UNIVERSITY OF ECONOMICS - VARNA
FACULTY OF INFORMATICS
DEPARTMENT OF INFORMATICS

Adopted by the FC (record № 9/24.04.2024)

Adopted by the DC (record № 10/16.04.2024)

ACCEPTED BY:

Dean:

(Prof. Vladimir Sulov, PhD)

SYLLABUS

SUBJECT: INTRODUCTION TO PROGRAMMING

DEGREE PROGRAMME: Computer Science; MASTER`S DEGREE

YEAR OF STUDY: 5 for other field graduates; SEMESTER: 10 for other field graduates

TOTAL STUDENT WORKLOAD: 360 hours; incl. curricular 60 hours

CREDITS: 12

DISTRIBUTION OF STUDENT WORKLOAD ACCORDING TO THE CURRICULUM

TYPE OF STUDY HOURS	WORKLOAD, hours	TEACHING HOURS PER WEEK, hours
CURRICULAR: incl.		
• LECTURES	30	2
• SEMINARS / LAB. EXERCISES	30	2
EXTRACURRICULAR	300	-

Prepared by:

1. …………………………………..
   (Prof. Vladimir Sulov, PhD)

2. …………………………………………
   (Chief Assist. Prof. Bonimir Penchev, PhD)

Head of department
of Informatics: ………………………………………
   (Prof. Julian Vasilev, PhD)

I. <u>ANNOTATION</u>

Programming is one of the main areas in which students enrolled in the professional field "Informatics and Computer Science" should have theoretical knowledge and practical skills.

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

The application of the 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 their basic knowledge and to form new skills to use other programming languages and tools for software development.

In the course of training, the following key competencies are applied and developed, according to the recommendation of the Council of the European Union dated May 22, 2018, namely:

• Mathematical competence and competence in the field of exact sciences, technologies, and engineering - group 3. The ability to apply mathematical thinking and vision in order to solve various algorithmic problems is developed.

• Digital competence - group 4. Knowledge of the possibilities and limitations of computer technologies (CT); understanding the principles and logic underlying CT; ability to create and use programs and digital content.

• Personal competence - group 5. Ability to apply a variety of communication approaches and tools that are adapted to the context of interaction. Acquiring skills to solve real-life problems, to plan tasks, to organize one's own work.

II. <u>T H E M A T I C   C O N T E N T</u>

№	TITLE OF UNIT AND SUBTOPICS	NUMBER OF HOURS		
		L	S	L.E.
Theme 1. Basic programming concepts.		**5**	**4**	
1.1	Applications and programming. Paradigms. Programming languages. Development environments.	1	1	
1.2	Algorithms.	2	1	
1.3	Application structure.	1	1	
1.4	Scalar data types.	1	1	
Theme 2. Flow control.		**9**	**10**	
2.1	The if statement.	2	3	
2.2	Loops – while, for, break, continue.	6	6	
2.3	The switch statement.	1	1	
Theme 3. Complex data types and data organization.		**8**	**10**	
3.1	Arrays.	2	4	
3.2	Strings.	3	3	
3.3	Lists.	3	3	
Theme 4. Modular organization and user-defined functions.		**8**	**6**	
4.1	Modular organization.	2	1	
4.2	User-defined functions – structure.	2	1	
4.3	User-defined functions interaction.	4	4	
	Total:	**30**	**30**	

III. FORMS OF CONTROL:

№	TYPE AND FORM OF CONTROL	Number	extracur-ricular, hours
1.	**Midterm control**		
1.1.	Tests	2	80
1.2.	Practical tasks	2	80
	Total midterm control:	**4**	**160**
2.	**Final term control**		
2.1.	Examination - Test	1	60
2.2.	Examination - Practical task	1	80
	Total final term control:	**2**	**140**
	Total for all types of control:	**6**	**300**

IV. LITERATURE

REQUIRED (BASIC) LITERATURE:
1. Online lectures in the university's online e-learning system.

RECOMMENDED (ADDITIONAL) LITERATURE:
1. Metzler, N. C# for Beginners: An Introduction to C# Programming with Tutorials and Hands-On Examples. Independently published, 2018.
2. Albahari, J., C# 12 in a Nutshell: The Definitive Reference. O'Reilly, 2023.