

Course Unit Descriptor

Study Programme: Information Technology		
Course Unit Title: Advanced Telecommunications		
Course Unit Code: DAS034		
Name of Lecturer(s): Associate Professor Dalibor Dobrilović, PhD		
Type and Level of Studies: Master Academic Degree		
Course Status (compulsory/elective): Elective		
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: 4		
Prerequisites: None		
Course Aims: The main goal of the course is to teach the students to master theoretical and practical knowledge in the field of modern and advanced information-communication systems, and technologies.		
Learning Outcomes: Upon successful completion of the course, it is expected that the students will master the theoretical and practical basics and the necessary knowledge from state-of-the-art telecommunication systems and technologies. In addition to training on theoretical aspects, practical training is added in order to train the students for planning, modeling, and practical implementation of the communication systems and technologies.		
Syllabus: <i>Theory</i> Fixed broadband access: xDSL (ADSL2 +, VDSL2), optoelectronic systems (WDM, DWDM, PON). Optical communication networks and systems. Cable distribution network architectures and systems: DOCSIS/EuroDOCSIS and PacketCable. Next Generation Networks (NGN). Application of Ethernet standards in public networks. Multimedia systems and services (H.323, SIP, VoIP). Dynamic routing on the Internet. MPLS switching. Basics of Cloud Computing. Mobile and fixed wireless communication. Fixed broadband access systems (FWBA). Global wireless infrastructure - UWB IEEE 802.15.3a, standard for Wireless Personal Networks (WPANs). WiFi (IEEE 802.11a/b/g/n), WiMAX, IEEE 802.16e/d, Bluetooth IEEE 802.15.1. ETSI BRAN HiperLAN and HiperAccess. Wireless Personal Networks (WPAN). Wireless Sensor Networks (WSN), ZigBee, IEEE 802.15.4, UMTS (3G) Mobile Communications Systems, HSPA (3.5G), LTE (4G). <i>Practice</i> Practical work covers laboratory exercises with solving tasks and practical problems with the application of simulation software for telecommunication systems.		
Required Reading: 1. S. A. Tanenbaum, Computer Networks, Prentice Hall, New Jersey 2003. 2. A. Goldsmith, Wireless Communications, Cambridge University Press, 2005. 3. John S. Seybold, Introduction to RF Propagation, ohn Wiley & Sons, New Jersey, USA, 2005.		
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 work	30		
Seminar(s)	10		