

Detailed course description (SUBJECT CARD)

Course title:	MODULE 2: ARCHITECTURAL DESIGN - INDUSTRY
Course code:	RAR-A-SSII-II-M2:AD-I
Classification of a course group:	A.1
Course type:	basic / field-related / general / specialty-related* obligatory / elective*
Field of study:	Architecture
Level of study:	first-cycle / second-cycle*
Profile of study:	general academic / practical*
Mode of study:	full-time programme / part-time programme*
Specialty (specialisation):	--
Year of study:	first
Semester:	2
Teaching modes and teaching hours:	lectures – 15; project – 90 seminar - 5.

Language/s of instruction: English

Number of ECTS credits (according to the study programme): 9

* – leave the appropriate option

1. Course objectives:

Students should become familiar with the principles of urban planning and architectural design in terms of production function objects, science, technological innovation and learn the ability to design large functional-spatial structures.

2. Relation of the field-related learning outcomes to modes of teaching and methods of verification as well as to assessment of student's learning outcomes:

symbol	assumed learning outcomes <i>a student who completed the course:</i>	teaching modes	verification methods and learning outcomes assessment
Knowledge: a student knows and understands			
E2A_Wo1	structural, building-related and engineering problems related to the design of buildings	Project, Lectures	Project grade, exam
E2A_Wo2	the specific issues of architecture and urban planning in solving complex design problems	Project, Lectures	Project grade, exam
E2A_Wo9	the principles, methods, structural solutions and building materials used to perform complex engineering tasks in architectural and urban design	Project	Project grade
E2A_Wo10	the issues related to architecture and urban planning in the context of the multi-sectoral nature of architectural and urban planning design and the need for cooperation with other specialists	Project	Project grade
E2A_A.W1	architectural design of various degrees of complexity, from simple tasks to objects with a complex function in a complex context, in particular: simple objects taking into account the basic needs of users, single and multi-family housing, commercial objects in housing complexes, public buildings and their complexes of various scale and complexity in an open landscape or in an urban environment	Project, Lectures	Project grade, exam
E2A_A.W4	the requirements of local zoning plans to the extent necessary for architectural design	Project	Project grade
Abilities: he/she is competent			
E2A_A.U1	design a simple and complex architectural object, by creating and transforming space in order to give it new values, in accordance with a given or chosen programme, that takes into account the requirements and needs of all users, the	Project	Project grade

	spatial and cultural context, and technical and non-technical aspects		
E2A_A.U2	design a simple and complex urban complex	Project	Project grade
E2A_A.U5	assess the adequacy of advanced methods and tools to solve simple and complex engineering tasks, characteristic to architectural design, urban and spatial planning, and is able to select and apply appropriate methods and tools in design process	Project	Project grade
E2A_A.U8	to think creatively and act while taking into account the complex and multi-faceted conditions of design activity, and to express his/her own artistic concepts in architectural and urban design	Project, Lectures	Project grade, exam
E2A_A.U15	implement the principles and guidelines of universal design in architecture, urban and spatial planning	Project	Project grade
Human competences: he/she is willing to			
E2A_A.S1	to effectively use his imagination, intuition, creative attitude and independent thinking to solve complex design problems	Project, Lectures	Project grade, exam
E2A_A.S2	make public speeches and presentations	Project, Seminar	Seminar

3. The content of study programme ensuring learning outcomes (*according to the study programme*):

To familiarize the student with the principles of urban planning and architectural design of buildings in the field of industrial, scientific, technological innovation as well as to teach the ability to design large functional-spatial structures. To familiarize the student with the theory and principles of architectural design in the field of large scale objects and complex technology.

4. Description of methods of determination of ECTS credits:

Type of activity	Number of hours / ECTS credits
Number of course hours regardless of a teaching mode	110h / 3,6 ECTS
Student's workload - <i>preparation for a course</i>	45h / 1,5 ECTS
Student's workload - <i>preparation for an exam</i>	30h / 1 ECTS
Student's workload - <i>studying sources</i>	10h / 0,4 ECTS
Student's workload - <i>making a project</i>	75h / 2,5 ECTS
The other**	
Total hours:	
Number of ECTS credits allocated to a course	270h / 9 ECTS

Explanation:

* - student's workload - fill in the types of activities, e.g. *preparation for a course, interpretation of results, making a course report, preparation for an exam, studying sources, making a project, presentation and report, doing written assignment, etc.*

** - the other e.g. *extra course hours*

5. Summary indexes:

- number of course hours and ECTS credits at the course with a direct participation of academic teachers or other persons running the course and supervising students: 110h / 3,6 ECTS
- number of course hours and ECTS credits at the course related to the scientific activity conducted at the Silesian University of Technology in a discipline or in disciplines to which a field of study is assigned - in the case of studies with a general academic profile; 110h / 3,6 ECTS
- ~~— number of course hours and ECTS credits at the course developing practical skills in the case of practical studies;~~
- number of course hours conducted by academic teachers employed by the Silesian University of Technology as their primary workplace: 110h / 3,6 ECTS

6. Persons conducting particular modes of courses (name, surname, academic degree or degree in arts, title of professor, business e-mail address):

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Other research and teaching staff: to the extent that this is due to their obligations.

7. Detailed description of teaching modes:

1) lectures:

- detailed programme's content:

History and development of contemporary spatial solutions of industry, outline of trends in the development of spatial systems of industry, relations between urbanization and industrialization, contemporary clusters of production and science, shaping of science and educational buildings, objects of organization and management, university campuses, shaping of industrial object architecture, examples.

- teaching methods, including distance learning:

Remote lectures (ZOOM platform)

- form and criteria for semester completion, including retake tests, as well as conditions for admission to the examination:

A lecture is passed on the basis of a positive mark from the written examination. In order to get the grade from the written exam you have to pass the project. The condition for a positive assessment is to obtain an average of at least 3.0 (on a scale of 2-5) of all examination questions and to give a correct answer to a "key" question. Correction of the examination is possible on the 2nd and 3rd date of the examination and takes place in a written form.

There are 3 examination dates (including 1. in the revision session).

The examination grade (G_{ex}) is determined as follows:

Two minimum conditions must be met to pass:

- the average of the 3 questions is at least 3.0 and
- answer to key question $C > 2,0$.

If the above conditions are met the assessment is calculated from the formula:

$G_{ex} = 0.25A + 0.25B + 0.5C$ and $C \geq 3.0$ (where A, B, C are the grades from the examination questions., C the grade from the key question).

The grade spreads for the above:

- 1) from 3.00 to 3.36 - sufficient (3)
2. above 3,36 to 3,80 - sufficient plus (3,5)
3. above 3,80 to 4,20 - good (4)
4. above 4,20 to 4,60 - good plus (4,5)
5. over 4,60 - very good (5)

- course organisation and rules of participation in the course, with an indication whether a student's attendance is obligatory

Lectures are not mandatory, but recommended. Lectures are held on a weekly basis after 1.5 hours (according to the timetable)

2) description of other teaching modes:

Project:

- detailed programme's content:

classes take place in groups of 12-15 people, students work individually or in 2-person teams (depending on the complexity of the subject - the decision of the subject teacher). The topics concern the conceptual design of architecture, the structural concept, and the urban development project. There are two reviews in the semester, combined with a presentation and public discussion. Classes begin with a clause exercise, the second clause takes place during the review (review no. 2). In justified cases, absence from one review and two classes may be excused. Students have the opportunity to make up for their absences and project arrears during the consultations.

The topics of the projects are different and change every year, often resulting from cooperation with cities of the Upper Silesian Agglomeration or companies. Often such form of cooperation is a form of competitions for students, participation in competitions is not obligatory. The urban locations (layouts) are mostly related to the mentioned cooperation.

The following principle is respected that the size/volume of the designed facilities should be comparable to ca. 6-12 thousand m^2 , so that the scope of the programme includes buildings and spaces with office buildings and large-scale spaces. Following topics are within the scope: production facilities, R&D facilities, laboratories + libraries, science promotion facilities, airports, other topics resulting from arrangements with partners mentioned above.

- teaching methods, including distance learning:

consultations with students in the classroom. Remote consultations (ZOOM platform) are possible - if required due to epidemics.

- form and criteria for semester completion, including retake tests, as well as conditions for admission to the examination:

Students have the opportunity to make up for their absences and arrears on consultations. To pass the project it is necessary to: pass one review, pass the project, maximum 3 absences from classes (to make up for the consultations).

Project submission. The following drawings are required: Land development plan 1:500 / 1:1000. Architectural design: planes of all floors 1: 200, 2 sections 1:200, at least 3 facades 1:200, 3 photorealistic visualizations, working model 1:400 (w. urban context - for review). It is possible to require other drawings and scales - depending on arrangements with external partners.

There are 3 deadlines for the submission of the project (including 1. in the amendment session). In a possible competition, works submitted within the 1st deadline are accepted.

The team evaluation of the project is applied, G_{proj} = arithmetic mean of the teachers' evaluations.

The grade spacing for the above:

- 1) from 3.00 to 3.36 - sufficient (3)
2. above 3,36 to 3,80 - sufficient plus (3,5)
3. above 3,80 to 4,20 - good (4)
4. above 4,20 to 4,60 - good plus (4,5)
5. over 4,60 - very good (5)

- course organisation and rules of participation in the course, with an indication whether a student's attendance is obligatory

The projects are carried out in teams of two people or individually - the decision is made by the teacher. Classes are conducted in the form of consultations with individual teams/students. They take place on a weekly basis (according to the timetable). Attendance at the classes is obligatory. Absences are allowed according to the study regulations.

Seminar:

- detailed programme's content:

The seminar consists of preparing a presentation by the students, presenting it and starting a discussion during classes. The seminar's topics concern the creative aspects of architectural design, especially in the creative use of design limitations. The presentation should be based on the collected examples of interesting contemporary industrial objects together with their discussion. The presentation should also be provided as a PDF file loaded on the Remote Education Platform.

- teaching methods, including distance learning:

Presentation and discussion with students in the classroom. Remote presentation and discussion (ZOOM platform) are possible - if required due to epidemics.

- form and criteria for semester completion, including retake tests, as well as conditions for admission to the examination:

Students have the opportunity to make up for their absence and arrears on consultations. The seminar part is completed after presenting the presentation and loading it on the REP.

- course organisation and rules of participation in the course, with an indication whether a student's attendance is obligatory

The presentations are prepared individually. Classes are conducted in the form of presentations and discussions in a public forum. Classes are held once (according to the schedule). Attendance at the classes is obligatory. Absences are allowed according to the study regulations.

8. Description of the method for determining the final grade (rules and criteria for evaluation, as well as the final grade calculation method in the case of a course comprising more than one teaching mode, taking into account all teaching modes and all exam dates and credit tests including retake exams and tests):

In order to get a positive final grade you have to get positive marks from the project and the exam and a pass from the seminar.

The final grade is calculated from the formula: $G_{\text{final}} = 0.3 G_{\text{ex}} + 0.7 G_{\text{proj}}$

The rating spreads for the above:

- 1) from 3,00 to 3,36 - sufficient (3)
2. above 3,36 to 3,80 - sufficient plus (3,5)
3. above 3,80 to 4,20 - good (4)
4. above 4,20 to 4,60 - good plus (4,5)
5. over 4,60 - very good (5)

9. Method and procedure for making up for

- student's absence from the course,
- differences in study programmes for students changing their field of study, changing university or resuming studies at the Silesian University of Technology,

Depending on the form of missed classes, this shall be determined by the teacher in consultation in accordance with the forms of conducting classes and the credit conditions set out in pt. 7 of this card.

10. Prerequisites and additional requirements, taking into account the course sequence:

Knowledge and ability to use the following Polish legal acts:

- Regulations of the Minister of Infrastructure and Construction on technical conditions to be met by buildings and their location,
- Regulation of the Minister of Transport, Construction and Maritime Economy on the detailed scope and form of the construction project,
- Regulation of the Minister of Interior and Administration on fire water supply and fire roads,
- Ordinance of the Minister of Labour and Social Policy on general regulations of safety and hygiene at work.

11. Recommended sources and teaching aids:

Primary sources:

- Juzwa N., Gil A., Sulimowska A., Witeczek A. Architecture and urban planning for contemporary industry. Gliwice Wydaw. Silesian University of Technology, 2016
- Braun H..Gromling Research and Technology Buildings, 2005, .
- Schittich Ch. Building Skins. 2006 ,

Secondary sources:

- Castells M. End of Millenium. The Information Age .Blackwell 1998,
- Drury J Factories, Planning, Design. Modernisation, Arch Press 1981,
- Jodidio P. Architecture Now, , Taschen 2004 - 2010.
- Szparkowski Z., Architecture of a contemporary factory, 1998 (in polish),
- Niezabitowska E.Architecture and industry. New look. 1997(in polish)
- Professional architectural web services / webpages of architectural firms involved in industrial, laboratory and office design).

12. Description of teachers' competences (e.g. publications, professional experience, certificates, trainings etc. related to the programme contents implemented as a part of the course):

Adam Gil - Author of publications (list of publications available in the "Dorobek" system and ORCID 0000-0003-4148-8682) including publications on Industrial Architecture and City - Industry relations, active designer (since 1996) including industrial and large scale objects (cooperation: arch.K. Zalewski, arch. G. Ziębik and others). He has been teaching (including lectures) on subjects related to industrial architecture since 1997.

Research and teaching staff of the Chair of Theory, Design and History of Architecture. Authors of publications, including those on industrial architecture. They have been teaching (including lectures) on subjects related to industrial architecture since 1980.

13. Other information:

The complexity of the spatial-functional structure of the designed objects and the necessity of taking into account the basics of structural aspects requires a large share of the student's homework.

In the unregulated areas, the provisions of the study regulations apply the Study Regulations.