Course Unit Descriptor

Study Programme: Information Technology

Course Unit Title: Computer Networks

Course Unit Code: OAS109

Name of Lecturer(s): Associate Professor Dalibor Dobrilović, PhD

Type and Level of Studies: Bachelor Academic Degree

Course Status (compulsory/elective): Compulsory

Semester (winter/summer): Summer

Language of instruction: English

Mode of course unit delivery (face-to-face/distance learning): Face-to-face

Number of ECTS Allocated: 6

Prerequisites: None

Course Aims:

The main goal of the course is mastering the basic principles and technologies in the field of computer networks. In addition to training theoretical aspects, students are trained for practical work and the application of the networking technologies.

Learning Outcomes:

After the successful completion of the course, it is expected that the student will master the theoretical and practical basics and will have the necessary knowledge about the network devices and the design of computer networks. By mastering knowledge through real and virtual work in a laboratory environment, students gain theoretical and practical skills in configuring computer networks and implementations of communications protocols and services.

Syllabus:

Theory

Introduction in data transmission and computer networks. OSI reference model and network layer functions. Architecture of computer networks. TCP/IP protocols, routing techniques and protocols. LANs: Ethernet, Token ring, Token bus. WLANs: IEEE 802.11. VLANs and VPN networks. MPLS switching. Mobile Internet Protocol MIP. Basics of Cloud Computing. Computer Networks Security.

Practice

Practical work covers laboratory exercises in solving tasks and practical problems with the application of simulation software for the computer networks and network devices.

Required Reading:

1. W. A. Shay, Understanding Data Communications and Networks, 3rd ed., Brooks/Cole, Pacific Grove, CA, USA, 2004.
2. S. A. Tanenbaum, Computer Networks, Prentice Hall, New Jersey 2003.
3. J. F. Kurose, K. W. Ross, Computer Networking: A Top-Down Approach, 6th ed., Pearson, 2012
4. D.E. Comer, Internetworking with TCP/IP, Vol. 1: Principles, Protocols, and Architectures, 4th ed., Prentice Hall PTR, USA. 2000.

Weekly Contact Hours: 4	**Lectures:** 2	**Practical work: 2**

Teaching Methods:

Lectures and students group work

Knowledge Assessment (maximum of 100 points): 100

Pre-exam obligations	points	**Final exam**	Points
Active class participation	10	oral exam	30
Preliminary exam(s)	20		
Practical exam	30		
Seminar(s)	10		