

Course code

C.13.

Course item

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1. INFORMATION ABOUT THE COURSE

A. Basic information

Course title	GIS
Field of study	Computer Aided Engineering
Cycle	<i>Second</i>
Study profile	<i>Academic</i>
Study mode	<i>Full-time</i>
Specialisation	<i>Not relevant</i>
Unit responsible for the field of study	<i>Faculty of Mechanical Engineering</i>
Lecturer	<i>Dr hab. inż. Janusz Kwiecień, Prof. nadzw. UTP</i>
Introductory courses	<i>Information Technology</i>
Prerequisites	<i>No prerequisites</i>

B. Semester/ weekly timetable

Semester	Lectures	Classes	Laboratories	Project classes	Seminars	Field experience	ECTS credits
III	15	-	30	-	-	-	3

LEARNING OUTCOMES (acc. to National Qualifications Framework)

No.	Description of learning outcomes	Reference to learning outcomes for the field of study	Reference to learning outcomes for the area of study
KNOWLEDGE			
K1	He knows the basics of GIS;	CAE_W04	T2A_W04, T2A_W05
K2	He knows the basics of construction of spatial databases	CAE_W04	T2A_W04 T2A_W05
SKILLS			
S1	He can solve problems in the field of environmental engineering with the help of GIS software.	CAE_U01	T2A_U09, T2A_U17
S2	He is able to use a spatial analysis tools with the help of SQL database language.	CAE_U01	T2A_U09, T2A_U17
SOCIAL COMPETENCES			
SC1	He is aware of the social role of the engineer	CAE_K04	T2A_K04

2. TEACHING METHODS

for example: multimedia lecture, laboratory classes, project, design classes, presentation, discussion, case study, educational games, etc

2. METHODS OF EXAMINATION

Colloquium

3. COURSE CONTENT

Specify the content separately for each type of classes in accordance with point I.B.	Modeling of real space, reducing the space into a two-and one-dimensional. Database and data structure. Saving space in the form of the model vector. Stratification of geometric and thematic objects, rules mapping object structures. The integration of space and information. Relationships between objects in topological models. Raster model - transformation in the two-dimensional, the integration of information from raster elements. Block structure - efficient organization of information in thematic collections. Numerical models of terrain. GIS tools and common tasks in the field of environmental engineering solved using spatial information systems.
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4. VALIDATION OF LEARNING OUTCOMES

(Each learning outcome from the list requires validation methods to ensure that it was achieved by a student.)

Learning outcome	Form of assessment (for example:)					
	Oral examination	Written examination	Colloquium	Project	Report
K1			x			
K2			x			
S1			x			
SC1			x			
SC2			x			

5. LITERATURE

Basic literature	Michael N. DeMers. <i>Fundamentals of Geographic Information Systems</i> . 2003. Amazon.com
Supplementary literature	R. Tomilson. <i>Thinking About GIS: Geographic Information System Planning for Managers</i> . 2011. Amazon.com

6. TOTAL STUDENT WORKLOAD REQUIRED TO ACHIEVE EXPECTED LEARNING OUTCOMES EXPRESSED IN TIME AND ECTS CREDITS

Student's activity	Student workload– number of hours (for example:)
Participation in classes indicated in point 2.2	45
Preparation for classes	15
Reading assignments	15
Other (preparation for exams, tests, carrying out a project etc)	15
Total student workload	90
Number of ECTS credits allocated by the lecturer	3

Załącznik nr 3 do wytycznych dla rad podstawowych jednostek organizacyjnych do tworzenia nowych i weryfikacji istniejących programów studiów I i II stopnia w UTP w Bydgoszczy

Final number of ECTS credits (determined by the Programme Council for the Field of Study)	3
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