Program	Level	First cycle	
	Name of the program	Theoretical Computer Science, Mathematics and Informatics Education	

COURSE

Course title	**Computer Networks**			
Course code	Semester	Course status	ECTS	Contact hours (L+AE+LE)
CS 270	IV	Mandatory course	5	2+0+2
Lecturer				

Course Goals	At the end of the course, the students will be able to: - Build an understanding of the fundamental concepts of computer networking. - Familiarize the student with the basic taxonomy and terminology of the computer networking area.
Learning Outcomes	After completing this course the student must demonstrate the knowledge and ability to: - Independently understand basic computer network technology. - Understand and explain Data Communications System and its components. - Identify the different types of network topologies and protocols. - Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer. - Identify the different types of network devices and their functions within a network - Understand and build the skills of subnetting and routing mechanisms. - Familiarity with the basic protocols of computer networks, and how they can be used to assist in network design and implementation.

COURSE CONTENT

- Data transfer; Serial and parallel transmission; Synchronous and asynchronous transmission; Modulation and demodulation; Modems;
- Communication networks; Network architecture; Commutation; Multiplexing.
- Local and global area networks; Topology of local computer networks; Communication in local computer networks
- the structure of global computer networks; Network protocols; TCP / IP protocol and IP addresses; Network services
- ISO-OSI reference model; Service and protocol concept; Functionality of layers; Layer interactions and service primitives
- Physical layer; Communication media; Weakness and distortion. Signal propagation; Synchronization problem
- Data Layer Layer; Error Control; Selective repetition protocol; Go Back N protocol; HDLC protocol
- Network layer; Network topology and metrics; Routing table; Routing algorithms
- Transport layer; Functionality of the layer; TCP / IP protocol
- Session layer; Presentation layer; Application layer.
- Standard network and telecommunication equipment; Configuring computer networks
- Structure of Internet; Internet protocols; Internet services
- Network operating systems; Configuring network servers
- Overview of advanced computer network technologies

LITERATURE

[1]   A. Tanenbaum: "Computer Networks (5th edition)", Prentice Hall, 2010.
[2]   D. E. Comer, R. E. Droms, Computer Networks and Internets, 4th edition, Prentice Hall, 2003.
[3]   William Stallings, Data & Computer Communications; (10th edition)", 2013
[4]   Halsall, F., Data Communications, Computer networks and OSI. Addison-Wesley, 1988.

STUDENT WORKLOAD (hours in a semester)

Lectures	30	Exercises	30	Individual work	65	T o t a l	125

GRADING	REMARKS

Criterion	Maximum points	Minimum points
Praktični dio	20	10
Midterm exams	40	20
Final exam	40	20
T o t a l	100	55