MODULE DESCRIPTION

Module code	**Z-ZIP-409z**
Module name	**Języki programowania - Delphi**
Module name in English	**Programming Languages - Delphi**
Valid from academic year	**2016/2017**

A. MODULE PLACEMENT IN THE SYLLABUS

Field of study	**Management and Production Engineering**
Level of education	**1st degree** *(1st degree / 2nd degree)*
Studies profile	**General** *(general / practical)*
Form and method of conducting classes	**Full-time** *(full-time / part-time)*
Specialisation	**All**
Unit conducting the module	**Department of Applied Computer Science and Applied Mathematics**
Module co-ordinator	**Krzysztof Strzałkowski, PhD**
Approved by:	

B. MODULE OVERVIEW

Type of subject/group of subjects	**Major** *(basic / major / specialist subject / conjoint / other HES)*
Module status	**Non-compulsory** *(compulsory / non-compulsory)*
Language of conducting classes	**English**
Module placement in the syllabus - semester	**5th semester**
Subject realisation in the academic year	**Winter semester** *(winter / summer)*
Initial requirements	**Fundamentals Computer Science** *(module codes / module names)*
Examination	**No** *(yes / no)*
Number of ECTS credit points	**3**

Method of conducting classes	Lecture	Classes	Laboratory	Project	Other
Per semester	**15**		**24**		

C. TEACHING RESULTS AND THE METHODS OF ASSESSING TEACHING RESULTS

Module target	The aim of the module is to: acquire knowledge as regards the fundamentals of structured and object-oriented programming; familiarise students with the possibilities and operating a tool for designing RAD application based on the example of Delphi; and acquiring the ability of designing box applications handling events.

Effect symbol	Teaching results	Teaching methods *(l/c/lab/p/other)*	Reference to subject effects	Reference to effects of a field of study
W_01	A student has knowledge as regards programming fundamentals in a high-level language. A student understands the notion of a variable, data type, data structure, and a procedure. In addition, a student is familiar with the principles of structured and object-oriented programming.	l/lab	K_W05	T1A_W03 S1A_W06
W_02	A student has knowledge as regards basic principles of using RAD-type tool to design box applications handling events.	l/lab	K_W04 K_W05	T1A_W03 S1A_W06
W_03	A student has knowledge as regards basic principles of designing a GUI application interface in compliance with the operating program structure.	l/lab	K_W04	T1A_W03 S1A_W06
U_01	A student can write calculation algorithms in a programming language using procedures and objects.	l	K_U07	TA1_U01 TA1_U07 TA1_U08
U_02	A student can use RAD tools to create calculation programs and simple box applications.	l	K_U07	TA1_U01 TA1_U07 TA1_U08
U_03	A student can assess the usefulness of programming tools to solve engineering issues.	l	K_U07	TA1_U01 TA1_U07 TA1_U08
K_01	A student understands the necessity of continuous improving his/her knowledge as regards modern tools and IT ideas.	l/lab	K_K01	TA1_K01

Teaching contents:

1. Teaching contents as regards lectures

Lecture number	Teaching contents	Reference to teaching results for a module
1	The Pascal language – complementing. Instructions and data structures.	W_01
2	Pascal. Procedures and functions. Passing parameters.	W_01
3	Object-oriented programming in Pascal. Objects and their components.	W_01
4	Designing techniques in an application in Delphi. The principles of using Visual Component Library (VCL).	W_02
5	Handling simple components. Label. Button. Edit box. Handling OnClick and OnExit events. The principle of switching input focus. Checking the correctness of the entered data.	W_02 W_03
6	Components for presenting array and list data. Main menu component. The structure of the toolbar and the status bar.	W_02 W_03
7	Completing information on structured and object-oriented programming. Object inheritance.	W_01
8	A final test.	K_01

2. Teaching contents as regards classes

Class number	Teaching contents	Reference to teaching results for a module

3. Teaching contents as regards laboratory classes

Laboratory class number	Teaching contents	Reference to teaching results for a module
1	Starting console applications using one-dimensional arrays and loop instructions.	W_01 U_01
2-3	Starting console applications using procedures and functions.	W_01 U_01
4	Test 1. Programs using objects.	W_01 U_01 U_03
5	First box program. Component properties change. Handling OnClick events. Message boxes.	W_02 W_03 U_01 U_02
6	Handling graphical and box components. The principle of switching input focus. Handling OnExit events.	W_02 W_03 U_02
7	Utilising the StrinGold component to handle a sequence of numbers.	U_01 U_03
8-9	Delphi applications utilising array structures.	U_01 U_03
10-11	Standard one-window application. Main menu. The structure of the toolbar and status bar.	W_02 W_03 U_02
12	Test 2.	K_01

4. The characteristics of project assignments

The methods of assessing teaching results

Obtaining a credit for laboratory classes: based on two practical tests.

Obtaining a credit for the lectures: based on a written final test containing questions and simple programming tasks.

Effect symbol	**Methods of assessing teaching results** *(assessment method, including skills – reference to a particular project, laboratory assignments, etc.)*
W_01	A test during the lectures, tests during laboratory classes.
W_02	A test during the lectures, tests during laboratory classes.
W_03	A test during the lectures, tests during laboratory classes.
U_01	Tests and initiative during laboratory classes.
U_02	Tests and initiative during laboratory classes.
U_03	Tests and initiative during laboratory classes.
K_01	Comments during the lectures and a discussion during laboratory classes.

D. STUDENT'S INPUT

ECTS credit points		
	Type of student's activity	**Student's workload**
1	Participation in lectures	**15**
2	Participation in classes	
3	Participation in laboratories	**24**
4	Participation in tutorials (2-3 times per semester)	**3**
5	Participation in project classes	
6	Project tutorials	
7	Participation in an examination	
8		
9	**Number of hours requiring a lecturer's assistance**	**42** *(sum)*
10	**Number of ECTS credit points which are allocated for assisted work** *(1 ECTS point=25-30 hours)*	**1.2**
11	Unassisted study of lecture subjects	**8**
12	Unassisted preparation for classes	
13	Unassisted preparation for tests	**10**
14	Unassisted preparation for laboratories	**10**
15	Preparing reports	
15	Preparing for a final laboratory test	
17	Preparing a project or documentation	
18	Preparing for an examination	
19	Preparing for an examination during the lectures	**8**
20	**Number of hours of a student's unassisted work**	**36** *(sum)*
21	**Number of ECTS credit points which a student receives for unassisted work** *(1 ECTS point=25-30 hours)*	**1.5**
22	**Total number of hours of a student's work**	**78**
23	**ECTS points per module** *1 ECTS point=25-30 hours*	**3**
24	**Work input connected with practical classes** *Total number of hours connected with practical classes*	**45**
25	**Number of ECTS credit points which a student receives for practical classes** (1 ECTS point=25-30 hours)	**1.7**

E. LITERATURE

Literature list	1. Cieślak M., Jasiński M., *Droga do Delphi. Autostrada sukcesu*, Croma, Wrocław 1997. 2. Cantu M., *Delphi 7. Praktyka programowania*, Mikom, Warszawa 2004 lub późniejsze wydania. 3. Lachand-Robert T., *Programowanie obiektowe w Turbo Pascalu*, Helion,1996. 4. Marciniak A., *Borland Pascal 7.0*, Nakom, 1999. 5. Struzińska-Walczak A., Walczak K., *Nauka programowania dla początkujących. Turbo Pascal*, W&W, Warszawa 1993. 6. Struzińska-Walczak A., Walczak K., *Nauka programowania dla ... już nie całkiem początkujących. Turbo Pascal*, W&W, Warszawa 1999. 7. Struzińska-Walczak A., Walczak K., *Programowanie w języku Turbo Pascal*

	7.0, W&W, Warszawa 2001. 8. Strzałkowski K., *Podstawy Delphi*, Wyd. Stachurski, Kielce 2000. 9. Wirth N., „Algorytmy+struktury danych=programy”, WNT.
Module website	