

(faculty stamp)

COURSE DESCRIPTION

Z1-PU7

WYDANIE N1

Strona 1 z 2

1. Course title: OBJECT ORIENTED PROGRAMMING		2. Course code		
3. Validity of course description: 2016/2017				
4. Level of studies: BSc programme				
5. Mode of studies: intramural studies				
6. Field of study: MACROCOURSE				(FACULTY SYMBOL)
7. Profile of studies: general				
8. Programme:				
9. Semester: 6				
10. Faculty teaching the course: Institute of Automatic Control, Rau1				
11. Course instructor: Dariusz Bismor, Ph. D.				
12. Course classification: programme courses				
13. Course status: elective				
14. Language of instruction: English				
15. Pre-requisite qualifications: C++ programming basics				
16. Course objectives: The aim of the course is to introduce the modern, object-oriented program design and programming techniques. Students should learn the difference between procedural and object-oriented techniques as well as analysis and design techniques for object-oriented style and those programming languages that give support for object-oriented programming. Knowledge attained during the course should allow for easy and fast completion of even large programming projects.				
17. Description of learning outcomes:				
Nr	Learning outcomes description	Method of assessment	Teaching methods	Learning outcomes reference code
1.	Knows basic concepts and rules of the object-oriented analysis	Lab	Lecture	K_W05
2.	Knows the most popular object-oriented design patterns	Lab	Lecture, Lab	K_W05
3.	Is able to find a design pattern to be used during the design phase of a computer program	Lab, Proj	Lab	K_U11
4.	Is aware of differences between procedural and object-oriented design and programming style	Lab, Proj	Lecture, Lab	K_K04
5.	Can analyze a programming problem and find abstractions to be modeled as objects	Lab,	Lecture, Lab	K_K06
18. Teaching modes and hours				
Lecture / BA /MA Seminar / Class / Project / Laboratory				
Lecture - 15 h.,Laboratory - 15 h				
19. Syllabus description:				
Lecture:				
The lecture emphasizes, but is not limited to the following topics: introduction to object-oriented analysis, object statics, object dynamics, object relationships and interactions, class as object part, class relationships, constructing a model of a system, Unified Modeling Language (UML), design patterns, creational patterns, structural patterns, behavioral patterns.				
The lecture is based on slides displayed with multimedia projector. Students are allowed to download outlines prior to lecture.				

All issues mentioned above are discussed by the lecturer, with emphasize on the issues selected by students. Many issues are illustrated by working program examples.

Laboratory:

1. Introduction to the project: analysis and design.
2. Finding the design patterns in the project.
3. Creational, structural and behavioral patterns in practice, part 1.
4. Creational, structural and behavioral patterns in practice, part 2.
5. Creational, structural and behavioral patterns in practice, part 3.
6. Other patterns and programming idioms.

20. Examination: none

21. Primary sources:

1. E. Gamma, R. Helm, R. Johnson, J. Vlissides: Design Patterns, Addison Wesley, 1995.

22. Secondary sources:

1. A. Koenig, B. Moo: Accelerated C++. Practical Programming by Example, Addison Wesley Professional, 2000.
2. B. Eckel: Thinking in C++, Second Edition, vol. 1 & 2, Upper Saddle River, NJ, 2000 & 2004.
3. S. Meyers: More Effective C++, 336 pgs, Addison-Wesley, 1996.
4. M. Cline: C++ FAQ Lite, <http://www.parashift.com/c++-faq-lite>
5. ISO/IEC JTC 1/SC22/WG21: Programming Languages -- C++, Working Draft, ISO, 2006
6. D. de Champeaux, D. Lea, P. Faure: „Object-Oriented System Development”, Addison Wesley, 1993.
7. Unified Modeling Language, <http://www.uml.org>

23. Total workload required to achieve learning outcomes

Lp.	Teaching mode :	Contact hours / Student workload hours
1	Lecture	15/10
2	Classes	/
3	Laboratory	15/10
4	Project	/
5	BA/ MA Seminar	/
6	Other	10/10
	Total number of hours	40/30

24. Total hours:70

25. Number of ECTS credits: 3

26. Number of ECTS credits allocated for contact hours: 2

27. Number of ECTS credits allocated for in-practice hours (laboratory classes, projects):2

26. Comments:

Approved:

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(date, Instructor's signature)

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(date, the Director of the Faculty Unit signature)