



### MODULE DESCRIPTION

Module code	
Module name	<b>Inżynieria Programowania</b>
Module name in English	<b>Software Engineering</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	<b>Computer Graphics</b>
Unit conducting the module	<b>The Department of Computer Science</b>
Module co-ordinator	<b>Krzysztof Sapiecha</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>Compulsory</b> <i>(compulsory / non-compulsory)</i>
Language of conducting classes	<b>Polish</b>
Module placement in the syllabus - semester	<b>5<sup>th</sup> semester</b>
Subject realisation in the academic year	<b>Winter semester</b> <i>(winter / summer)</i>
Initial requirements	<b>Object-oriented Programming (Java)</b> <i>(module codes / module names)</i>
Examination	<b>Yes</b> <i>(yes / no)</i>
Number of ECTS credit points	<b>6</b>

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



## TEACHING RESULTS AND THE METHODS OF ASSESSING TEACHING RESULTS

<b>Module target</b>	The aim of the module is to familiarise students with the methods of creating complex information systems as well as with the specificity of work in information projects. Another aim is to learn the semantics of the UML language enabling reading and modelling software; finally, the aim is to learn GoF design patterns.
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Effect symbol	Teaching results	Teaching methods (I/c/l/p/other)	Reference to subject effects	Reference to effects of a field of study
W_01	A student is familiar with the issues of managing an information project.	I	K_W15,	T1A_W09, T1A_W03
W_02	A student is acquainted with the issues concerning designing and creating information systems.	I	K_W15, K_W20	T1A_W04, T1A_W07
W_03	A student knows the issues connected with verifying and validating software.	I	K_W15	T1A_W09
W_04	Knowledge of the semantics of the UML language.	I	K_W15	T1A_W03
W_05	Knowledge of GoF design patterns: creational, structural, and behavioural.	I	K_W15	T1A_W04, T1A_W07
U_01	The ability of reading and modelling software in UML.	I/p	K_U02, K_U03, K_U17, K_U21	T1A_U02, T1A_U03, T1A_U10, T1A_U16
U_02	The ability of practical application of GoF design patterns.	I/p	K_U02, K_U17, K_U21	T1A_U02, T1A_U09, T1A_U13, T1A_U14, T1A_U15, T1A_U16
K_01	Teamwork.	I/p	K_K03	T1A_K03

### Teaching contents:

#### Teaching contents as regards lectures

Lecture number	Teaching contents	Reference to teaching results for a module
1.	Project management.	W_01
2.	Requirements engineering.	W_02
3.	Architectural software designing.	W_02
4.	Software approval and verification.	W_03
5.	Software testing.	W_03
6.	Unified Modelling Language.	W_04, U_01
7.	GoF design patterns – creational.	W_05, U_02
8.	GoF design patterns – structural.	W_05, U_02
9.	GoF design patterns – behavioural.	W_05, U_02

#### Teaching contents as regards laboratory classes

Laboratory class number	Teaching contents	Reference to teaching results for a module
1.	Modelling prospects of system usage.	W_04, U_01



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2.	Modelling a system design prospects – creational patterns.	W_05, U_02
3.	Modelling a system design prospects – structural patterns.	W_05, U_02
4.	Modelling a system design prospects – behavioural patterns.	W_05, U_02
5.	Modelling a system implementation perspective.	W_04, U_01

### The characteristics of project assignments

Students complete the assignment in teams of 5. Each team member has the allocated role (an analyst, an architect, a developer, a tester, and a serviceman). The objective of the assignment is to create a company or organisation management system (e.g. a hotel, a hall of residence, or a bus depot). Completing the assignment requires conducting typical activities which concern creating an information system (as part of the project), i.e. requirements specification, designing software architecture, implementation, test preparation and positioning, and software customising.

### 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	An examination
W_02	An examination
W_03	An examination
W_04	An examination
W_05	An examination
U_01	Laboratory and project assignments
U_02	Laboratory and project assignments
K_01	Laboratory and project assignments

### STUDENT'S INPUT

ECTS credit points		Student's workload
	Type of student's activity	
1	Participation in lectures	30
2	Participation in classes	
3	Participation in laboratories	30
4	Participation in tutorials (2-3 times per semester)	3
5	Participation in project classes	15
6	Project tutorials	
7	Participation in an examination	2
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</b>
11	Unassisted study of lecture subjects	20
12	Unassisted preparation for classes	
13	Unassisted preparation for tests	
14	Unassisted preparation for laboratories	25
15	Preparing reports	
16	Preparing for a final laboratory test	



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17	Preparing a project or documentation	<b>30</b>
18	Preparing for an examination	
19	Preparing questionnaires	
20	<b>Number of hours of a student's unassisted work</b>	<b>75</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</b>
22	<b>Total number of hours of a student's work</b>	<b>155</b>
23	<b>ECTS credit points per module</b> <i>1 ECTS credit point=25-30 hours</i>	<b>6</b>
24	<b>Work input connected with practical classes</b> <i>Total number of hours connected with practical classes</i>	<b>100</b>
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</b>