



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Spatial planning with GIS

	Course
Field of study	Year/Semester
Environmental Engineering Extramural First	3/6
Area of study (specialization)	Profile of study
	general academic
Level of study	Course offered in
First-cycle studies	polish
Form of study	Requirements
part-time	compulsory

Number of		
hours		
Lecture	Laboratory classes	Other (e.g. online)
8	8	
Tutorials	Projects/seminars	
8		
Number of credit points		
3		

Lecturers	
Responsible for the course/lecturer: dr inż. Jędrzej Bylka	Responsible for the course/lecturer:
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Prerequisites
1.Knowledge:
Basic knowledge of the design and operation of water, sewage, and remote heating systems.
2.Skills:
Appreciation of external conditions for development and analyses of engineering solutions in their socio-economic, geopolitical and historical contexts.
3.Social competencies:



Awareness of the need for continuous updating and expanding knowledge and skills, including team cooperation

Course objective

Presentation of knowledge in the area of urban and regional planning as a context in performing professional functions in environmental engineering as well as providing basic skills and knowledge required in solving typical problems found in built environment and related to goals formulation and demand forecasting. Familiarization with modern methods of asset management in the context of urban planning. Show the possibilities of using Geographic Information Systems (GIS) to support spatial planning

Course-related learning outcomes

Knowledge

1. Student knows fundamental principles of urban design and town planning as well as used/available means
2. Student knows and understands basic legal framework and most important planning documents
3. Student knows and understands principles of developing urban technical infrastructure in a context of organisational, technical and economic limitations
4. Student has basic knowledge about GIS and knows how to use spatial analysis to support urban planning and infrastructural asset management limitations

Skills

1. Student can describe aims and goals of town planning in regard to a given type of infrastructure
2. Student can identify conditions, barriers and limitations and forecast development trends for a given type of infrastructure
3. Student can analyse planning documentation as an expression of inter alia investor needs and abilities
4. Student can collect and interpret urban planning analysis as a tool for infrastructure asset management

Social competences

1. Student appreciates necessity of continuous updating and expanding his / her professional competencies according to the changing tools and rules for infrastructure planning
2. Student understands the need for utilization of teamwork in solving engineering problems both theoretical and practical



Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lectures: Final test during the last class. The test consists of closed and open-ended questions with various points. Threshold 50%. Issues and results available via the Moodle platform

Exercises: The final grade consist of: the results of test (50%) and the grade from the presentation, which students prepare individually or in groups (50% of the grade). The test consists of closed and open-ended questions. Issues and results available via the Moodle platform

Labolatory/Classes: Final test (task to be carried out using a computer) during the last class. Threshold 50%. The tasks will be checked during classes or after sending the results electronically to the teacher. Issues and results available via the Moodle platform

Programme content

1. Basic definitions (urban design, town-planning, land development, technical infrastructure,spatial planning).
2. Urban design as a response to environmental (as well as other) challenges.
3. Urbanization and accompanying phenomena in the environmental setting.
4. Aims and goals of planning, plan systems, planning documentation and other analyses.
5. Legal framework for planning activities and land management (land development).
6. Studies and analyses in planning.
7. Principles of urban design (parameters, standards and indices).
8. Principles of location of infrastructure elements in the urban space.
9. Introduction to GIS
10. GIS as a tool patial planning support system
11. Urban planning methods for development and manage of technical infrastructure

Teaching methods

1. Lecture: Multimedia presentation. Issues are discussed in terms of problems.
2. Auditorium exercises: Multimedia presentation during the first class. In the next class, a practical method - studnent developing given issue (own work) and present the results for the group.
3. Laboratory exercises: computer laboratories

Bibliography



Basic

1. Czarnecki W, Planowanie miast i osiedli t.I-VI, PWN, W-wa 1965
2. Cyrman R. (pod redakcją) Podstawy planowania przestrzennego i projektowania urbanistycznego Wydawnictwo Uniwersytetu Warmińsko-Mazurskiego, cop. 2009.
3. Longley P GIS Teoria i praktyka PWN. W-wa, 2006
4. U S T AWA z dnia 27 marca 2003 r. o planowaniu i zagospodarowaniu przestrzennym

Additional

1. Norma: BSI PAS 55 - Institute of Asset Management
2. Domański T, Strategiczne planowanie rozwoju gospodarczego gminy Arkady, W-wa 2000
3. Izdebski W, Dobre praktyki udziału gmin i powiatów w tworzeniu infrastruktury danych przestrzennych w Polsce, Geo-System, W-wa 2015
4. Kopietz-Unger J, Urbanistyka w systemie planowania przestrzennego Wyd. Politechniki Poznańskiej, P-ń, 2000
5. Maik W, Podstawy geografii miast Wyd. UMK, Toruń 1992
6. Kwietniewski M., GIS w wodociągach i kanalizacji, PWN, W-wa, 2008.
7. Bylka J. Benchmarking jako narzędzie oceny przedsiębiorstw wodociągowo-kanalizacyjnych Wodociągi Polskie, nr.2, 2019
8. Bylka J., Schiller T., Szuster-Janiaczyk A. Wybrane aspekty zarządzania systemami zaopatrzenia w wodę, jako element „Smart city”. Gaz, Woda i Technika Sanitarna, nr.4, 2016

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	24	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests) ¹	51	2,0

¹ delete or add other activities as appropriate