



### MODULE DESCRIPTION

Module code	
Module name	<b>Modelowania i Analiza Procesów Biznesowych</b>
Module name in English	<b>Modelling and Business Processes Analysis</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> (1st degree / 2nd degree)
Studies profile	<b>General</b> (general / practical)
Form and method of conducting classes	<b>Full-time</b> (full-time / part-time)
Specialisation	<b>Information Systems</b>
Unit conducting the module	<b>The Department of Computer Science Applications</b>
Module co-ordinator	<b>Radosław Pytlak, PhD hab., Eng., Professor of the University</b>
Approved by:	

### MODULE OVERVIEW

Type of subject/group of subjects	<b>Major</b> (basic / major / specialist subject / conjoint / other HES)
Module status	<b>Compulsory</b> (compulsory / non-compulsory)
Language of conducting classes	<b>Polish</b>
Module placement in the syllabus - semester	<b>6<sup>th</sup> semester</b>
Subject realisation in the academic year	<b>Summer semester</b> (winter / summer)
Initial requirements	<b>Object-Oriented Programming</b> (module codes / module names)
Examination	<b>No</b> (yes / no)
Number of ECTS credit points	<b>4</b>

Method of conducting classes	Lecture	Classes	Laboratory	Project	Other
Per semester	<b>30</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: modelling business processes using standard notations, formulating a model simulation experiment (together with its simulation); another aim is to acquaint students with the selected environment of simulating business processes.
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Effect symbol	Teaching results	Teaching methods (l/c/l/p/other)	Reference to subject effects	Reference to effects of a field of study
W_01	A student has basic knowledge as regards building business processes models.	l/c	K_W07, K_W16, K_W18 K_W19	T1A_W03,T 1A_W04 T1A_W07 InzA_W02, InzA_W05
W_02	A student has basic knowledge as regards building business processes models.	l/c	K_W07 K_W18	T1A_W03,T 1A_W04 T1A_W07 InzA_W02, InzA_W05
U_01	A student can utilise the acquired knowledge to conduct a process audit of an organisation.	l/c	K_U10	T1A_U10,T1 A_U13 InzA_U05
U_02	A student can utilise the acquired knowledge to conduct the simulation of business process models.	l/c	K_U10	T1A_U10,T1 A_U13 InzA_U05
U_03	A student is able to use the learnt models and methods to reengineer organisation processes on the basis of their model and simulation.	l/c	K_U10	T1A_U10,T1 A_U13 InzA_U05
K_01	A student knows the notations of business processes modelling, the methods of computer simulation models and understands the essence of the contained mechanisms.	l/c	K_K02	T1A_K02 InzA_K01

**Teaching contents:**

**Teaching contents as regards lectures**

Lecture number	Teaching contents	Reference to teaching results for a module
1	<b>Introduction to modelling business processes.</b>  The principles and targets of function modelling and business processes in an organisation. Information technologies directed at the following: preparing and organisation to the informatisation process, monitoring and visualising business processes, reengineering business processes, and raising the effectiveness of business processes. Modelling business processes in the selected methodologies of creating information systems. Utilising the maps of organization processes to create the strategies of information processes.	W_01
2	<b>The evolution of information management systems.</b>  Managing an organisation through managing its processes. MRP-class systems. MRP-class systems with feedback. MRP II-class and ERP-class systems.	W_01
3	<b>Business functions and processes.</b>  The definition of business processes. The identification of business processes.	W_01



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	Function hierarchy. The relationships among functions. Function relationship diagrams. The definition of a business process. Simple and complex processes. Subprocesses. The description of control in business processes. Logic conditions. Areas of responsibility. Object descriptions in business processes. The methods of presenting functions and business processes.	
4	<b>Business functions and processes modelling</b>  The characteristics of the notations used in practice for business processes modelling. BPMN, ARIS, and UML notations. Object pattern in the BPMN notation.	W_01
5	<b>Business processes simulation</b>  Preparing a simulation experiment in the ARIS environment. Determining attributes of model objects and utilising them in the simulation experiment. Determining organisation functioning characteristics on the basis of simulation results. Reengineering of organisation processes based on the simulation of process models.	W_02
6	<b>Introduction to dynamic modelling of business processes</b>  Determining a cause-and-effect relationship diagram of a process. Building a simulation model through introducing differential variables. Model simulation through numerical integration of model equations.	W_02
7	<b>Introduction to process scheduling</b>  The classification of undertaking scheduling. The algorithms of task scheduling with CPM and PERT methods.	W_02

Teaching contents as regards laboratory classes

Laboratory class number	Teaching contents	Reference to teaching results for a module
1	<b>Business functions and processes modelling</b>  The characteristics of notations (having practical applications) for the needs of business processes modelling. BPMN as well as ARIS notations. Utilising ARIS perspectives for building maps of organisation processes. Model building based on BPMN notations.	W_02 U_01
2	<b>The simulation of business processes</b>  Preparing a simulation experiment in the ARIS environment. Determining the attributes of model objects and their utilisation in the simulation experiment. Determining organisation functioning characteristics on the basis of simulation results. Reengineering of organisation processes based on the simulation of process models.	W_02 U_02 U_03
3	<b>Introduction to dynamic modelling of business processes</b>  Determining a cause-and-effect relationship diagram of a process. Building a simulation model through introducing differential variables. Model simulation through numerical integration of model equations.	U_02 U_03 K_01
4	<b>Introduction to process modelling</b>  Undertaking scheduling algorithms. CPM and PERT methods.	U_02 U_03 K_01

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 methods and modelling notations of business processes.
W_02	A test on process scheduling methods.
U_01	A test on the ability of building models in the selected notation.
U_02	A test on the ability of utilising undertaking scheduling algorithms.
U_03	A test on the ability of utilising undertaking scheduling algorithms.
K_01	A test on utilising the acquired knowledge in the practice of information/IT companies.

### STUDENT'S INPUT

ECTS credit points		
	Type of student's activity	Student's workload
1	Participation in lectures	30
2	Participation in classes	30
3	Participation in laboratories	
4	Participation in tutorials (2-3 times per semester)	
5	Participation in project classes	
6	Project tutorials	2
7	Participation in an examination	
8		
9	<b>Number of hours requiring a lecturer's assistance</b>	<b>62</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>2.32</b>
11	Unassisted study of lecture subjects	15
12	Unassisted preparation for classes	30
13	Unassisted preparation for tests	
14	Unassisted preparation for laboratories	
15	Preparing reports	
16	Preparing for a final laboratory test	
17	Preparing a project or documentation	
18	Preparing for an examination	
19	Preparing questionnaires	
20	<b>Number of hours of a student's unassisted work</b>	<b>45</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>1.68</b>
22	<b>Total number of hours of a student's work</b>	<b>107</b>
23	<b>ECTS credit points per module</b> <i>1 ECTS credit point=25-30 hours</i>	<b>4</b>
24	<b>Work input connected with practical classes</b> <i>Total number of hours connected with practical classes</i>	<b>95</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>3.55</b>



**KAPITAŁ LUDZKI**  
NARODOWA STRATEGIA SPÓJNOŚCI



Politechnika Świętokrzyska

**UNIA EUROPEJSKA**  
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