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: CLOUD COMPUTING

DEGREE PROGRAMME: Computer Science; MASTER`S DEGREE

YEAR OF STUDY: 6 for other field graduates; SEMESTER: 11 for other field graduates

TOTAL STUDENT WORKLOAD: 240 hours; incl. curricular 60 hours

CREDITS: 8

DISTRIBUTION OF STUDENT WORKLOAD ACCORDING TO THE CURRICULUM

TYPE OF STUDY HOURS	**WORKLOAD, hours**	**TEACHING HOURS PER WEEK, hours**
CURRICULAR: incl. • LECTURES • SEMINARS / LAB. EXERCISES	 30 30	 2 2
EXTRACURRICULAR	180	-

Prepared by:

1. **……..**
(Prof. Silvia Parusheva, PhD)

2. **……**
(Chief Assist. Prof. Mariya Armyanova, PhD)

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

I. ANNOTATION

The discipline is very relevant, since in recent years cloud computing has become a very important technology for hosting and delivering services over the Internet.

The purpose of the course is to give students basic knowledge in the field of cloud computing, to familiarize them with the terminology, principles and applications using cloud computing.

By studying it, students acquire the necessary knowledge and skills to identify the different types of cloud services, distinguish between the individual cloud categories (private, public, hybrid, community) and evaluate the individual models for their delivery - "Infrastructure as a Service", "Platform as a Service", "Software as a Service".

A special place is devoted to issues related to the risks and benefits of the application of cloud technologies, threats to data security in the context of computing clouds.

While 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:

- *Digital competence. The obtained in-depth knowledge in the field of cloud services helps students to acquire skills to recognize the risks and benefits of the application of cloud technologies, threats to data security;*
- *Entrepreneurial competence - The ability to plan and manage cloud migration projects The knowledge gained in the course helps students easily transform their ideas into real cloud service implementations.*

II. THEMATIC CONTENT

№	TITLE OF UNIT AND SUBTOPICS	NUMBER OF HOURS		
		L	S	L.E.
Theme 1. Introduction to cloud computing		**3**	-	
1.1.	Nature and features of cloud services.	2	-	
1.2.	Advantages and disadvantages of their application.	1	-	
Theme 2. Technology drivers of cloud services		**5**	**2**	
2.1.	Virtualization. Virtualization approaches.	3	1	
2.2.	Types of virtualization.	2	1	
Theme 3. Characteristics and attributes of cloud services		**5**	**3**	
3.1.	Key features of cloud services.	3	1	
3.2.	Attributes of cloud services.	2	2	
Theme 4. Cloud computing models		**5**	**5**	
4.1.	Infrastructure as a Service (IaaS)	2	3	
4.2.	Platform as a Service (PaaS)	2	1	
4.3.	Software as a Service (SaaS)	1	1	
Theme 5. Categories of clouds. Advantages and disadvantages		**5**	**5**	
5.1.	Public clouds	1	4	
5.2.	Private clouds	1	-	
5.3.	Hybrid clouds	1	1	
5.4.	Community clouds	1	-	
5.5.	Advantages and disadvantages of individual categories	1	-	
Theme 6. Cloud service providers. Support for open source cloud services		**7**	**15**	
6.1.	Major Cloud Service Providers	5	7	
6.2.	Open source tools for IaaS, PaaS and SaaS	2	8	
	Total:	**30**	**30**	

III. FORMS OF CONTROL:

№	TYPE AND FORM OF CONTROL	Number	extracur-ricular, hours
1.	**Midterm control**		
1.1.	Practical assignment 1	1	30
1.2.	Practical assignment 2	1	30
1.3.	Course work	1	50
	Total midterm control:	**3**	**110**
2.	**Final term control**		
2.1.	Examination (test)	1	70
	Total final term control:	**1**	**70**
	Total for all types of control:	**4**	**180**

IV. LITERATURE

REQUIRED (BASIC) LITERATURE:

1. Sehgal, N.K., Bhatt, P.C., Acken, J.M. Cloud Computing with Security. Concepts and Practices. Springer, 3rd. ed., 2023.
2. Wittig, A. and Wittig, M. Amazon Web Services in Action: An in-depth guide to AWS. Manning, 2023.
3. Chandrasekaran, K. and Chelliah, P. R. Essentials of Cloud Computing: A Holistic, Cloud-Native Perspective Springer International Publishing, 2023.

RECOMMENDED (ADDITIONAL) LITERATURE:

1. Dubey, P. and Raja, R. A Beginners Guide to Amazon Web Services, CRC Press, 2023.
2. Rastogi, S. Cloud Computing Simplified: Explore Application of Cloud, Cloud Deployment Models, Service Models and Mobile Cloud Computing. BPB Publications, 2021.