

UNIVERSITY OF ECONOMICS - VARNA
MASTER DEGREE STUDIES CENTER
DEPARTMENT „INFORMATICS“

ACCEPTED BY:

Rector:

(Prof. Dr. Plamen Iliev)

SYLLABUS

SUBJECT: “OBJECT-ORIENTED PROGRAMMING”;

DEGREE PROGRAMME: “Computer Science”; MASTER`S DEGREE

YEAR OF STUDY: 5; SEMESTER: 10; (for other fields graduates)

TOTAL STUDENT WORKLOAD: 150 h.; incl. curricular 60 h.

CREDITS: 5

DISTRIBUTION OF WORKLOAD ACCORDING TO THE CURRICULUM

<i>TYPE OF STUDY HOURS</i>	WORKLOAD, h.	TEACHING HOURS PER WEEK, h
CURRICULAR:		
incl.		
• LECTURES	30	2
• SEMINARS (lab. exercises)	30	2
EXTRACURRICULAR	90	-

Prepared by:

1.
(Assoc. Prof. Dr. Pavel Petrov)

2.
(Assist. Prof. Bonimir Penchev)

Head of department:
“Informatics” (Prof. Dr. Vladimir Sulov)

I. ANNOTATION

The course "Object-Oriented Programming" provides knowledge about modern concept of modeling real-world objects through programming code. As a result of the training, students need to understand how encapsulation of data, abstraction, inheritance and polymorphism allows better reuse of programming code, better support and ability to extend the functionality of applications.

In the applied aspect knowledge and skills students acquire through one of the established in the practice object-oriented programming language. Its study allows in-depth to explore the basics of object-oriented programming.

The course aims to provide expertise in the areas of software development; the students should acquire practical programming skills and knowledge how to use standard object-oriented programming libraries.

II. THEMATIC CONTENT

No. by row	TITLE OF UNIT AND SUBTOPICS	NUMBER OF HOURS		
		L	S	L.E.
		L	S	L.E.
	1. Object-oriented design and programming	2		1
1.1	Concept for creating object-oriented applications.			
1.2	Main stages in the creation of object-oriented application.			
	2. Classes and Objects	10		10
2.1	Class definition. Methods and properties.			
2.2	Interface and implementation.			
2.3	Constructor. Destructor. Objects initialization.			
2.4	Passing objects as arguments to functions.			
2.5	Creating and using dynamic objects.			
	3. Encapsulation	4		5
3.1	Modes of access to members of the class.			
3.2	Static members. Pointer this.			
	4. Inheritance	8		6
4.1	Redefining members.			
4.2	Virtual functions.			
4.3	Polymorphism.			
4.4	Abstract classes.			
	5. Advanced object-oriented techniques	6		8
5.1	Exceptions. Throwing and catching exceptions			
5.2	Standard Libraries. Containers. Iterators. Algorithms.			
	Total:	30		30

III. FORMS OF CONTROL:

No. by row	TYPE AND FORM OF CONTROL	№	extra-curricular, h.
1.	Midterm control		
1.1.	Programming test	1	25
1.2.	Programming project related to the topics discussed in this course	1	25
Total midterm control:			50
2.	Final term control		
2.1.	Test	1	40
Total final term control:		1	40
Total for all types of control:		3	90

IV. LITERATURE

REQUIRED (BASIC) LITERATURE:

1. Bjarne Stroustrup, Programming: Principles and Practice Using C++ (2nd Edition), Addison-Wesley, 2014.
2. Stanley B. Lippman, Josée Lajoie, Barbara E. Moo, C++ Primer (5th Edition), 2015.

RECOMMENDED (ADDITIONAL) LITERATURE:

1. Scott Meyers, Effective Modern C++: 42 Specific Ways to Improve Your Use of C++11 and C++14, 2014.
2. The C++ Resources Network - <http://www.cplusplus.com/>