

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

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**ACCEPTED BY:**

**Rector:**

(Prof. Dr. Plamen Iliev)

**SYLLABUS**

**SUBJECT: “INTRODUCTION TO PROGRAMMING”;**

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

**YEAR OF STUDY: 5; SEMESTER: 9 (other fields graduates);**

**TOTAL STUDENT WORKLOAD: 360 h.; incl. curricular 60 h.**

**CREDITS: 12**

**DISTRIBUTION OF WORKLOAD ACCORDING TO THE CURRICULUM**

<i>TYPE OF STUDY HOURS</i>	<b>WORKLOAD, h.</b>	<b>TEACHING HOURS PER WEEK, h</b>
CURRICULAR: incl.		
• LECTURES	30	2
• SEMINARS (lab. exercises)	30	2
EXTRACURRICULAR	300	-

Prepared by:

1. ....  
(Prof. Dr. Vladimir Sulov)

2. ....  
(Assit. Prof. BonimirPenchev)

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

## I. ANNOTATION

*Programming is one of the main spheres in which computer science students should have theoretical knowledge and practical skills.*

*The course "Introduction to Programming" provides the students with basic knowledge of algorithm fundamentals, programming principles and programming languages, as well as with practical skills to develop applications based on the paradigm of procedural and structural programming and the C programming language.*

*The application of acquired knowledge and skills is in the field of software development. After learning the basics of programming, the students will have the opportunity to expand this basic knowledge and to form new skills in order to use other programming languages and tools.*

## II. THEMATIC CONTENT

No. by row	TITLE OF UNIT AND SUBTOPICS	NUMBER OF HOURS		
		L	S	L.E.
<b>1. Basic programming concepts. Introduction to the C programming language.</b>		<b>5</b>		<b>8</b>
1.1	Applications and programming. Paradigms. Programming languages. Development environments.	1		2
1.2	Algorithms	2		2
1.3	General characteristics and standards of the C language. Application structure	1		2
1.4	Scalar data types	1		2
<b>2. Flow control</b>		<b>9</b>		<b>6</b>
2.1	The if statement	2		2
2.2	Loops - while, for, break, continue	6		2
2.3	The switch statement	1		2
<b>3. Complex data types and data organization</b>		<b>8</b>		<b>10</b>
3.1	Arrays	2		2
3.2	Strings	1		2
3.3	Pointers	2		2
3.4	Dynamic memory allocation	1		2
3.5	Structures, unions	2		2
<b>4. Modular organization and user-defined functions</b>		<b>8</b>		<b>6</b>
4.1	Modular organization	1		
4.2	User-defined functions: structure	1		2
4.3	User-defined functions: interaction	4		2
4.4	Library functions	2		2
<b>Total:</b>		<b>30</b>		<b>30</b>

### III. FORMS OF CONTROL:

No. by row	TYPE AND FORM OF CONTROL	№	extracurricular, h.
<b>1.</b>	<b>Midterm control</b>		
1.1.	Theory test	2	80
1.2.	Practice test	3	100
<b>Total midterm control:</b>		<b>5</b>	<b>180</b>
<b>2.</b>	<b>Final term control</b>		
2.1.	Theory test	1	60
2.2.	Practice test	1	60
<b>Total final term control:</b>		<b>2</b>	<b>120</b>
<b>Total for all types of control:</b>		<b>7</b>	<b>300</b>

### IV. LITERATURE

#### REQUIRED(BASIC) LITERATURE:

1.Liang, D. Introduction to Programming with C++ (3<sup>rd</sup> Edition).Pearson. 2013.

#### RECOMMENDED(ADDITIONAL)LITERATURE:

- 1.Sedgewick, R., Wayne, K. Algorithms (4th Edition). Addison-Wesley Professional, 2011.
2. Perry, G. C by Example. Que Publishing, 1999.
3. Kernighan, B., Ritchie, D. The C Programming Language.Prentice Hall, 1988.