AMITY UNIVERSITY
UTTAR PRADESH

Course Title: VOIP and IPV6 Translation

Course Level: PG
Course Code: CSIT718

Credit Units:

L	T	P/S	SW/FW	TOTAL CREDIT UNITS
3	1	-	-	4

Course Objectives: Networks and communications have become an integral part of our life, This course is designed with the aim to

- provide insight of emerging technologies on innovation
- appraise the ecological, economic, social, ethical and legal implications.
- Highlights technologies Voice over IP (VoIP), IPV6 and Quality of Service (QoS) technologies.

Pre-requisites: Basic Knowledge of Networking

Course Contents/Syllabus:

	Weightage (%)
Module I : Introduction and Structure of IPv6	**25%**
Limitation of IPv6, Features of IPv6, Comparison of IPv4 and IPv6, IPv6 Terminologies, The Case for IPv6 Deployment. General header structure, fields in IPV6 header, extension headers, IPv6 Addressing, Address types, address notation, prefix notation, format prefixes, address privacy, anycast address, multicast address, required address	
Module II: Security and Quality of Services in IPv6	**15%**
Types of threats, basic security requirements and techniques, current solutions, IPsec framework,Ipv6 security elements, Internetworking of Ipv6 features with other services, QOS paradigms, QOS in Ipv6,QOS architectures, Mapping IP QOS to underlying transmission networks, issues in IP QOS.	

Module III : Introduction to VoIP	**30%**
Requirements of Voice in an IP Internetwork, Real-Time Voice in a Best-Effort IP Internetwork , Packet Loss, Delay, and Jitter Consistent Throughput, Reordering of Voice Packets ,Reliability and Availability ,Gateway and Their Roles ,Guidelines for Selecting the Correct Gateway ,Determining Gateway Interconnection Requirements in an Enterprise Environment, Central, and Remote Site, Determining Gateway Interconnection Requirements in a Service Provider Environment	
Module IV: Overview of PSTN and comparisons to VOIP	**15%**
Beginning of the PSTN, Understanding PSTN services, PSTN services and applications, packet telephony network drivers, standards based packet infrastructure layer, new PSTN network infrastructure model	
Module V: Session Initiation Protocol and related protocol	**15%**
SIP, sample message flows, message headers, SDP messages, Traditional Telephony, Basic Components of a Telephony Network, CO Switches, Private Switching Systems, Call Signalling	

Student Learning Outcomes:

After finishing this course, students will be able to:

- **Communicate** effectively the structure of IPv6 protocol.
- **Communicate** effectively the different protocols used for VoIP infrastructure.
- **Identify** structure and implementation of Public Switched Telephone Networks services.
- **Distinguish** between VoIP and PSTN.

Pedagogy for Course Delivery:

Course will be delivered in lectures in the classroom and instructor has liberty to give research work to increase the understanding of the subject when and where it is necessary.

Assessment/ Examination Scheme:

Theory L/T (%)	Lab/Practical/Studio (%)	Total (%)
100		100

Theory Assessment (L&T):

Continuous Assessment/Internal Assessment					End Term Examination
Components (Drop down)	**CT1**	**HA**	**VV**	**A**	**EE**
Weightage (%)	10	10	5	5	70

Text & References:

Text Books:

- 1.IPv6 Essentials by Silvia Hagen,O'Reilly publication
- 2. Understanding Ipv6 by joseph Davies, Microsoft Press, PHI

Reference Books :

- 3.Practical VOIP by Luan Dang, O'Reilly publication

Any other Study Material:

- **http://www.tutorialspoint.com/ipv6/**
- **http://archive.icann.org/en/meetings/saopaulo/presentation-ipv6-tutorial-basics-03dec06.pdf**
- **http://www.eogogics.com/talkgogics/infocenter/VoIP**
- **https://www.voiptalk.org/products/voip-tutorial.html**
- **http://www.eventhelix.com/realtimemantra/telecom/sip_pstn_call_flow.pdf**
- **http://www.inetdaemon.com/tutorials/telecom/pstn/**