Course Code	Course Name	Teaching Scheme (Contact Hours)			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
ECCDLO 7023	Internet Communication Engineering	03	--	--	03	--	--	03

Course Code	Course Name	Examination Scheme							
		Theory Marks				Exam Duration (Hrs.)	Term Work	Practical and Oral	Total
		Internal Assessment			End Sem. Exam.				
		Test 1	Test 2	Avg.					
ECCDLO 7023	Internet Communication Engineering	20	20	20	80	03	--	--	100

Course Pre-requisite:

- Analog communication

- Digital Communication

- Computer Communication and Networks

Course Objectives:

1. To focus on Internet protocol, standards, services and administration.

2. To discuss the Internet security protocol and security services

3. To discuss multimedia communication standards and compression techniques

4. To add insights on software defined network & network automation

5. To introduce Internet of Things

Course Outcomes:

After successful completion of the course student will be able to:

1. Compare the protocols at each layer of TCP/IP protocol suite.

2. Explain the internet security aspects of protocols at various layers of TCP/IP protocol suite.

3. Apply the various compression algorithms for audio, image & video coding.

4. Categorize and design simple networked multimedia systems.

5. Compare integrated & differentiated services for quality of service.

6. Explain a software defined Network.

Module No.	Unit No.	Topics	Hrs.
1.0		**Introduction to Internet**	**03**
	1.1	What is the Internet, Evolution of the Internet, service description, Network protocol?	
	1.2	Overview of TCP/IP, layer functions	
2.0		**Application Layer in the Internet**	**06**
	2.1	Application Layer- Host configuration, DHCP, Domain Name System (DNS), Multicast DNS	
	2.2	Remote Login, TELNET and SSH, HTTPS, electronic mail	
3.0		**Internet Security**	**05**
	3.1	Network layer security (AH, ESP, IPsec)	
	3.2	Transport layer security (SSL), Application layer security (secure E mail-PGP, S/MIME)	
	3.3	VPN Firewall, Intrusion Detection System.	
4.0		**Multimedia Communications**	**10**
	4.1	Information Representation- text, images, audio and video, Text and image compression, Audio and video compression, video	
	4.2	compression standards: H.261, H.263, P1.323, MPEG 1, MPEG 2, Other coding formats for text, speech, image and video	
	4.3	multimedia transport across IP networks and relevant protocols such as RSVP, RTP, RTCP, DVMRP, Signalling Protocols: Real-Time Streaming Protocol (RTSP).	
	4.4	VoIP, IPTV	
5.0		**Quality of Services (QoS)**	**07**
	5.1	Integrated services (intserv): Architecture and Service Model, Resource Reservation Protocol (RSVP), Packet Scheduling Disciplines in the Internet	
	5.2	Differentiated Services (diffserv): Framework and Concept, Assured and Expedited Services, Packet Classification, Routers Internals and Packet Dropping Techniques	
6.0		**Network Industry Trends & Automation**	**08**
	6.1	Introduction to software defined networking, OPENFLOW	
	6.2	Why network automation? Simplified Architectures, Deterministic outcomes, Business Agility, Types of network automation, Device Provisioning, Data collection, Migrations, Configuration Management, Compliance, Reporting, Troubleshooting, Evolving from the management plane from SNMP to device APIs--- Impact of open networking, Network Automation in the SDN era.	
	6.3	Introduction to Internet of Things (IoT): Definition and characteristics of IoT, Physical design of IoT: Things in IoT, IoT Protocols.	
		Total	**39**

Text Books:
1. B. Forouzan, —*TCP/IP Protocol Suite*l, 4th Edition, McGraw-Hill Publication
2. K. R. Rao, Zaron S. Bojkovic, Dragorad A. Milocanovic, Multimedia Communication Systems, Prentice Hall India, 2002. ISBN: 81-203-2145-6.
3. Network Programmability & Automation---Jason Edelman, Scott S. Lowe & Matt Oswalt, OREILLY.