



Name of module/subject	Code
Geographic Information Systems	

COURSE DESCRIPTION CARD

Field of study Computing science	Training profile (general academic/practical) practical	Year / Semester III/6
Specialization IT systems	Subject offered in: Polish	Course (obligatory/optional) optional
No. of lecture hours: 15 No. of self-studying hours: 30		ECTS 1 3
Cycle of studies: first	Form of studies (full time/weekends) Full time	Field of studies technical sciences, computer science, automation and robotics, electronics, telecommunications, electrotechnics, mathematics
Status of subject in curriculum (basic, specialized, other) Basic sciences		(general academic, from other department) general academic
Unit providing the training: Institute of Computing Science and Telecommunication		
Lecturer in charge of the subject: Prof. Rafał Różycki, e-mail: r.rozycki@pwsz-gniezno.edu.pl tel. 61 424 2942 Institute of Computing Science and Telecommunication ul. Ks. S. Wyszyńskiego 36, 62-200 Gniezno, POLAND		
Initial requirements in knowledge, skills, social competences:		
1	Knowledge:	Basic knowledge in the field of mathematics and geography at the high school level, knowledge of the syntax of XML-based languages
2	Skills:	She/he is able to design simple relational databases, is able to use advanced development environments to implement projects of simple GIS systems
3	Social competences	She/he is aware of the need to broaden his competences and readiness to cooperate within the team
The aim of the subject: The student will get acquainted with the basic knowledge on geographic information systems (GIS), acquire practical skills in the collection, processing and analysis of geographic data		
Training outcomes		
Knowledge As a result of the training course a student has:		Reference to field-related training outcomes
1	knowledge in the field of mathematics (algebra, analytic geometry) useful for conducting geographic data analyzes	K_W01 ++
2	knowledge of the current state and the latest development trends in information technology in the field of geographic information systems	K_W20 ++
3	a structured and theoretically founded knowledge of the methods of representing geographic data and geographical databases;	K_W15 ++

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Skills As a result of the training course a student is able to:		Reference to field-related training outcomes	
1	acquire spatial information from the Internet, interpret it and make simple data analyzes	K_U01 ++	
2	choose tools / methods for presenting geographic data	K_U09 ++	
3	to design and build simple geographic databases for engineering applications in the field of geographic information systems	K_U21++	
Competences As a result of the training course a student will acquire the following competences:		Reference to field-related training outcomes	
1	Understands the need for permanent education and effective exchange of information with the immediate environment in the professional activity.	K_K01 +	
2	Is aware of the importance of behaving in a professional manner, adherence to the principles of professional ethics necessary to maintain coherent and valuable geographic information systems made available to the public.	K_K03 +	
Accepted grading criteria			
Local grade	Local definition	ECTS grade	ECTS definition
5	Bardzo dobry [very good]– perfect knowledge, skills, competences	A	Celujący [exemplary] – extraordinary achievements
4,5	Dobry plus [good plus]– very good knowledge, skills, competences	B	Bardzo dobry [very good] – above average standards with some mistakes
4	Dobry [good] – good knowledge, skills, competences	C	Dobry [good] – general good work with some noticeable mistakes
3,5	Dostateczny plus [satisfactory plus] – satisfactory knowledge, skills, competences but with significant shortcomings	D	Zadowalający [satisfactory] – satisfactory but with significant mistakes
3	Dostateczny [satisfactory] – satisfactory knowledge, skills, competences but with numerous shortcomings (threshold 60% of the requirements)	E	Dostateczny [satisfactory] – outcomes meet minimal criteria
2	Niedostateczny [insufficient] – insufficient knowledge, skills and competences (below 60% of the requirements)	FX, F	Niedostateczny [insufficient] – basic shortcomings in material



Assumed grading methods

Diagnosing assessment:

- evaluation of the implementation of lab tasks;

Formative assessment:

- submitting a proposal for a topic implemented as part of your own work
- proposing examples of tasks to be solved
- searching and presenting the latest internet solutions in the field of GIS during classes

Summative assessment:

- evaluation of the project prepared as part of your own work,
- multiple choice test (closed tasks) + possible oral part (for people applying for a higher grade),

Curriculum content

The course will cover: geographic data models, geographic data quality, geodesy bases, spatial reference systems, geographic databases, geographic data processing, spatial vector and raster data analysis, geographic data visualization, basic languages of geographic data description (GML, KML) , examples of mapping websites on the Internet, support for a selected free GIS environment.

Self-studying:

Web GIS and Web Mapping interfaces and APIs

Main bibliography:

In Polish:

1. Bielecka E., Systemy informacji geograficznej. Teoria i zastosowania, PJWSTK, Warszawa, 2006
2. Longley, P. Goodchild M., Maguire D., Rhied D., GIS Teoria i praktyka, PWN, Warszawa, 2006
3. Felcenloben D., Geoinformacja Wprowadzenie do systemów organizacji danych i wiedzy, GALL, 2011

In English:

1. Pindé Fu, Getting to Know Web GIS: Third Edition, ESRI Press, 2018

Supplementary bibliography:

Internet sources



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Student's involvement		
Form of activity	Hours	ECTS
Total number of hours	100	4
Hours requiring direct contact with a lecturer	45+10	2,4
Activities requiring self-studying	30+10	1,6