

GOPALAN COLLEGE OF ENGINEERING AND MANAGEMENT

Department of Computer Science and Engineering

Academic Year: **2016-17**

Semester: **EVEN**

COURSE PLAN

Semester: **VI**

Subject Code& Name: **10CS64 & Computer Networks-II**

Name of Subject Teacher: **SUPARNA K**

Name of Subject Expert (Reviewer): **N.S.SARADHA DEVI**

For the Period: From: 13-02-17 to 02-06-17

Details of Book to be referred:

Text Books	T1: Communication Networks – Fundamental Concepts & key architectures, Alberto Leon Garcia & Indra Widjaja, 2nd Edition, Tata McGraw-Hill, India T2: Computer & Communication Networks, Nadir F Mir, Pearson Education, India
Reference Books	R1: Behrouz A. Forouzan: Data Communications and Networking, 4 th Edition, Tata McGraw-Hill, 2006. R2: William Stallings: Data and Computer Communication, 8th Edition, Pearson Education, 2007.

Lecture NO	Topic Planned	Practical Applications & Brief objectives	Book referred with Pg No.	Planned Date	Executed Date	Deviation Reasons thereof	How Made Good / Reciprocate arrangement	Remarks by HOD
1.	Introduction to the subject UNIT-1 :Packet Switching Networks 1: Introduction	Objective: Introduce the concept of data transfer between the networks using routing protocols		13-02-17				
2.	Network services and internal network operation		T1: 490- 491	14-02-17				

3.	Network services and internal network Operation contd	<p>Application: Wireless sensor networks, Ad-hoc networks, Blue tooth, Multimedia Networks</p> <p>Outcome: Able to understand the concept of routing and the way in which it is done using the algorithm</p>	T1: 492-495	15-02-17					
4.	Packet network topology		T1: 496-500	16-02-17					
5.	Routing in Packet networks		T1: 515-521	20-02-17					
6.	Shortest path routing		T1: 522-527	21-02-17					
7.	Bellman-Ford algorithm		T1: 528-530	22-02-17					
8.	Revision/ Class Test			23-02-17					
9.	UNIT – 2: Packet Switching Networks 2: Dijkstra’s Algorithm: -Concept, example		<p>Objective: This deals with detecting, avoiding congestion in various levels in order to meet QoS</p> <p>Application: Internet Mobile networks ATM networks</p> <p>Outcome: To Understand the concept of traffic in the networks, the way in which it is detected and avoided</p>	T1: 530-534	27-02-17				
10.	Traffic management at the Packet level -FIFO and priority queue -Fair queueing			T1: 539-545	28-02-17				
11.	Traffic management at the Packet level contd -Weighted fair queueing -Random Early Detection	T1: 545-548		01-03-17					
12.	Traffic management at Flow level -Open loop control -Admission control -Policing -Traffic shaping	T1: 549-556		02-03-17					
13.	Traffic management at Flow level contd - Closed loop control -End-to-end vs. Hop-by-hop	T1: 558-561		03-03-17					

	-Implicit vs Explicit feedback Traffic management at flow aggregate level.							
14.	Revision/Class test			04-03-17				
15.	UNIT – 3 TCP/IP-1: Introduction TCP/IP architecture: -Encapsulation of PDUs -Internet and network interface layers	<p>Objective: This shows how we can transfer the data reliably using best effort delivery service from source to the destination using transport layer protocol</p> <p>Application: E-mail, Telephone systems, Firewalls</p> <p>Outcome: Able to understand the transfer of data from source to the destination using different protocols and addressing</p>	T1: 573-575	06-03-17				
16.	The Internet Protocol: -IP packet: IPV4 header -IP addressing		T1: 576-580	07-03-17				
17.	The Internet Protocol -Subnet addressing -IP routing		T1: 581-584	08-03-17				
18.	CIDR Address Resolution Reverse Address Resolution Fragmentation and Reassembly		T1: 584-587	13-03-17				
19.	ICMP IPv6: -Header format -Network addressing		T1: 587-597	14-03-17				
20.	IPv6: Extension header Migration issues from IPV4 to IPV6		T1: 597-601	15-03-17				
21.	UDP: -Header and Pseudoheader -Revision/ Class test		T1: 601-602	16-03-17				
22.	UNIT – 4 : TCP/IP-2: Introduction TCP:		T1: 602-605	17-03-17				

	-protocol -Example -Data transfer	<p>Objective: To transfer the data without congestion in routing</p> <p>Application: Mobile networks, Multicast networks, Control and manage the resources in connectionless and connection oriented networks</p> <p>Outcome: To understand the transfer of data without congestion in routing dynamically</p>							
23.	TCP: -connection termination State transition		T1: 606-610	20-03-17					
24.	TCP: -congestion control -congestion avoidance Internet Routing Protocol: -message format		T1: 610-617	21-03-17					
25.	Internet Routing Protocols: OSPF operation Advantages and Disadvantages		T1: 620-622	22-03-17					
26.	OSPF database description, LSA header BGP: header format		T1: 623-630	23-03-17					
27.	Open message format Update message format Notification message format		T1: 630-632	27-03-17					
28.	Multicast Routing Mobile IP: routing NAT, DHCP		T1: 633-648	28-03-17					
29.	Revision/Class Test			30-03-17					
30.	UNIT – 5 : Applications, Network Management, Network Security: - Application layer overview -client server model Domain name space		T2: 226-230	31-03-17					
31.	Domain Name System (DNS) message format Remote Login Protocols:	T2: 231-234	03-04-17						

	-TELNET -SSH protocols	presents the fundamentals of the application layer and to understand the security in networks Using various cryptographic techniques						
32.	E-mail: -SMTP -Email -File Transfer and FTP -World Wide Web Network management -Elements -SMI -MIB -SNMP		T2: 235-243	04-04-17				
33.	Overview of network security: Overview of security methods	Application: Wireless networks, Sensor networks, Adhoc networks, Telephone networks Outcome: Able to understand the security in networks using various cryptographic techniques	T2: 250-256	05-04-17				
34.	Secret-key encryption protocols: -DES		T2: 257-259	06-04-17				
35.	Public-key encryption protocols : -AES		T2: 260-262	07-04-17				
36.	Authentication: RSA algorithms Diffie- Hillman key exchange		T2: 263-265	10-04-17				
37.	Authentication and digital signature, Firewalls Revision/Class Test		T2: 269	11-04-17				
38.	UNIT – 6 : QoS, VPNs, Tunneling, Overlay Networks: -Overview of QoS -Integrated Services QoS -Traffic Shaping	Objective: To know the importance of security in networks	T2: 316-323	12-04-17				
39.	-Admission control -Resource reservation protocol -packet scheduling		T2: 324-325	13-04-17				

40.	-Priority queue scheduler -Preemptive Priority queue scheduler -Fair queue scheduler -Weighted Fair queue scheduler	and to meet the QoS requirements in networking Application: Secure Internet connection, Mobile networks, Cloud computing Outcome: Able to understand the importance of securing the data using different network protocols	T2: 325-326	20-04-17				
41.	Differentiated services QoS -Per hop behavior		T2: 335-336	21-04-17				
42.	Virtual Private Networks(VPN): -Remote Access VPN -Site-to-site VPN -Tunneling and point-to-point VPN		T2: 432-435	24-04-17				
43.	Security in VPN MPLS: -operation -routing -tunneling Traffic Engineering, Overlay networks		T2: 436-445	25-04-17				
44.	Revision/Class Test			26-04-17				
45.	UNIT - 7 : Multimedia Networking: Overview of data compression: storage, space, coding requirements	Objective: It focuses on data compression techniques for voice and video to prepare digital voice and video for multimedia networking Application: Radio broadcast, Television shows, video recording of	T2: 450-456	27-04-17				
46.	Digital voice and compression techniques		T2: 456-467	28-04-17				
47.	Overview of IP Telephony -Concept -Advantages -Disadvantages		T2: 480-482	02-05-17				
48.	Real-Time Media Transport Protocols VoIP signaling protocols: -SIP		T2: 482-496	03-05-17				

	-H.323	events, video conference, Group meeting						
49.	Stream control Transmission Protocol(SCTP) -packet structure -features -data transfer	Outcome: To understand the limits and importance of compression, encoding, sampling, quantization methods	T2: 500-501	04-05-17				
50.	Revision/Class Test			05-05-17				
51.	UNIT – 8 : Mobile AdHoc Networks and Wireless Sensor Networks: Overview of Wireless Ad-Hoc networks -Applications -Features -Table driven vs. source-initiated routing protocols	Objective: To understand the wireless networks and communication between the nodes and various protocols	T2:512-513	08-05-17				
52.	Routing in AdHoc Networks -Classification of routing protocols		T2: 513-515	09-05-17				
53.	Routing protocols -DSDV protocol -Cluster-head protocol -Gateway switching protocol -Wireless routing protocol	Application: Wireless Computer Networks, Wireless LANs, Satellite communication, Radar communication	T2: 515-517	10-05-17				
54.	-DSR protocol -TORA protocol -ABR protocol		T2: 519-521	11-05-17				
55.	-ON demand distance vector protocol Security in Ad-Hoc networks -Types of attacks	Outcome: Able to Understand how the	T2: 522-530	12-05-17				

	-Criteria for a secure protocol	communication is achieved securely without using any kind of connection						
56.	Sensor Networks and protocol structures Communication Energy model, Clustering protocols LEACH protocol		T2: 536-547	18-05-17				
57.	DEEP protocol Intercluster and Intracluster protocol		T2: 547-554	19-05-17				
58.	ZigBee technology and 802.15.4 Revision/Class Test		T2: 559	22-05-17				
59.	Revision	Solving VTU Question Paper		23-05-17				
60.	Revision			24-05-17				
61.	Revision			25-05-17				
62.	Revision			26-05-17				
63.	Revision			29-05-17				
64.	Revision			30-05-17				
65.	Revision			01-06-17				
66.	Revision			02-06-17				

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