



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Urban Design with Elements of GIS\_1

### Course

Field of study

ARCHITECTURE

Area of study (specialization)

-

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

II/4

Profile of study

general academic

Course offered in

polish/english

Requirements

compulsory

### Number of hours

Lecture

30

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

45

### Number of credit points

5

### Lecturers

Responsible for the course/lecturer:

Doctor Habilitated of Architectural Engineering

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61-131 Poznań

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Responsible for the course/lecturer:

Doctor of Architectural Engineering Krzysztof

Borowski

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### Prerequisites

- the student has well-ordered general knowledge, with theoretical foundations, of the key concepts from the field of urban and composition and the foundations of urban design;
- the student has basic knowledge about the development trends in urban design;
- the student has the basic knowledge necessary for understanding the social, economic, legal, and non-technical conditions of urban development;
- the student has basic knowledge about the courses of study related to the studied course of study;



- the student knows the basic methods, techniques, tools, and materials used for solving simple tasks in the area of basic urban design;
- the student can obtain information from literature, databases, and properly selected sources, integrate information, interpret it, and draw conclusions, as well as form and justify opinions;
- the student can critically analyze the way in which the current spatial solutions pertaining to the basics of urban design function and to evaluate them;
- the student can design selected elements of simple urban complexes in the form of small local spaces with basic functions;
- the student can critically analyze the functioning of and analyze the existing technical solutions – especially in connection with the studied subject, in particular, the devices, objects, systems, and services;
- the student can identify and formulate the specification of practical tasks in the area of the foundations of urban design;
- the student can design a residential urban complex with residential and service elements;
- the student can cooperate and work in a group, taking various roles in it;
- the student correctly identifies and solves dilemmas concerning various spatial situations in the scale of a small urban complex and in the architectural scale; T1A\_K05
- the student understands the need for lifelong learning, the student can inspire and organize other people's learning process;
- the student is aware of and understands the non-technical aspects and outcomes of engineering activity, including its influence on the natural environment and the associated responsibility for the decisions made.

### Course objective

1. Learning about the genesis and development of the basic elements which crystallize the urban space: a square, a street, an urban quarter, and the basic factors creating a city.
2. Learning about the contemporary issues and elements of the theory of urban design and related to the future visions of the development of urban complexes in various scales.
3. Learning about the formal and legal conditions of urban design in cities and gminas.
4. Learning about the basic instruments and tools of urban design, urban standards and indicators and their role in shaping urban complexes.
5. Learning about the tools and techniques for analyzing urban space – taking inventory of urban space, including the valuation – used in urban design (urban indaganda)



6. Learning about modern methods of urban design in a creative approach to gmina spatial development.
7. Learning about contemporary urban planning doctrines, from the Athens Charter, through the New Athens Charter, to the Charter of the New Urbanism.
8. Learning about the conditions and principles of dimensioning urban space.
9. Learning about the characteristics, variety, and dependencies of functions in a city – living, trade and services, sports and recreation, work, transport.
10. Recognizing the basic elements of the technical infrastructure of a city.
11. Learning about the systems of ecology and communication engineering in a city – a classification of systems.
12. The aim of the creation of a design of a housing development is to learn about the conditions and problems related to urban and planning processes.
13. Within the framework of this subject, students will learn how to use the principles of urban design in regard to the shaping of simple spatial structures – a small residential complex with services.
14. Learning how to make urban analyses for urban complex design, define the program and spatial assumptions, and create an optimal concept of land development, taking into account the principles of urban composition and of the shaping of an optimal city landscape.
15. The design encompasses a descriptive part (a report on the place) and a graphic part: a description of the functions and the development manner of the area with a visualization. There are two phases of the project: the study phase and the conceptual phase with a functional balance of the area surface (percentages). The aim of the classes is to create a conceptual design of the development of a selected area, in the 1:1,000 scale, for a small residential complex with services, public space, green areas, and transportation. The area of the complex is to be about 10 ha, with about 1,000 inhabitants. Various types of single-family development with low density: single-family houses, multi-family houses, semi-detached houses, terraced houses, atrial houses, 'carpet' houses (Polish: zabudowa dywanowa), quarter developments, and various types of basic services: trade, gastronomy, schools, kindergartens, health centers, etc. A detailed concept of the development and arrangement of a selected fragment of public space, for example, a square with the surrounding development is prepared in the 1:200, 1:,250 scale (urban implementation), with a visualization, perspective views, and urban detail.

### Course-related learning outcomes

#### Knowledge

Student knows and understands:

A.W2. urban design in the scope of implementation of simple tasks, in particular: small building complexes, local spatial development plans, taking into account local conditions and connections, as well as forecasting transformation processes in the settlement structure of towns and villages;



A.W3. records of local spatial development plans to the extent necessary for architectural design;

A.W4. principles of universal design, including the idea of designing spaces and buildings accessible to all users, in particular for people with disabilities, in architecture, urban planning and spatial planning, and ergonomic principles, including ergonomic parameters necessary to ensure full functionality of the designed space and facilities for all users, especially for people with disabilities

#### Skills

Student can:

A.U2. design a simple urban complex;

A.U3. prepare planning studies concerning spatial development and interpret them to the extent necessary for designing in an urban and architectural scale;

A.U4. make a critical analysis of the conditions, including the valorization of the land development and building conditions;

A.U5. think and act creatively, using the workshop skills necessary to maintain and expand the ability to implement artistic concepts in architectural and urban design;

A.U6. integrate information obtained from various sources, formulate their interpretation and critical analysis;

A.U7. communicate using various techniques and tools in a professional environment appropriate for architectural and urban design;

A.U9. implement the principles and guidelines of universal design in architecture, urban planning and spatial planning.

#### Social competences

Student is capable of:

A.S1. independent thinking to solve simple design problems;

A.S2. taking responsibility for shaping the natural environment and cultural landscape, including the preservation of the heritage of the region, country and Europe.

#### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lectures:

Summative evaluation (only)

A written form of getting credit for the lecture. A detailed written study (Polish: *elaborat*) about a selected city or housing estate, in the A4 size (figures, notes, bibliography). Obtaining a positive grade for the module depends on the student's achievement of all the education outcomes included in the syllabus.



The grading scale: 2.0; 3.0; 3.5; 4.0; 4.5; 5.0

Project (design work):

Formative evaluation

Formative evaluation Reviews of the works done during the semester presentations in the group, a group discussion. The condition for passing the course is obtaining positive grades for all the reviews. Reviews of the works done during the semester presentations in the group, a group discussion. The condition for passing the course is obtaining positive grades for all the reviews.

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REVIEW NO. 1 Closing the analysis stage. A report about a place, in the form of a booklet, and all analyses in scales appropriate for the subject matter.

REVIEW NO. 2 Closing the stage of summing up the analyses and valorization. A review of the progress of the works and/or defense in groups. The analyses described above which valorize the studied area, presented in the form of drawings and text (description on a board).

REVIEW NO. 3 A review of the progress of the works and/or defense in groups. A design concept of a center in the scale of 1:1,000 or 1:2,000, presented in the form of drawings and text (description on a board).

The grading scale: 2.0; 3.0; 3.5; 4.0; 4.5; 5.0

Summative evaluation:

A final review during the last class – a design exhibition and a presentation of design solutions in the group.

The form of the work to be turned in: boards – A3, A2, and B2, as well as a CD with the design (in the JPG format). In order to receive a positive grade for the subject: – the student must do the design work in accordance with the scope of the study; – the number of absences during the semester cannot exceed 30%; – the student should receive positive grades for all three reviews; – the design work must be presented graphically in a legible, esthetic, and innovative way; – the final grade is the sum of the grades for the reviews, the value of the content, the esthetics of the design, and the student's activity during classes.

The grading scale: 2.0; 3.0; 3.5; 4.0; 4.5; 5.0

Lecture:

Formative assessment:

periodic control of learning progress, active participation in classes



Accepted grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0.

Percentage of grades: 0–50% - 2.0 (insufficient); 50-60% - 3.0 (sufficient); 60-70% - 3.5 (sufficient plus); 70-80% - 4.0 (good); 80-90% - 4.5 (good plus); 90-100% - 5.0 (very good).

Summative assessment:

a final test or (if an exam is included in the curriculum) a written exam

Accepted grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0.

Percentage of grades: 0–50% - 2.0 (insufficient); 50-60% - 3.0 (sufficient); 60-70% - 3.5 (sufficient plus); 70-80% - 4.0 (good); 80-90% - 4.5 (good plus); 90-100% - 5.0 (very good).

Projects :

Formative assessment:

partial reviews, covering individual project tasks, checking the progress of the student's work, presented in the group forum, discussion

Accepted grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0.

Percentage of grades: 0–50% - 2.0 (insufficient); 50-60% - 3.0 (sufficient); 60-70% - 3.5 (sufficient plus); 70-80% - 4.0 (good); 80-90% - 4.5 (good plus); 90-100% - 5.0 (very good).

Summative assessment:

final review, including the last project task, which is a summary of the knowledge and skills acquired during the implementation of previous projects, presentation at the group forum or at a collective review in the presence of other tutors

Accepted grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0.

Percentage of grades: 0–50% - 2.0 (insufficient); 50-60% - 3.0 (sufficient); 60-70% - 3.5 (sufficient plus); 70-80% - 4.0 (good); 80-90% - 4.5 (good plus); 90-100% - 5.0 (very good).

### Programme content

1. The genesis and development of the basic elements which crystallize the urban space: a square, a street, an urban quarter, and the basic factors creating a city.
2. The contemporary issues and elements of the theory of urban design and related to the future visions of the development of urban complexes in various scales.
3. The formal and legal conditions of urban design in cities and gminas.
4. The basic instruments and tools of urban design, urban standards and indicators and their role in shaping urban complexes.



5. The tools and techniques for analyzing urban space – urban indaganda as a method for taking inventory of and valuing urban structures.
6. Modern methods of urban design in a creative approach to urban spatial development.
7. Contemporary urban planning doctrines, from the Athens Charter, through the New Athens Charter, to the Charter of the New Urbanism.
8. The conditions and principles of dimensioning urban space.
9. The characteristics, variety, and dependencies of functions in a city – living, trade and services, sports and recreation, work, transport.
10. The basic elements of the technical infrastructure of a city.
11. Green area systems in a city in the context of ecology.
12. The engineering of urban transportation systems.

### Teaching methods

1. A course lecture with a multimedia presentation.
2. laboratory classes / class method based on using various sources of knowledge (film, photographs, archival materials, source texts, documents, statistical yearbooks, maps, the Internet, etc.) / project method / case study (example study) / classic problem method.
3. e-Learning Moodle (system for supporting the learning process and for distance learning).

### Bibliography

#### Basic

1. Borowski, K.: 2001, Śródmiejskie transurbacje technologiczne, Wydawnictwo Politechniki Poznańskiej, Poznań, p. 144
2. Borowski, K.: 2003, "Urządzenie przestrzeni jako zagadnienie urbanistyczne, inwestycyjne i legislacyjne. Stan prawny na dzień 31 grudnia 2002 r." Politechnika Poznańska, dissertation no. 375, Wydawnictwo Politechniki Poznańskiej, p. 344
3. Borowski K.: Indaganda i wskaźniki urbanistyczne. Z badań nad zbudową w kwartałach miasta Poznania. In: Planowanie przestrzenne miast i regionów, edited by L.Zimowski. Ośrodek Wydawnictw Naukowych PAN, Poznań 1999.
4. Ast R.: Kształtowanie przestrzeni regionów i miast. Wybrane zagadnienia. Wydawnictwo Politechniki Poznańskiej, Poznań 2001.
5. Ast R.: Rozważania dotyczące teorii i fizjonomii układów przestrzennych. Postrzeganie przestrzeni przez architekta. In: Urbanistyczne instrumenty promocji inwestycji. Materiały międzynarodowych



seminariów naukowych we Wrocławiu, Rokosowie, Poznaniu 1993-1995. Studioteka "ZARYSY," Politechnika Poznańska, Poznań 1996.

6. Bańka A.: Psychologiczna struktura projektowa środowiska, PP, Poznań 1985.

7. Chmielewski J.M.: Teoria urbanistyki w projektowaniu i planowaniu miast. Oficyna Wydawnicza Politechniki Warszawskiej, Warsaw 2001.

8. Cichy-Pazder E.: Humanistyczne podstawy kompozycji miast. Wybrane aspekty percepcyjne i behawioralne. Ośrodek Kształcenia Urbanistów, Politechnika Krakowska, Kraków 1998.

9. Czarnecki W.: Planowanie miast i osiedli, volumes 1–6. PWN, Warsaw – Poznań 1964–1970.

10. Fikus M.: Cechy procesu projektowego w działalności twórczej i realizacyjnej. Powiązanie praktyki architektonicznej z teorią i dydaktyką. Rozprawy nr 267, Wydawnictwo Politechniki Poznańskiej, Poznań 1992.

11. Jastrząb T.: Przestrzenie publiczne we współczesnej urbanistyce i architekturze. Wydawnictwo Politechniki Poznańskiej, dissertation no. 381, Poznań 2004.

12. Malisz B.: Zarys teorii kształtowania układów osadniczych. Arkady, Warsaw 1981.

13. Ostrowski W.: Urbanistyka współczesna. Arkady, Warsaw 1975.

14. Tołwiński T.: Urbanistyka, volume 1 ("Budowa miasta w przeszłości"), volume 2 ("Budowa miasta współczesnego"), Wydawnictwo Ministerstwa Odbudowy No. 11, Warsaw 1948.

15. Zimowski L.: Modelowanie w teorii urbanizacji. Wydział Architektury Politechniki Poznańskiej, Poznań 2000.

16. E-scripts for the subject "Theory of urban design and urban planning."

#### Additional

1. Bogdanowski J.: Krajobraz miasta jako problem tożsamości i jakości życia. In: "Człowiek i środowisko," Kraków 1987.

2. Borowski K.: Przemiany urbanistyczne miast i regionów z szczególnym uwzględnieniem czynników prawno-organizacyjnych. In: Zeszyty Naukowe Politechniki Poznańskiej "Architektura i Urbanistyka," No. 3, Wyd. Poznań 2002.

3. Borowski K.: Przedmiejskie transurbacje komunikacyjne. In: The Third Science and Technology Conference of the Association of Polish Urban Communication Mechanical "Problemy komunikacyjne miast w warunkach zatłoczenia motoryzacyjnego" ["Urban communication problems in the conditions of traffic congestion"]. Poznań 2001.





4. Buszkiewicz J.: Nowe tendencje w kształtowaniu przestrzeni miasta. In: Zeszyty Naukowe Politechniki Poznańskiej, Budownictwo Lądowe, No. 33, Prace Instytutu Architektury i Planowania Przestrzennego, Poznań 1990.
5. Domański R.: Miasto innowacyjne. Studia KPZK PAN, Tom CIX, Warsaw 2000.
6. Fikus M.: Przestrzeń w zapisach architekta. Wydział Architektury Politechniki Poznańskiej, Agencja Wydawnicza Zebra, Poznań – Kraków 1999.
7. Jastrząb T.: Place i rynki jako zagadnienie urbanistyczne. Wydawnictwo Politechniki Poznańskiej, Poznań 2002.
8. Ostrowski W.: Wprowadzenie do historii budowy miast. Ludzie i środowisko. Oficyna Wydawnicza Politechniki Warszawskiej, Warsaw 1996 (second edition, 2001).
9. Wallis A.: Miasto i przestrzeń. Warsaw 1977.

#### Breakdown of average student's workload

	Hours	ECTS
Total workload	125	5,0
Classes requiring direct contact with the teacher	75	3,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	50	2,0

<sup>1</sup> delete or add other activities as appropriate