Course Unit Descriptor

Study Programme: Information Technology – Software engineering
Course Unit Title: Computer Communications and Internet
Course Unit Code: OAS297
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): Winter
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 communications and Internet technology. In addition to training theoretical aspects, students are trained for practical work and application of these technologies.
Learning Outcomes: After the successful completion of the course, it is expected that the students will master the theoretical and practical basics and the necessary knowledge about the network devices and the design of computer networks, Internet technologies, architectures, and services. By mastering this knowledge through practical work in a real and virtual laboratory environment, students gain theoretical and practical skills in planning, configuring and administration of computer networks based on the TCP/IP of protocols and the Internet system and services.
Syllabus: *Theory* Basic concepts of computer communications and Internet technologies. Data transmission networks. OSI reference model and layered architecture. TCP/IP family of protocols. IPv4 and IPv6 protocols. Internet layer protocols. Routing techniques and protocols. Transport layer protocols. Application layer protocols. The architecture of the Internet. Internet of Things (IoT). Computer systems and network security and VPN networks. Mobile Internet Protocol MIP. Basics of Cloud Computing. *Practice* Practical work covers laboratory exercises with tasks and practical problems and implementation examples. Those exercises are performed with the usage of computers and network devices, as well as software for computer networks and Internet systems and services simulation.
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
Preliminary exam(s)	20	oral exam	30
Practical exam	30		
Seminar(s)	20		