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| **S Y L L A B U S** |
| **General information**  | **Title and code of**  **subject, number of credits**  | Computer Networks  |
| **Department** | Computer Science |
| **Program**  | Bachelors |
| **Academic semester**  | Fall, 2018 |
| **Lecturer** | Asim Namazov |
| **E-mail:** | asimnamazov4@gmail.com |
| **Phone number:**  | +994 55 660 73 04, +994 50 553 00 12 |
| **Lecture room/Schedule**  | 11 Mehseti Street, AZ1096 Baku, Azerbaijan (Neftchilar campus),Class room: N401 |
|  | **Consultations** | Saturday 08:30 – 10:00 10:10 – 11:40 |
| **Course****language** | English |
| **Type of the subject** | Major |
| **Textbooks and additional materials** | 1. WENDELL ODOM, - CCNA Routing and Switching Study Guide, ICND1 100-105 – 2016
2. WENDELL ODOM, - CCNA Routing and Switching Study Guide, ICND2 100-105 – 2016
3. James F. Kurose and Keith W. Ross , Computer Networking - A Top-Down Approach Featuring the Internet, 6th Edition , 2012 Addison Wesley;
4. From GSM to LTE-Advanced - An introduction to mobile networks and mobile broadband. Revised 2nd edition [Martin Sauter] 2014
5. Andrew S. Tanenbaum, Computer Networks, 5-th Edition,. Prentice Hall, 2011;

Voice over LTE (VoLTE) [Miikka Poikselkam et al.] 2012 |
| **Teaching methods**  | **Lecture** | 15 |
| **Group discussions at seminars** | 15 |
| **Assessment** | **Components** | **Date/ Deadline** | **Percent (%)** |
| **Quizzes (1 quiz with 10 questions)** | During the semester | 10 |
| **Laboratory work (5 exercises in Packet tracer)** |  | 10 |
| **Attendance** |  | 10 |
| **Midterm exam** |  | 30 |
| **Final exam** |  | 40 |
| **Final** |  | **100** |
| **Course description** | This course introduces the underlying concepts and principles of advanced computer networks. It presents the different components of a network and how these components fit together. This course discuss about internet network architecture, the various advanced protocols and technologies, The course emphasizes the design and implementation of network software that transforms raw hardware into a richly functional communication system. Real networks are used as examples to reinforce the concepts and demonstrate various protocols.  |
| **Course objectives** | Introduction to analysis and design of ISP networks through understanding the network layered architecture and the protocol stack and by conducting hands-on programming and lab activities, how to use internet through end to end technology. |
| **Learning outcomes** | By the end of the Course students should be able:* Be familiar with the different Network Models.
* Understand different network technologies
* Understand the effects of using different networking topologies
* Be updated with different advanced network technologies that can be used to connect different networks
* Be familiar with various hardware and software that can help protect the network
* Know the advantage of using a network management system
* Practical skills to configure and manage network devices
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| **Rules (Educational policy and behavior)** | * **Preparation for class**

The structure of this course makes your individual study and preparation outside the class extremely important. The lecture material will focus on the major points introduced in the text. Reading the assigned chapters and having some familiarity with them before class will greatly assist your understanding of the lecture. After the lecture, you should study your notes and work relevant problems and cases from the end of the chapter and sample exam questions.Throughout the semester we will also have a large number of review sessions. These review sessions will take place during the regularly scheduled class periods. * **Withdrawal (pass/fail)**

This course strictly follows grading policy of the School of Economics and Management. Thus, a student is normally expected to achieve a mark of at least 60% to pass. In case of failure, he/she will be required to repeat the course the following term or year. * **Cheating/plagiarism**

Cheating or other plagiarism during the Quizzes, Mid-term and Final Examinations will lead to paper cancellation. In this case, the student will automatically get zero (0), without any considerations.* **Professional behavior guidelines**

The students shall behave in the way to create favorable academic and professional environment during the class hours. Unauthorized discussions and unethical behavior are strictly prohibited. |

This program reflects the comprehensive information about the subject and information about any changes will be providedin advance.

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| **Week** | **Dates****(planned)** | **Subject topics** | **Textbook/****Assignments**  |
| ***1*** | ***18.09.2018*** | **Course information overview;****Introduction to Networks, OSI and TCP/IP model****Network Protocols and Communication** |  |
| ***2*** | ***25.09.2018*** | **Network Layer,****Internet Protocol (IP) Design, Internet Addressing****IP addressing** * IPv4;
* VLSM;
* CIDR;

Summarization |  |
| ***3*** | ***02.10.2018*** | **Ethernet, LAN Design, VLAN principles**  |  |
| ***4*** | ***09.10.2018*** | **VLAN principles** VTP protocol |  |
| ***5*** | ***16.10.2018*** | **VLAN principles** STP protocol |  |
| ***6*** | ***23.10.2018*** | **Inter vlan routing,** |  |
| ***7*** | ***30.10.2018*** | **Application Layer protocols, File transfer – FTP, SFTP, Remote login – telnet, ssh (Stelnet), DNS, HTTP, HTTPS, SNMP** |  |
| ***8*** |  | ***Mid term exam***  |  |
| ***9*** | ***13.11.2018*** | **DHCP** |  |
| ***10*** | ***20.11.2018*** | **Network Address Translation** |  |
| ***11*** | ***27.11.2018*** | **Device Discovery, Management, and Maintenance** |  |
| ***12*** | ***04.12.2018*** | **Routing concepts** Static routing |  |
| ***13*** | ***11.12.2018*** | **Routing concepts** Dynamic routing |  |
| ***14*** | ***18.12.2018*** | **Transport Layer Protocol Design, TCP and UDP** |  |
| ***15*** | ***25.12.2018*** | **Practical Exercises in Packet Tracer (vlan, routing, NAT, DHCP, DNS,)** |  |
|  |  | ***Final Exam*** |  |