



**UNIVERSITY OF PRIZREN  
FACULTY OF COMPUTER SCIENCE**

PROGRAM: SD

<b>Curriculum -- SYLLABUS</b>							
<i>Level of studies</i>	Bachelor	<i>Program</i>	SD	<i>Academic year</i>	2018/19		
<i>SUBJECT</i>	Internet Protocols						
<i>Year</i>	I	<i>Status Of the subject</i>	Election	<i>Code</i>		<i>ECTS credits</i>	6
<i>Semester</i>	II						
<i>Teaching weeks</i>	15		<i>Hours teaching</i>	60	<i>Lectures</i>	<i>Exercises</i>	
					30	30	
<i>Teaching Methodology</i>	<p align="center"><b>Presentation of the subject in PowerPoint Numerical and laboratory exercises parallely with lectures</b></p>						
<i>Consultation</i>	<p align="center"><b>Once a week</b></p>						
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<b>Study goal and table of content</b>	<b>Benefits of student</b>
<p>The purpose of this course is to give students general knowledge about:</p> <ul style="list-style-type: none"> <li>- Types of signals transmitted over communication networks;</li> <li>- Data modulation techniques;</li> <li>- Different types of communication networks;</li> <li>- Data routing protocols over communication networks;</li> <li>- Communication protocols belonging to the TCP/IP model and the OSI model;</li> <li>- Practical application of a computer network, and routing and communication protocols.</li> </ul>	<p>The student will be able to:</p> <ul style="list-style-type: none"> <li>- Make the difference between analogue and digital signals</li> <li>- Understand the process of converting signals from analogous to digital and vice versa;</li> <li>- Understand the difference between the different types of signal modulation techniques that carry the data;</li> <li>- Understand the basic concepts of routing protocols throughout the network and the differences between them.</li> <li>- Understand the basic concepts of communication protocols that belong to the TCP / IP model and the OSI model and their relevance;</li> <li>- Understand the practical functioning of a computer network and various routing and communication protocols.</li> </ul>

<b>Methodology for the implementation of educational topics:</b>		
<p>The course will be organized in the form of lectures and laboratory exercises. Lectures will be organized through presentations with Power Point. The course will also be held interactively with students.</p>		
<b>Conditions for realization of educational topics:</b>		
<ul style="list-style-type: none"> <li>• The use of adequate literature and use of IT tools.</li> </ul>		
<b>Ways of assessing of the student (in %) :</b>	<b>Evaluation in%</b>	<b>Final grade</b>
A seminary work	Up to 10 points and these points are evaluated outside the	

		total score of the tests and are valid only for students who attend the lectures.		
Two tests during the semester		Two tests, each with 50% of the points. Students can pass the exam if they reach 51 points out of two tests. Each of the students who does not reach the sum of 51 points by two tests, then the final exam is required to pass this course.	51-60% - grade 6 61-70 7 71-80 8 81-90 9 91-100 10	
Final exam		The final exam contains 100 point. Students can pass the exam if they reach at least 51 points.		
<b>Total</b>		<b>100.00 %</b>		
<b>Obligations of student:</b>				
<b>Lectures</b>		<b>Exercises</b>		
The student should attend regular lectures and exercises, make use of all learning opportunities, use compulsory and broader literature, be active and respect the rules with high level ethics.		The student should be active in exercises and reflect the readiness and knowledge of initiatives, ideas and demonstrations of the knowledge acquired in the lectures.		
<b>Activities</b>				
	<b>Hour/ weeks</b>	<b>Days/Weeks</b>	<b>Total</b>	
Lectures	2	15 weeks	30 hours	
Laboratory exercises	2	15 weeks	30 hours	
Contacts with teachers / consultations	0.45	15 weeks	7 hours	
Practical work	0.34	15 weeks	5 hours	
Projects, presentations, etc.	0.2	15 weeks	3 hours	
Own study time	3	15 weeks	45 hours	
Preparation for final exam	1.8	15 weeks	27 hours	
Time spent in the assessment (tests, final exam, etc.)	1.5	2 days	3 hours	
<b>Notice: 1 ECTS credits= 25 hour commitment, e.g. if the subject has 6 ECTS credits student must have 150 hours during the semester commitment.</b>			<b>Total load: 150 hours</b>	
<b>Week</b>	<b>Lectures</b>	<b>Hour</b>	<b>Exercises</b>	
	<b>Topic</b>		<b>Topic</b>	
1	<b>Chapter I - Basics of data transmission:</b> - Presentation of the syllabus; - Introduction	2	<b>Introduction to Cisco Packet Tracer software;</b>	2
2	<b>Chapter I – Basics of data transmission:</b> - Types of signals for transmitting information; - Converting signals from analog to digital and vice versa; - The capacity of the broadcasting channel;	2	<b>Laboratory exercises through Cisco Packet Tracer software:</b> - Creating network topology for configuration; - Preparing and connecting computers to	2

	- Signal/noise ratio.		the network (setting IP addresses);	
3	<b>Chapter II - Data Signal Modulation Techniques:</b> - Data transmission modes; - Modulation of data; - Modulation techniques FM, AM, etc. - Multiplexing by FDM, TDM, STDM techniques.	2	<b>Laboratory exercises through Cisco Packet Tracer software:</b> - Basic Configurations of Switches and Routers on network topology (configuration of passwords).	2
4	<b>Chapter II - Data Signal Modulation Techniques:</b> - WDM Modulation - CWDM Modulation - DWDM Modulation	2	<b>Laboratory exercises through Cisco Packet Tracer software:</b> - Configuration of console and telnet (Configuration of passwords and practical testing of functionality after configuration)	2
5	<b>Chapter III – IP routing protocols:</b> - Basics of routing - IP routing process - Static and dynamic routing	2	<b>Laboratory exercises through Cisco Packet Tracer software:</b> - Configuration of different VLANs within topology	2
6	<b>Chapter III – IP routing protocols:</b> - Basics of routing protocols - Application of administrative distance by routers for information routing. - Classes of routing protocols	2	<b>Laboratory exercises through Cisco Packet Tracer software:</b> - Configuration of default and static routes	2
7	<b>Chapter III – IP routing protocols:</b> - Distance vector routing protocols (RIPv1 and RIPv2). - Link state routing protocols (OSPF and IS-IS)	2	<b>Laboratory exercises through Cisco Packet Tracer software:</b> - Configuration of RIPv1 and RIPv2 routing protocols.	2
8	<b>The first test</b>	2	<b>The first laboratory test</b>	2
9	<b>Chapter III – IP routing protocols:</b> - IGP - interior gateway protocols - EGP -exterior gateway protocols - VLSM - EIGRP - BGP	2	<b>Laboratory exercises through Cisco Packet Tracer software:</b> - Configuration of OSPF, IS-IS and IGP routing protocols.	2
10	<b>Chapter IV – Protocols of TCP/IP model:</b> - Application layer’s protocols - Web cache: HTTP, HTTPS, Telnet, FTP, SFTP.	2	<b>Laboratory exercises through Cisco Packet Tracer software:</b> - Configuration of EGP, EIGRP and BGP routing protocols.	2
11	<b>Chapter IV – Protocols of TCP/IP model:</b> - Ping, - tracert, - SNMP, - SMTP; - POP.	2	<b>Laboratory exercises through Cisco Packet Tracer software:</b> - Testing of configuration performed within network topology	2
12	<b>Chapter IV – Protocols of TCP/IP model:</b> - LPD; - TFTP; - NFS; - DHCP; - NTP - TCP;	2	<b>Laboratory exercises through Cisco Packet Tracer software:</b> - Configuration of services and protocols: LPD, TFTP, NFS, DHCP and NTP.	2

13	<b>Chapter IV – Protocols of TCP/IP model:</b> - TCP segment structure - Transmission Control; - UDP. - DNS, - SIP (VoIP) - IMAP4.	2	<b>Laboratory exercises through Cisco Packet Tracer software:</b> - Standard access list configuration	2
14	<b>Chapter IV – Protocols of TCP/IP model:</b> - Secure Shell (SSH), - IGMP. - ICMP, - Address Resolution Protocol (ARP) - RARP - Proxy ARP, etj.	2	<b>Laboratory exercises through Cisco Packet Tracer software:</b> -Access list configuration and their application on specific cases.	2
15	<b>The second test</b>	2	<b>The second laboratory test</b>	2

**LITERATURE:**

1. The literature in Albanian will be offered to students (script prepared for this subject).
2. Tamara Dean; Network + Guide to Networks, 2016 .

**NOTICE:**

**Notice for the student:**