Unified communications and contact center Applications

Teaching Scheme
Lectures/Week:4
Practical's /Week: None

Examination Scheme
Paper: 100 Marks
Oral: None

Unit 1: Introduction to digital and lP Telephony — 6 Hours

Digital Telephony: circuit switched networks, ss7, ISDN, Exchanges, E.164 Numbering Plans
IP Telephony: Packet switched Networks, signaling & Media separation' Media Encapsulation ' RTP and RTCP, Audio and Video Codecs

Unit 2: VolP Protocols — 10 Hours

H.323 Network Elements: Terminals, Gateway, Gate keeper, Multi point Control Unit
H.323 protocol: RAS Channel, H.225 Call signaling, H.245 Media signaling
H.323 Call flows: Basic Audio and Video Call flows
SIP Network Elements: Registrar, Proxy, UAS, UAC, B2BUA
SIP Protocol: Requests and Responses, Methods, Headers and Parameters, Message structure, Transactions and Dialogs, Session Description Protocol
SIP Call Flows: Basic Audio and Video Call Flows
H.248 protocol : Media Gateways, Media Gateway controllers, commands, Transactions, Contexts, Terminations, Descriptors' Packages

Unit 3: Unified Communications — 6 Hours

Local and Network features: Call Forward, Call coverage, Automatic Call Back, User Displays, Resource Optimization.
Voice & Data Integration: IM, presence, voice mail,
collaboration: call Conferencing, Voice, Video, Data and content integration.
Mobility: Mobile Clients, Session Border Controllers.
Business Applications: Framework for custom applications, computer Telephony Interface, Application Sequencing.

Unit 4: Inbound Contact Center — 8 Hours

Call Centers: Introduction, Evolution and classification of Contact Centers.
Inbound Contact Center :Introduction Self Service / Interactive Voice Response, Routing, Intelligent Routing, VXML
Agent : Skills, Selection Algorithms, Modes, Service Observing, Recording

Unit 5: Outbound Contact Center and Reporting — 8 Hours

outbound contact center: Introduction, Proactive contact: voice, SMS, E-mail & chat. Contact Center Reporting: Types of Reports, Business use cases.
Analytics: Agent Performance, Occupancy

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Unit 6: Emerging technologies in Telecommunications 6 Hours

High Availability: Load balancing, Reliability, Failover & Failback, Location Redundancy, Hardware footprint, cloud Computing : Applications in Telecommunications Analytics in Voice & Data, Diagnostics & Management
Emerging Technologies: Google Glass, webRTC, Hosting on Cloud.

Text Books

1. Allan Sulkin, "PBX Systems for IP Telephony" McGraw-Hil! Professional

Reference books

1. ITU-T H.323 Packet-based multimedia communications systems
2. ITU-TH.225Call Signaling Protocols and media stream packetization
3. ITU-T H-245 Control protocol for multimedia communication
4. IETF RFC 326131P: Session Initiation Protocol
5. IETF RFC4566 SDP: Session Description Protocol
6. Contact Center for' Dummies,Wiley Publishing Inc.
7. Real Time Communication with WebRTC, O'Reilly Publishing