

<b>Course Title</b>	<b>Computer Networks</b>		
<b>Course Code</b>	<b>CC-214/CC-214L</b>		
<b>Credit Hours</b>	3 (2,3)		
<b>Category</b>	Computing Core		
<b>Prerequisite</b>	None		
<b>Co-Requisite</b>	None		
<b>Follow-up</b>	None		
<b>Course Introduction</b>	This course provides fundamental concepts related to computer networks. After completion of the course, the students will be able to understand Computer Networks basics, network types, layered communication models and protocols.		
<b>Course Learning Outcomes (CLOs)</b>	At the end of the course, the students will be able to:	<b>BT</b>	<b>PLO</b>
	CLO1: Describe the key terminologies and technologies of computer networks	C2 (Describe)	1
	CLO2: Explain the services and functions provided by each layer in the Internet protocol stack	C2 (Explain)	1
	CLO3: Identify various internetworking devices and protocols and their functions in a networking	C4 (Identify)	1,2
	CLO4: Analyze working and performance of key technologies, algorithms and protocols	C4 (Analyze)	3
	CLO5: Build Computer Network on various Topologies.	C5 (Build)	4,5
<b>Syllabus</b>	<p><b>Introduction:</b> Protocols architecture, basic concepts of networking, network topologies.</p> <p><b>Layered Architecture:</b> Physical layer functionality, data link layer functionality, multiple access techniques, circuit switching and packet switching, LAN technologies, wireless networks, MAC addressing, networking devices, network layer protocols, IPv4 and IPv6, IP addressing, subnetting, CIDR, routing protocols, transport layer protocols, ports and sockets, connection establishment, flow and congestion control, application layer protocols, latest trends in computer networks.</p> <p><b>Lab Topics:</b> Introduction to Wireshark, HTTP GET/response interaction, DNS role in the Internet infrastructure, TCP segments sent and received in transferring, UDP transport protocol, IP investigate the IP protocol, NAT behavior of the NAT protocol, DHCP examine the DHCP packets captured, ICMP capturing the packets generated by the Ping program, Ethernet and ARP investigate the Ethernet protocol and the ARP protocol, 802.11 Wireless investigate the 802.11 wireless network protocol, SSL investigate the Secure Sockets Layer (SSL) protocol</p>		
<b>Suggested Instructional/ Reading Material</b>	<ol style="list-style-type: none"> <li>1. James F. Kurose and Keith W. Ross, Computer Networking: A Top-Down Approach Featuring the Internet, 6th Edition, Pearson, 2012, ISBN: 0132856204.</li> <li>2. T. Lammle, CCNA Cisco Certified Network Associate Deluxe Study Guide, 6th Edition, Sybex, 2011, ISBN: 978-0-470-90108-3.</li> <li>3. Andrew S. Tanenbaum, David J. Wetherall, Computer Networks, 5<sup>th</sup> Edition, Prentice Hall, 2010, ISBN: 9332518742.</li> <li>4. William Stallings, Data and Computer Communications, 10<sup>th</sup> Edition, Pearson, 2013, ISBN: 0133506487.</li> <li>5. Behrouz A. Forouzan, Data Communication and Computer Networks, 5<sup>th</sup> Edition, McGraw-Hill, 2012, ISBN: 0073376221.</li> <li>6. R. Perlman, Interconnections: Bridges, Routers, Switches, and Internetworking Protocols, 2<sup>nd</sup> Edition, Addison-Wesley, 1999, ISBN: 0201634481.</li> </ol>		