Attachment no. 5 to ZW 16/2020

Attachment no. **3** to studies program

|  |
| --- |
| **FACULTY OF ARCHITECTURE**  **COURSE SYLLABUS**  Course title in Polish: **Projektowanie architektoniczne - budynki użyteczności publicznej**  Course title in English: **Architectural Design - Public Buildings**  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: **AUA117694P**  Group of courses: **NO** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **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** |  |

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

|  |
| --- |
| **COURSE OBJECTIVES** |
| **C1** to broaden the knowledge of the designing theory of public buildings architecture.  **C2** to become familiar with contemporary trends in the design of public buildings, e.g. design by research.  **C3** to acquire skills to creatively design public buildings with complex functions and spatial programmes, in various urban contexts.  **C4** to develop skills to make use of study materials, analysed natural environment important features and legal conditions and to elaborate own studies and analyses, and formulate on their basis a project concept according to given functional programme. |

|  |
| --- |
| **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. |

|  |  |  |
| --- | --- | --- |
| **PROGRAMME CONTENT** | | |
| **Form of classes - project** | | **Number of hours** |
| Proj 1 | Introduction: defining the topic, purpose and scope of the project and explaining the requirements for passing the course. Choice of the design topic:   * hotel and conference centre, * university campus with auditorium and conference zone and student housing, * city hall department with customer service zone and a training centre, * high-rise building with retail centre, condominiums and offices, * conference and performance hall centre (various size and purpose of rooms) with a cultural centre and accommodation centre for actors and musicians, * trade fair centre with an exhibition and conference centre, * museum and exhibition complex with art and craft centre and workshop centre, * sport and recreation centre with retail zone and swimming pool complex (including pools dedicated to competitions at the selected qualification level) * sports centre with multifunctional zones and open-air recreational area (including a sports hall, ice rink, fitness centre), located within the city, * project fulfilling a competition entry (after prior arrangement with the teacher).   Design task:  *Research by design*: urban standards - their status and influence on the creation of large architectural complexes, analyses of the urban, natural and cultural environment. Site survey. Sources and bibliographical analyses, searching for inspiration. Working in project groups. Individual and group consultations with experts on urban conditions and assumptions and project conservation guidelines.  **Urban design workshop:**  Review of sources and literature, studies on the Local Spatial Development Plan (MPZP) and conservation guidelines. Development of an urban concept (scale 1:500), 3d model and urban sections.  Knowledge:  Clarification of terminology for mixed-use public buildings: definition, typology, centre-forming role, purpose, the current level of accessibility, location ways and objectives, universal design principles.  Modern architectural design theories such as research by design or design by research.  Problems related to the location of buildings within urban tissue, the relationship between form and context, land development (car parks, supplies, access roads, greenery), form, technology, functional programme, acoustics, lighting, fire protection, etc. Space hierarchy, entrance area and communication, lighting and ventilation strategies in the case of so-called "deep bays".  Creation of the site plan in relation to the urban context. Issues of integrated design (e.g. multidisciplinary projects) in large scale buildings with complex functions. The role of greenery within buildings. | 7 |
| Proj 2 | Design task:  Determinants of the permissible size and intensity of the building complex, zoning lines and connection to the neighbouring buildings, analyses of access possibilities (car parks and deliveries), access to individual buildings of the complex, location of main entrances.  Determinants of the form of the complex, its size and role in the spatial arrangement in a selected part of the city. Urban balance sheets.  Discussions with the participation of invited experts.  Knowledge:  Explaining the concepts and features of mixed-use cultural and entertainment centres: conference, exhibition, concert and theatre halls. Modern trends and theories in the design of contemporary ensembles with auditoriums (typologies, functional arrangements, hierarchy). Spectacle groups and context - facade solutions. Acoustic systems, sound systems, materials and equipment ensuring correct acoustics, health and safety, fire safety, including product technical sheets. Artificial and natural lighting, while designing conference centres, multifunctional rooms and cinema halls. The aspect of spectacularity. Rules of audience design. Inner and open-air performances. | 7 |
| Proj 3 | **Review no 1.**  Presentation of the urban part of the project.  Discussion.  Division of the topic into individual projects.  Scope of the presentation:  Urban project (1:500 scale) developed for the entire common complex, including:   * site plan * minimum 2 urban sections, * eye-level perspective sketches or visualisations clearly showing the form and character of the complex and its relations within the city, * pictures of the mock-up model. | 7 |
| Proj 4 | Design task:  *Research by design* - a study of the urban and functional conditions of the context in order to formulate the building's programme and select appropriate space parameters. Literature and case studies (inspirations).  **Design workshop:**  Mock-up modelling (1:200 scale).  Knowledge:  Explanation of fire safety solutions for complex functional groups in different human hazard categories (ZLI, II, III, IV and V) and within PM zones, division into fire zones, zone sizes, restrictions, smoke extraction, other fire protection methods. Public and individual transport facilities: railway stations, bus stations, airports, urban water transport, individual vehicle service stations. Mode of transport, traffic flows, workers zones, isolation, protection and monitoring. Risk of crowd formation, crowd psychology - architecture preventing dangerous phenomena.  Design economy. Aspects of temporariness, conversion and re-use possibilities. Modular structures, innovative structural and functional solutions. | 7 |
| Proj 5 | Design task:  Floor plans (1:200 scale), clarification of space design assumptions, vertical and horizontal communication, definition of evacuation scenarios, fire zones, fire protection and safety solutions - in consultation with experts.  Design workshops.  Individual consultations.  Knowledge:  Explanation of terms related to the design of mixed-use service and retail centres, large-area trade (individual and chain stores, shopping arcades, specialist trade), trade fair halls in multifunctional complexes. Methods of shaping the form and facade of modern commercial buildings - architectural design theory. Transformation of unused large-area buildings into other public utility functions - problems of modern city centres. Structures for large scale buildings - systems and materials (with expert participation). | 7 |
| Proj 6 | Design task:  Development of floor plans and section drawings (1:200 scale). Determination of initial construction solutions, selection of construction solutions in terms of energy-usage and minimisation of embedded energy.  Design and mock-up modelling workshops.  Individual consultations.  Knowledge:  Rules of designing exhibition centres: museums (divided into categories), interdisciplinary exhibition-scientific-research zones, galleries (including movement paths), special exhibition complexes (biennials, fairs of art, architecture and knowledge), large-area exhibition-scientific-research centres. Back of the house zones: workshops, collection elaboration rooms, archives, exhibition and collection elaboration technology. | 7 |
| Proj 7 | Design task:  Refining of floor plans, including the roof. Work on the 5th elevation, as a particularly important element in improving the sustainable parameters of the entire development. Research by design - looking for ecological solutions in the field of energy generation, energy management, introduction of solutions related to rainwater recovery, economical management of resources and reduction of the negative impact of the investment on the environment.  Design and mock-up modelling workshops.  Individual consultations.  Knowledge:  Issues concerning gastronomy and social facilities: restaurants, food court zones in mixed-use complexes, fully independent kitchen technology with back facilities. Specialist technologies. Central kitchens - serving catering teams and subsidiaries. Employee facilities in public buildings - epidemiological protection, safety and health at work: changing rooms, washrooms, social rooms. | 7 |
| Proj 8 | **Review no 2.**  Architectural concept (1:200 scale) showing all floor plans and section drawings, mock-up models, sketches, graphic documentation.  Discussion. | 7 |
| Proj 9 | Design task:  Development of architectural concept (1:200 and 1:50 and 1:20 scale); details - cross-sections. Correction and detailing of accepted technical solutions: construction and infrastructure – discussion with the participation of experts.  Design and modelling workshops.  Individual consultations.  Knowledge:  Presentation of issues concerning architectural design of the hotels: social, scientific, economic and practical aspects, conceptual chaos and methods of ordering (categorisation, contemporary typologies). European, American, Asian, African hotels - design of a public building depending on cultural tradition and region, differences in functional-spatial programmes and technologies of the enterprise. Hotel company organisation - the role of the architect. Various functions: casinos, conference and shopping centres, recreational and leisure facilities, catering (types and functions). | 7 |
| Proj 10 | Design task:  Development of architectural concept (1:200 and 1:50 and 1:20 scale); details - elevations. Correction and detailing of accepted technical, material and construction solutions.  Design and modelling workshops.  Individual consultations.  Knowledge:  Scientific and teaching premises of university buildings, including lecture halls, auditoriums and laboratories. Issues of specialist laboratories in the field of engineering, humanities, visual arts, dance, theatre, medical science, information technology, etc. University libraries: specialist, scientific and technical. Large libraries: national, international, technical, digital - architecture of data collection and processing. Social, sociological and psychological issues in architecture. | 7 |
| Proj 11 | Design task:  Detailed work on the structural layout and technical and construction solutions. Discussion of the main building envelope issues and various possibilities of their solution with particular emphasis on energy efficiency, but also safety and health aspects (1:50 and 1:20 scale). Individual and team consultations with experts.  Knowledge:  Presentation of issues related to office design, including complex functional layouts (typology), e.g. corporate offices, co-working offices, open space offices (landscape offices, office like a city), individual offices and mixed offices and stock market buildings. Theoretical and practical issues. Extended fire safety requirements, e.g. solutions in the case of complex geometry buildings (higher, lower parts, etc.). High and high-rise buildings, skyscrapers. Architectural design theory concerning methods and methods of shaping the form of tower buildings. | 7 |
| Proj 12 | Design task:  Refining architectural concept (1:100, 1:50 scale) - details. Visualizations, perspectives and sketches. Coordination of projections with cross-sections, elevations and site plan. Correction and detailing of accepted technical solutions: construction and infrastructure.  Design and modelling workshops.  Individual consultations.  Knowledge:  Types of recreations and sports. Division into corresponding facilities and accompanying land use (professional sport vs. wellness, fitness, SPA). Discussing design issues related to independent and dependent sports and recreation development teams: stadiums, sports halls, jumps, water parks, marinas for boats and canoes, school gyms and swimming pools, city gyms and fitness, SPA and wellness clubs. Evacuation and fire safety in facilities with an audience of over 10,000 spectators. Influence of government programmes (such as „Moje Boisko”, „Orlik 2012”, „Radosna Szkoła”, „Blisko Boisko”, „Biały Orlik”, „Kryte pływalnie - Delfinek”) on the design process, structure and composition of the recreational base. | 7 |
| Proj 13 | **Review no 3.**  Presentation of the architectural concept. Solutions covering all floor plans, including the roof, section and elevation drawings (1:200 scale), details (1:20, 1:25 and 1:50 scale).  Discussion. | 7 |
| Proj 14 | Design task:  Graphic design of the boards. Technical description. Refining and checking of architectural solutions, compatibility of projections with cross-sections, elevations and situation. Finishing work on the model.  Individual consultations.  Knowledge:  Presentation of concepts related to health care buildings: typology and location, technology, sanitary requirements and zone division. Spatial and program issues for selected wards - general scheme of the hospital. Psychology in designing 24-hour buildings. Problems related to sanitary safety and reduction of epidemiological risks (with the participation of an expert). | 7 |
| Proj 15 | **Review no 4. - final review.**  Multimedia presentation of the project.  Scope of the project:   * historical and urban analyses, * photo survey, * site plan, * urban sections and 3d model (1:500 scale), * case studies, * floor plans, * section and elevation drawings (1:200 scale), * details (1:50, 1:25 and 1:20 scale), * 3d architectural model (1:200 scale), * sketches and visualisations, * technical description.   Evaluation and summary - with experts' participation. | 7 |
|  | **Total hours** | **105** |

|  |
| --- |
| **TEACHING TOOLS** |
| **N1** – Multimedia presentation.  **N2** – Project presentation.  **N3** – Individual consultation.  **N4** – Expert consultation.  **N5** – Group consultation.  **N6** – Design workshop.  **N7** – Group presentation and consultation.  **N8** – Role playing.  **N9** – Carousel.  **N10** – Flipped classroom.  **N11** – 3D modeling.  **N12** - On-line Quiz.  **N13** - Mini-test on-line. |

|  |  |  |
| --- | --- | --- |
| **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. | assessment of the content and technical aspects of the project |
| F2 | class participation assessment (min. 50% critiques, credit for all reviews) |
| F3 | assessment of oral presentation, group work and class participation |
| **C = 70%F1 + 15%F2 + 15%F3** | | |

|  |
| --- |
| **BASIC AND ADDITIONAL LITERATURE** |
| **basic LITERATURE:**   1. Błądek, Z., *Nowoczesne hotelarstwo*, Warszawa 2011. 2. Bohdanowicz, J., Wyrzykowski J., *Urządzenia rekreacyjne*, Warszawa 1979. 3. *Community Sport & Recreation Facility Development Guide*, London 2019. 4. *Construction and Design Manual. Museum Buildings*, Hoffmann, H. W., Schittich, CH. (red.), Monachium 2016. 5. Jarosiński, S., *Terenowe urządzenia rekreacyjne dla dzieci*, Warszawa 1986. 6. Judd, R., *Modern Office Standards – Poland*.https://www.cbre.pl/pl-pl/raporty/publikacje/modern-office-standards . 7. Kiełbasiewicz-Drozdowska, I., Siwiński, W., *Teoria i metodyka rekreacji,* Poznań 2001. 8. Koziński, T., *Projektowanie obiektów handlowych*, Warszawa 1980. 9. Kusch, C. F*., Construction and Design Manual. Exhibition Halls*, Monachium 2014. 10. *Leksykon architektury Wrocławia*, Eysymont, R., Ilkosz, J., Tomaszewicz, A., Urbanik, J. (red.), Wrocław 2011. 11. *Wytyczne programowo-funkcjonalne projektowania budynków szkolnych sal sportowych*, Warszawa 1998. 12. Meuser, N., *Construction and Design Manual. Drawing for Architects*, Monachium 2016. 13. Meyerson, J., Ross P., *The 21st Century Office*, London 2005. 14. Mokrzyński, J., *Architektura wolnego czasu*, Warszawa 1980. 15. Neufert, E., *Podręcznik projektowania architektoniczno-budowlanego*, Warszawa 2007. 16. Oswald, A., *Construction and Design Manual. Offices*, Berlin 2014. 17. Pålsson, K., *Construction and Design Manual. Public Spaces and Urbanity. How to Design Humane Cities,* Berlin 2017.   **additional LITERATURE:**   1. Bell, S*., Design for Outdoor Recreation*, London 2007. 2. Berbeka, J., *Ewolucja form i roli obiektów sportowych w turystyce miejskiej*, Kraków 2012. 3. Christopher, A. i in., *A Pattern Language*,Oxford, New York, 1977. 4. *Kształtowanie krajobrazu: idee, strategie, realizacje*, Drapella-Hermansdorfer, A. (red.), cz. 1-3, Wrocław 2005-2007. 5. Fitch, R., Knobel, L., *Retail Design*, New York 1990. 6. Gehl, J., *Życie między budynkami*, Kraków 2009. 7. Moss, M., Tuton, A., *A Legend of Retailing House of Fraser*, London 1989. 8. Jabłońska, J., *Architektura ogólnodostępnych przestrzeni współczesnych hoteli*, Wrocław 2018. 9. Kirschke, P., *Architektura domów handlowych nowej generacji*, „Architectus”, 2001, nr 1-2, s. 125–141. 10. Kliment, A., *Retail and mixed - use facilities*, New Jersey 2004. 11. Moreno, E.M., *Hotels International Design Portfolios*, Gloucester 1998. 12. Pevsner, N., *A History of Building Types*, New York 1976. 13. Romaniszyn, M., Markowski, T., i in. *Analiza funkcjonalno - użytkowa małych przyszkolnych krytych pływalni w ramach programu „Dolnośląski Delfinek”*, Warszawa 2015. 14. *Parks and Recreation Area Design Standards manual*, Stahle, J. (red.), Suhuarita 2005. 15. Ujma-Wąsowicz, K., *Ergonomia w architekturze*, Gliwice 2005. 16. Zeidler, E. H., *Multi-Use Architecture in the Urban Context*, New York 1985. 17. *Theater Buildings*. https://www.e-architect.co.uk/theatre-buildings 18. *Concert Hall Buildings*. www.e-architects.co.uk/concert\_hall\_buildings 19. Architectural magazines, e.g.: „Architektura & Biznes”, „Architektura - Murator”. 20. Web platforms on architecture, e.g.: ArchDaily | Broadcasting Architecture Worldwide, Dezeen | architecture and design magazine, ArchitekturaInfo, Architekci.PL 21. „Architektura i sport” magazyn and website: www.architekturaisport.pl 22. „Sport plus” magazin and website: www.sportplusonline.pl . |

|  |
| --- |
| **COURSE SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)** |
| **prof. dr hab. inż. arch. Elżbieta Trocka-Leszczyńska**  elzbieta.trocka-leszczynska@pwr.edu.pl  **dr hab. inż. arch. Alina Drapella-Hermansdorfer**  alina.drapella-hermansdorfer@pwr.edu.pl  **dr hab. inż. arch. Paweł Kirschke**  pawel.kirschke@pwr.edu.pl  **dr hab. inż. arch. Joanna Jabłońska**  joanna.jablonska@pwr.edu.pl  **dr inż. arch. Maciej Stojak**  maciej.stojak@pwr.edu.pl  **dr hab. inż. arch. Jacek Wiszniowski**  [jacek.wiszniowski@pwr.edu.pl](mailto:jacek.wiszniowski@pwr.edu.pl)  **dr hab. inż. arch. Krzysztof Cebrat**  krzysztof.cebrat@pwr.edu.pl  **dr inż. arch. Elżbieta Komarzyńska-Świeściak**  elzbieta.komarzynska-swiesciak@pwr.edu.pl  **dr inż. arch. Andrzej Sobolewski**  andrzej.sobolewski@pwr.edu.pl  **dr inż. arch. Tomasz Myczkowski**  tomasz.myczkowski@pwr.edu.pl  **dr inż. arch. Roman Rutkowski**  roman.rutkowski@pwr.edu.pl  **dr inż. arch. Paweł Amałowicz**  pawel.amalowicz@pwr.edu.pl  **dr inż. arch. Łukasz Wojciechowski**  lukasz.wojciechowski@pwr.edu.pl  **dr inż. arch. Paweł Buck**  pawel.buck@pwr.edu.pl  **dr inż. arch. Jerzy Gomółka**  jerzy.gomolka@pwr.edu.pl  **dr inż. arch. Zenon Marciniak**  zenon.marciniak@pwr.edu.pl  **dr inż. arch. Paweł Buck**  [pawel.buck@pwr.edu.pl](mailto:pawel.buck@pwr.edu.pl)  **dr inż. arch. Marek Lamber**  marek.lamber@pwr.edu.pl  **dr inż. arch. Oleg Mycak**  oleg.mycak@pwr.edu.pl  **dr inż. arch. Artur Kwaśniewski**  artur.kwasniewski@pwr.edu.pl  **dr hab. inż. Romuald Tarczewski**  romuald.tarczewski@pwr.edu.pl  **dr inż. Michał Pelczarski**  michal.pelczarski@pwr.edu.pl  **dr inż. arch. kraj. Aleksandra Gierko**  aleksandra.gierko@pwr.edu.pl |