - a complementary element of the designed ensemble (1:50 scale).  Work using manual and computer techniques (using specialized CAD / BIM software).  Work on a mock-up.  **Inventory workshops -** work in groups of 2-3 students.  Discussion. | 7 |
| Proj 13 | **Design review no. 3**  Presentation of projects.  Discussion. | 7 |
| Proj 14 | Design task:  Graphic proposals for the final project development.  Work in groups of 2.  Development of the project poster.  Consultations.  Work using manual and computer techniques (using specialized CAD / BIM software).  Work on a mock-up.  **Inventory workshops -** work in groups of 2-3 students.  Discussion. |  |
| Proj 15 | **Final design review no. 4**  Final presentation of the project.  Discussion. Pass a subject. | 7 |
|  | **Total hours** | **105** |

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| **TEACHING TOOLS** |
| **N1** - Problem lecture.  **N2** - Multimedia presentations.  **N3** - Literature studies.  **N4** - Conceptual design.  **N5** - Field research.  **N6** - Individual consultations and corrections (including consultations with experts).  **N7** - Problem discussions.  **N8** - Design workshops.  **N9** - Modeling and drawing workshops.  **N10** - Tasks on a given topic.  **N11** - Project presentations.  **N12** - Presentations and group discussions. |

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| **ASSESSMENT OF ACHIEVEMENT OF LEARNING OUTCOMES** | | |
| **Evaluation** (F – forming (during semester), C – concluding (at semester end) | Number of learning outcome | Method of assessing the achievement of learning outcome |
| F1 | 1.1.2)  1.1.6)  1.1.7)  1.1.10)  1.1.12)  1.1.13)  A.W1.  A.W2.  A.W4.  A.W5.  A.W6.  A.W8.  1.2.2)  1.2.3)  1.2.5)  A.U1  A.U2.  A.U5.  A.U8.  A.U9.  A.U10.  A.U11.  A.U12.  A.U13.  A.U14.  A.U15.  1.3.3)  A.S1.  A.S2.  A.S3.  A.S4. | evaluation of the functional and spatial values of the project |
| F2 | evaluation of the structural and technical values of the project |
| F3 | evaluation of the graphic design of the project |
| **P = 60%F1 + 30%F2 + 10%F3** | | |  |

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| **BASIC AND ADDITIONAL LITERATURE** |
| **basic LITERATURE:**   1. *Food and the City, Histories of Culture and Cultivation*, Imbert, D. (red), Cambridge 2015. 2. Waldheim, C., *Notes Toward a History of Agrarian Urbanism*. [in:] White, M., Przybylski, M.(red.), ‘*Bracket 1: On farming’*, New York 2010, p. 18 -24. 3. *CPULs: Continuons Productive Urban Landscapes: Designing Urban Agriculture for Sustainable Cities*, Viljoen, A., Bohnk, (red.), Oxford 2005. 4. Lundholm, J. T., *Green Roofs and Facades: A Habitat Template Approach, ‘*Urban Habitats’, 2006, nr 4, p. 87 -101. 5. Dróżdż - Szczybura, M., *Specyfika światła i oświetlenia w miejskich farmach pionowych ukierunkowanych na produkcję roślinną*, ‘Środowisko mieszkaniowe’, 2017, no. 18, p. 39 -47. 6. Despommier, D., *The Vertical Farm. Feeding the World in the 21 st Century*, New York 2010. 7. Cisek, E., *Norweska architektura i rzeźba wobec natury*, Wroclaw 2017. 8. Sroka, W., *Definicje oraz formy miejskiej agrokultury - przyczynek do dyskusji,* ‘Wieś i rolnictwo’, no. 3, 2014, p. 85 - 103. 9. Idem, R., *Kształtowanie mikrośrodowiska jako miejsca wspólnoty*, Gdansk 2014. 10. Katowicz-Kowalewski, H., *Architektura jako sztuka kształtowania procesów*, Częstochowa 2010. 11. Nachtigal, W., Wisser, A., *Bionics by Examples,* Berlin 2015. 12. Pawlyn, M., *Biomimicry in Architecture*, London 2016. 13. Holmgren, D., *Permaculture: Principles & Pathways Beyond sustainability*, Hepburn, Victoria, 2002.   **additional LITERATURE:**   1. Nordhal, D*., Public Produce. The New Urban Agriculture*, Waszyngton 2009, p. 54 - 55. 2. Dróżdż – Szczybura, M., *The Architectural Expression of Buildings Realising the Idea of Urban Agriculturs,* ‘Czasopismo Techniczne Architektura’, 2015, no. 1, p. 29 - 52. 3. Grochulska - Salak, M., Zielonko - Jung, K., Zinowiec - Cieplik, K., *Kształtowanie zabudowy i systemów zieleni na terenach miejskich*, ‘Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu’, 2018, no. 504, p.54 - 63. 4. Næss, A., *The Shallow and the Deep, Long - Range Ecology Movement. An Introductory Anthology*, Berkeley 1995. 5. Aleksander, Ch. *A pattern language. Towns - Buildings – Construction,* Gdansk 2008. |

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| **COURSE SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)** |
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