



### MODULE DESCRIPTION

Module code	
Module name	<b>Wprowadzenie do systemów geoinformatycznych</b>
Module name in English	<b>Introduction to Geoinformatic Systems</b>
Valid from academic year	<b>2012/2013</b>

### MODULE PLACEMENT IN THE SYLLABUS

Subject	<b>Computer Science</b>
Level of education	<b>1<sup>st</sup> degree</b> <i>(1st degree / 2nd degree)</i>
Studies profile	<b>General</b> <i>(general / practical)</i>
Form and method of conducting classes	<b>Full-time</b> <i>(full-time / part-time)</i>
Specialisation	
Unit conducting the module	<b>The Department of Computer Science Applications</b>
Module co-ordinator	<b>Andrzej Kułakowski, PhD, Eng.</b>
Approved by:	

### MODULE OVERVIEW

Type of subject/group of subjects	<b>Major</b> <i>(basic / major / specialist subject / conjoint / other HES)</i>
Module status	<b>Non-compulsory</b> <i>(compulsory / non-compulsory)</i>
Language of conducting classes	<b>Polish</b>
Module placement in the syllabus semester	<b>7<sup>th</sup> semester</b>
Subject realisation in the academic year	<b>Winter semester</b> <i>(winter / summer)</i>
Initial requirements	<b>Programming, Computational Methods</b> <i>(module codes / module names)</i>
Examination	<b>No</b> <i>(yes / no)</i>
Number of ECTS credit points	<b>7</b>

Method of conducting classes	Lecture	Classes	Laboratory	Project	Other
Per semester	<b>30</b>		<b>15</b>	<b>30</b>	

### TEACHING RESULTS AND THE METHODS OF ASSESSING TEACHING RESULTS



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<b>Module target</b>	The aim of the module is to familiarise students with the possibilities of Geographic Information Systems (GIS) and other geoinformatic devices in terms of use, utilisation, and application (particularly in acquisition, visualisation and spatial data analysis). Another aim of the module is to familiarise students with geoinformatic devices and their standards; finally, the aim of the module is to acquire the abilities of handling such devices independently.
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Effect symbol	Teaching results	Teaching methods (l/c/lp/other)	Reference to subject effects	Reference to effects of a field of study
W_01	A student has basic knowledge as regards using, utilising, and applying geoinformatic systems.	l/l	K_W14, K_W16, K_W18,	T1A_W02 T1A_W03 T1A_W05 T1A_W07 InzA_W02 InzA_W05
W_02	A student has systematised knowledge as regards the methodology and programming techniques indispensable in utilizing geoinformatic systems.	l/l	K_W07, K_W14, K_W16, K_W18,	T1A_W02 T1A_W03 T1A_W04 T1A_W05 T1A_W07 InzA_W02 InzA_W05
U_01	A student can utilise the learnt geoinformatic tools in the selected applications.	p/l	K_U11, K_U20,	T1A_U07 T1A_U08 T1A_U09 T1A_U10 T1A_U16 InzA_U01 InzA_U08
U_02	A student can utilise the acquired programming knowledge to develop geoinformatic tools in the selected applications.	p/l	K_U11, K_U13,	T1A_U07 T1A_U08 T1A_U09 T1A_U10 T1A_U13 T1A_U14 T1A_U15 InzA_U01 InzA_U02 InzA_U05 InzA_U06 InzA_U07
K_01	A student is familiar with the examples and understands various aspects of utilising geoinformatic systems.	l/p	K_K02	T1A_K02 InzA_K01
K_02	A student is able to co-operate with the users of geoinformatic systems in order to utilise and develop them more efficiently.	l/p	K_K06	T1A_K07

**Teaching contents:**

**Teaching contents as regards lectures**

Lecture number	Teaching contents	Reference to teaching results for a module



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1	Introduction to geoinformatics. Maps and cartography.	W_01
2	Maps and computer cartography. Online computer maps.	W_01, W_02
3	Standards in geoinformatics. Record formats of geographical data.	W_01, W_02
4	The sources and acquisition of spatial data.	W_01, W_02
5	Raster and vector data.	W_01, W_02
6	GIS systems – basic and software review.	W_01, W_02 K_01
7	GIS systems – data entry.	W_01, W_02
8	GIS systems – data analysis.	W_01, W_02 K_01
9	Geoinformatic data visualisation. Spatial objects modelling (VRML, GML, BGL, and Google Earth).	W_01, W_02 K_01
10	The selected examples of online applications of computer maps.	W_01, W_02 K_01, K_02
11	The basics of localisation, satellite navigation, and inert systems	W_01, W_02 K_01, K_01
12	Satellite positioning systems – their use and applications in programming.	W_01, W_02
13	Utilising computers in teledetection and photogrammetry.	W_01, W_02 K_01, K_02
14	The selected examples of the applications of geoinformatic systems.	W_01, W_02 K_01, K_02
15	A final test.	

**Teaching contents as regards laboratory classes**

Laboratory class number	Teaching contents	Reference to teaching results for a module
1	Introduction to the use of online maps.	W_01, W_02, U_01, U_02
2	Utilising online computer maps in students' own portals (based on Google Maps).	W_01, W_02, U_01, U_02
3	Online maps co-operation with students' own databases (based on Google Maps).	W_01, W_02, U_01, U_02
4	The formats of geographical data record. Spatial databases.	W_01, W_02, U_01, U_02
5	GIS systems – data acquisition and visualisation.	W_01, W_02, U_01, U_02
6	GIS systems – data analysis.	W_01, W_02, U_01, U_02
7	Mobile devices utilisation and programming in order to use satellite as well as inert positioning systems. Car and other navigation systems.	W_01, W_02, U_01, U_02
8	Spatial objects modelling and their positioning in Google Earth.	W_01, W_02, U_01, U_02
9	The applications of photogrammetry and teledetection.	W_01, W_02, U_01, U_02
10	Obtaining a credit for laboratory classes.	

**The characteristics of project assignments**

According to the issues concerning laboratory classes but realised in the form of a larger individual project (specification, prototype, implementation, completion assessment, presentation, and obtaining a credit). U\_01, U\_02, K\_01, K\_02



## The methods of assessing teaching results

Effect symbol	Methods of assessing teaching results <i>(assessment method, including skills – reference to a particular project, laboratory assignments, etc.)</i>
W_01	A test on the knowledge of software applications and use.
W_02	A test on the knowledge of programming techniques for geoinformatic systems.
U_01	A skills test on mastering the ability of using geoinformatic systems.
U_02	A skills test on the knowledge of programming techniques for developing the selected geoinformatic systems.
K_01	The presentation of independently realised project.
K_02	The presentation of the independently realised project, drawing conclusions from the assessment of projects completed by other students.

## STUDENT'S INPUT

ECTS credit points		
	Type of student's activity	Student's workload
1	Participation in lectures	30
2	Participation in classes	
3	Participation in laboratories	15
4	Participation in tutorials (2-3 times per semester)	2
5	Participation in project classes	30
6	Project tutorials	3
7	Participation in an examination	
8		
9	<b>Number of hours requiring a lecturer's assistance</b>	<b>80</b> <i>(sum)</i>
10	<b>Number of ECTS credit points which are allocated for assisted work</b> <i>(1 ECTS credit point=25-30 hours)</i>	<b>3.11</b>
11	Unassisted study of lecture subjects	30
12	Unassisted preparation for classes	
13	Unassisted preparation for tests	
14	Unassisted preparation for laboratories	20
15	Preparing reports	15
16	Preparing for a final laboratory test	5
17	Preparing a project or documentation	30
18	Preparing for an examination	
19	Preparing questionnaires	
20	<b>Number of hours of a student's unassisted work</b>	<b>100</b> <i>(sum)</i>
21	<b>Number of ECTS credit points which a student receives for unassisted work</b> <i>(1 ECTS credit point=25-30 hours)</i>	<b>3.89</b>
22	<b>Total number of hours of a student's work</b>	<b>180</b>
23	<b>ECTS credit points per module</b> <i>1 ECTS credit point=25-30 hours</i>	<b>7</b>
24	<b>Work input connected with practical classes</b> <i>Total number of hours connected with practical classes</i>	<b>120</b>



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25	<b>Number of ECTS credit points which a student receives for practical classes</b> <i>(1 ECTS credit point=25-30 hours)</i>	<b>4.67</b>
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