

FACULTY OF ARCHITECTURE

COURSE SYLLABUS

Course title in Polish: Modułowa architektura jednorodzinna – studio projektowe

Course title in English: Modular Single Family houses - design studio

Specialization (if applicable): Architektura

Profile (if applicable):

Level and form of studies: 1st level, full-time

Course type: elective

Course code:

Group of courses: NO

	Lecture	Tutorial	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU)				60	
Number of hours of total student workload (CNPS)					
Form of crediting	Examination / Crediting with grade*				
For group of courses mark (X) final course					
Number of ECTS points				6	
including number of ECTS points for practical (P) classes					
including number of ECTS points for direct teacher-student contact classes or other people conducting classes (BU)					

*mark appropriate

PREREQUISITES RELATED TO KNOWLEDGE, COMPETENCES AND SOCIAL SKILLS

No prerequisites

COURSE OBJECTIVES

C1 - development of innovative and workshop skills in the field of designing single-family housing structures: architectural, construction and material solutions, including modular structures.

C2 - presentation of contemporary housing needs and innovative concepts of shaping housing facilities, such as: mobile housing structures, minimization of living space, modular architecture and prefabricated structures, shaping innovative lightweight portable units with the possibility of stationing in urbanized and non-urbanized places.

C3 – shaping awareness in the field of functional and spatial solutions, structural and technical, ecological, energy-saving and economic modular single-family buildings.

C4 – acquiring skills in pro-ecological and energy-saving solutions in the field of modular single-family architecture along with Integrated Energy-Saving Design of Building

C5 – shaping awareness of holistic architecture with particular emphasis on modular single-family architecture.

COURSE LEARNING OUTCOMES

Relating to knowledge:

- 1.1.1) The graduate knows and understands structural, constructional and engineering problems associated with designing buildings.
- 1.1.2) The graduate knows and understands issues in the field of architecture and urban planning related to solving simple design problems.
- 1.1.3) The graduate knows and understands issues related to architecture and urban planning which are useful in designing structures and urban complexes in the context of social, cultural, natural, historical, economic, legal and other non-technical conditions of engineering activities, integrating the knowledge acquired during university studies.
- A.W1. The graduate knows and understands architectural design related to completing simple tasks, in particular simple buildings that satisfy basic needs of users, single-family.
- A.W2. The graduate knows and understands urban design related to completing simple tasks, in particular small building complexes and local land-use plans that take local conditions and relations into account, as well as forecasts related to the transformation processes of the settlement structure of cities and villages.
- A.W4. 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.

Relating to competences:

- 1.2.2) The graduate can design an architectural structure or a simple urban complex that satisfies the aesthetic and technical requirements.
- 1.2.4) The graduate can apply analytical methods in formulating and solving design task.
- A.U1. The graduate can design a simple 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.
- A.U2. The graduate can design a simple urban complex.
- A.U4. The graduate can perform a critical analysis of conditions, including the assessment of the condition of land use and architectural development.
- A.U5. The graduate can think and act in a creative manner, making use of practical skills that are necessary to maintain and broaden the ability to implement artistic concepts in architectural and urban design.
- A.U6. The graduate can integrate information obtained from various sources, interpret it and critically analyze it.
- A.U7. The graduate can communicate by means of various techniques and tools in a professional environment that is appropriate for architectural and urban design.
- A.U8. The graduate can prepare architectural and construction documentation using appropriate scales and in relation to the conceptual architectural design.
- A.U9. The graduate can 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 architectural and urban planning values in the protection of the environment and the cultural heritage.

A.S1. The graduate is ready to thinking independently to solve simple design problems.

A.S2. 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.

PROGRAMME CONTENT		
Form of classes - project	Number of hours	
Proj 1	<p>INTRODUCTION TO THE SUBJECT Introduction to the subject - research and design methodology. Presentation of the main trends of innovative single-family architecture, such as: small housing structures, modular solutions for single-family architecture, portable structures in an urbanized and non-urbanized environment. Introducing the three main design paths for design: 1. Housing estates of mobile single-family houses in the water environment or in hard-to-reach urban spaces; 2. Modular housing estate of single-family houses as a response to social needs; 3. Modular or mobile housing estates as a response to the effects of natural disasters or migration. Emphasizing pro-social and pro-ecological dimensions in the designed single-family structures as well as functional, spatial and structural solutions. Determining the scope of the project being implemented, with particular emphasis on the stages of work, the conditions for passing and the literature on the subject.</p> <p>Publication of topics and selection of the location of the project task (work in thematic groups for 2 people). DESIGN TASK NO. 1 Topic: Housing architecture of hard-to-reach urbanized and non-urbanized spaces</p>	4
Proj 2	<p>Research part: landscape analyzes and studies, perspective sketches, reductive architectural, urban and landscape patterns, sections and land development. Analysis of the possibility of shaping residential architecture as a response to the effects of natural disasters and hard-to-reach urbanized and non-urbanized spaces</p> <p>Design workshops in groups of 2;</p>	4
Proj 3	<p>Research part: models of pro-ecological solutions in the context of a multi-faceted analysis of structural and architectural solutions, putting the designed architectural object in the context (work in design groups, consultations, discussions).</p> <p>Design workshops in groups of 2;</p>	4
Proj 4	<p>Conceptual and design part: variants of the urban composition of the development complex of the housing estate of modular single-family houses (scale 1: 500). Searching for the right concept of a structure that fits into one or more of the subject trends of innovative modular and mobile architecture.</p> <p>Modeling, design workshops in groups of 2;</p>	4

Proj 5	Conceptual and design part: social and psychological-sociological research and analyzes of users of modular single-family houses, taking into account ergonomic solutions (work in project groups, consultations, discussions). Modeling, inventory workshops in groups of 2;	4
Proj 6	Review No. 1 - presentation of design works and discussion	4
Proj 7	Design Task no. 2.	4
Proj 8	The conceptual and design part: the function and form of modular single-family houses in the context of contemporary and innovative architectural, urban and construction and building solutions. Variant selection and detailed ergonomic analysis of design solutions. Modeling, inventory workshops in groups of 2;	4
Proj 9	The conceptual and design part: variants of functional and spatial, solid and material solutions for the designed modular single-family building. Searching for innovative modular solutions for facilities stationed in places affected by natural disasters, armed conflicts and hard-to-reach spaces. Modeling, inventory workshops in groups of 2;	4
Proj 10	Review No. 2 - presentation of design works and discussion.	4
Proj 11	Multi-branch work (universal design): presenting the issue of universal design in the context of modular single-family buildings Modeling, inventory workshops in groups of 2;	4
Proj 12	Multi-discipline work: designing modular single-family houses and mobile architecture based on multi-industry cooperation. Detailed design and arrangement solutions. Modeling, inventory workshops in groups of 2;	4
Proj 13	Review No. 3 - presentation of design works and discussion.	4
Proj 14	Project graphics: graphic proposals for the development of the final project (work in groups of 2, consultations). Project poster, modeling, workshops.	4
Proj 15	Final presentation of the project and discussion. Completion of the project.	4
	Total hours	60

TEACHING TOOLS

N1 - Multimedia presentations.
N2 - Concept work.
N3 - Individual consultations.
N4 - Individual adjustments.
N5 - Design workshops.
N6 - Cloistered tasks
N7 - Modeling and drawing workshops.
N8 - Presentation of works.

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	1.1.1)	assessment of two design tasks
F2	1.1.2) 1.1.3) A.W1. A.W2. A.W4. 1.2.2) 1.2.4) A.U1. A.U2 A.U4. A.U5. A.U6. A.U7. A.U8. A.U9. 1.3.3) A.S1. A.S2.	project evaluation
P = 25% F1 + 75% F2		

BASIC AND ADDITIONAL LITERATURE

BASIC LITERATURE:

- [1] FORSTER, W., *Housing in the 20th and 21st Centuries*, Munchen 2006.
- [2] FRENCH, H., *Key Urban Housing of the Twentieth Century: Plans, Sections and Elevations*, London 2008.
- [3] GREGORY, R., *Key Urban Housing of the Twentieth Century Plans Sections and Elevations*, London 2008.
- [4] PALLASMAA, J., *Oczy skóry. Architektura i zmysły*. Kraków 2012.
- [5] RELPH, E., *Place and Placelessness*, Londyn 1976.
- [6] TUAN YI - FU, *Przestrzeń i miejsce*, Warszawa 1987 (1977).
- [7] SCHITTICH CH., *High-Density Housing: Concepts, Planning, Construction*, Seria *In Detail*, Basel 2008.
- [8] SCHNEIDER, F., *Floor Plan Manual Housing / Grundrißatlas Wohnungsbau*, Basel 1994.
- [9] KRONENBURG, R., *Portable Architecture*, Architectural Press 2000
- [10] SMITH, R., E., *Prefab Architecture: A Guide to Modular Design and Construction*, Wiley 2010

ADDITIONAL LITERATURE:

- [11] *Solar Architecture Strategies, Visions, Concepts*, Seria *In Detail*, Basel, 2007.
- [12] TILL, J., SCHNEIDER, T., *Flexible Housing*, New York 2007.

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