UNIVERSITY OF ECONOMICS - VARNA
MASTER DEGREE CENTER
DEPARTMENT OF INFORMATICS

Adopted by the FC (record №8 / 05.03.2020)

Adopted by the DC (record №7 / 28.02.2020)

ACCEPTED BY:

Dean:
 (prof. Vladimir Sulov, PhD)

SYLLABUS

SUBJECT: „COMPUTER NETWORKS"

DEGREE PROGRAMME: „Computer Science"; MASTER`S DEGREE

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

TOTAL STUDENT WORKLOAD: **150 hours; incl. curricular 60 hours**

CREDITS: **5**

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	90	-

Prepared by:

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

2.   ……………………………………
(chief assist. prof. Mihail Radev, PhD)

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

I. ANNOTATION

The course "Computer Networks" aims to form basic knowledge of computer networks and their usage in the modern Network economy. The course provides the necessary knowledge of the structure, principles of operation and construction of networks. The laboratory exercises are performed on real network equipment, which allows students to develop practical skills.

The acquired knowledge is a foundation for future specialized courses in the field of computer science and a necessary prerequisite for the development and implementation of modern information systems in all business areas.

II. THEMATIC CONTENT

№	TITLE OF UNIT AND SUBTOPICS	NUMBER OF HOURS		
		L	S	L.E.
Theme 1. COMPUTER NETWORKS – BASIC CONCEPTS		**3**	**3**	
1.1.	Network protocols.			
1.2.	Using layered models.			
1.3.	Network addressing.			
Theme 2. NETWORK PROTOCOLS AND COMMUNICATIONS		**3**	**3**	
2.1.	Protocols, protocol suites and standards.			
2.2.	Reference models.			
Theme 3. NETWORK ACCESS		**3**	**3**	
3.1.	Physical layer protocols.			
3.2.	Network media.			
Theme 4. IPV4 ADDRESSING		**6**	**6**	
4.1.	Subnetting an IPv4. Basic VLSM.			
4.2.	Routing. Calculating the subnets. Testing the network layer.			
Theme 5. IPV6 ADDRESSING		**6**	**6**	
5.1.	IPv6 packet. IPv6 addressing.			
5.2.	Types of IPv6 addresses.			
Theme 6. TRANSPORT OSI LAYER		**3**	**3**	
6.1	Transport layer of the OSI model. Roles, protocols, managing TCPsessions.			
6.2	The UDP protocol.			
Theme 7. APPLICATION LAYER		**3**	**3**	
7.1	Well-known Application Layer protocols and services.			
7.2	Application layer protocols.			
Theme 8. PLANNING AND CABLING NETWORK		**3**	**3**	
8.1	Developing a network project. Network security. Developing an addressing scheme.			
8.2	Device interconnections. Measurement of productivity.			
	Total:	**30**	**30**	

III. FORMS OF CONTROL:

№	TYPE AND FORM OF CONTROL	Number	extracur-ricular, hours
1.	**Midterm control**		
1.1.	Practice test	**1**	**30**
	Total midterm control:	**1**	**30**
2.	**Final term control**		
2.1.	Examination (test)	**1**	**60**
	Total final term control:	**1**	**60**
	Total for all types of control:	**2**	**90**

IV. LITERATURE

REQUIRED (BASIC) LITERATURE:
1. http://www.netacad.com with individual accounts
2. Cisco Networking Academy, Introduction to Networks V.6 Companion Guide, CiscoPress, 2016.
3. McMillan T., Cisco Networking Essentials, 2nd Edition, Sybex, 2015

RECOMMENDED (ADDITIONAL) LITERATURE:
1. Nastase R., Computer Networking for Beginners: Your Guide for Mastering Computer Networking, Cisco IOS and the OSI Model (Computer Networking Series), Independently published, 2018
2. Stevens, W., TCP/IP Illustrated, Volume 1: The Protocols (2nd Edition), Addison-   Wesley Professional Computing Series, 2011
3. Tanenbaum, A., Wetherall D., Computer Networks (5th Edition), Prentice Hall, 2010