

DESCRIPTION OF A STUDY COURSE – SYLLABUS

Title of a course	Development of Object-oriented Applications				
Head of course	Vlatka Davidović, Senior Lecturer				
Study programme	Specialist professional graduate study of Information Technology in Business Systems				
Status of a course	Obligatory				
Year of study	1.	Semester	II	ECTS credits	6
Teaching plan (L + E + S+ Pr)	2 + 3 + 0 + 0				
Goals of a course					
Acquiring competencies for selecting and applying tools and methods for object-oriented analysis and design in the application of development process and implementation of usage of object programming language.					
Conditions for enrolling course					
No conditions					
Learning outcomes on a level of a study programme which includes course					
<p>Outcome 1: Apply information and communication systems design methods.</p> <p>Outcome 3: Apply software engineering principles in the development of information systems.</p> <p>Outcome 6: Apply appropriate tools in the implementation of information and communication systems.</p> <p>Outcome 7: Apply methods and techniques for creating and managing databases.</p> <p>Outcome 14: Organize and lead teamwork in the field of business information systems.</p> <p>Outcome 17: Present ICT solutions in a business organization.</p>					
Expected learning outcomes on a level of a course					
<ol style="list-style-type: none"> 1. Select and apply tools and methods for object-oriented modelling of information systems 2. Analyse, specify and document user requirements using object-oriented analysis 3. Apply and document methods and principles of object-oriented design in application development 4. Select and apply technologies and tools to build an object-oriented application. 5. Test the application and prepare it for delivery. 					
Content of a course					
<p>Introduction into object-oriented analysis. Advantages of object-oriented technologies for the development of application software. Concepts of object-oriented approach. Classes and objects as basic units of abstraction. Class and object model. Determining links between classes. Defining class reaction using characteristics of polymorphism and other designing techniques. Message communication. Encapsulation.</p> <p>Incremental and iterative processes in the development of applications using object-oriented technologies.</p> <p>Static modelling in object-oriented analysis. Dynamic modelling in object-oriented analysis. Dynamic models identification and analysis. Modelling tools selection. UML (Uniform Modelling Language). Use of CASE tools in the analysis of the system demands. Jdeveloper 10g tool-example. Choice of programming language. Examples of object-oriented languages: C++, Pearl, Java. Script languages. Object-oriented technologies on the Client, server and network. Safety and control. Extension standards.</p>					
Teaching modes	<input checked="" type="checkbox"/> lectures <input type="checkbox"/> auditory exercises <input checked="" type="checkbox"/> seminars and workshops <input type="checkbox"/> distance learning <input type="checkbox"/> field classes		<input checked="" type="checkbox"/> individual assignments <input type="checkbox"/> multimedia and network <input type="checkbox"/> laboratory <input type="checkbox"/> supervisor's work <input type="checkbox"/> other _____		
Comments					
Students' obligations					
If a student passes the full exam, he / she is obliged to do the project assignment in the volume prescribed beforehand.					

Grading, evaluation and monitoring of students' work continuously during lectures and exams

Grading is based upon evaluation of course's learning outcomes' adoption. Grading is performed continuously during lectures and/or during exam, in compliance with the provisions of Regulation on the assessment of students.

Continuous check-up:

Outcomes	Written test	Project	Threshold	Max
Outcome 1	10%	10%	10%	20%
Outcome 2	10%	10%	10%	20%
Outcome 3	10%	10%	10%	20%
Outcome 4		30%	15%	30%
Outcome 5		10%	5%	10%
Percentage of ECTS	1,8	4,2	-	-
Total	30%	70%	50 %	100 %

A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.

Exam term:

Outcomes	Written exam	Project	Oral exam	Max
Outcome 1	10%	5%	5%	20%
Outcome 2	10%	5%	5%	20%
Outcome 3	10%	5%	5%	20%
Outcome 4		25%	5%	30%
Outcome 5		10%		10%
Percentage of ECTS	1,8	3	1,2	-
Total	30%	50%	20%	100 %

A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.

Grading:

A student has passed the exam if he has acquired at least 50% of anticipated credits of a specific learning outcome.

If a student has passed learning outcomes of all courses, the accomplished credits (percentages) of all passed learning outcomes are being added, while the final grade is defined upon following table:

Range of credits (percentages)	Numerical grade	ECTS grade
90,00 – 100,00	Excellent (5)	A
75,00 – 89,99	Very good (4)	B
60,00 – 74,99	Good (3)	C
50,00 – 59,99	Sufficient (2)	D
0,00 – 49,99	Insufficient (1)	F

Obligatory literature

1. Dennis, A., Haley Wixom, B., Tegarden, D.: Systems Analysis and Design with UML Version 2.0: An Object-Oriented Approach, Wiley; 2nd edition (August 10, 2004)
2. Liu, L., Roussev, B.: Management of the Object-oriented Development Process, Idea Group Publishing (October 3, 2005)
3. John Hunt, J: The Unified Process for Practitioners: Object Oriented Design, UML and Java, Springer; 1

edition (June 16, 2000)

Additional literature

1. Gamma, E., Helm, R., Johnson, R., Vlissides, J., Design Patterns - Elements of Reusable Object-Oriented Software, Addison-Wesley, 2007.
2. McLaughlin, B.D., Pollice, G., West, D., Head First Object-Oriented Analysis and Design, O'Reilly Media, Inc., 2007.

