EC8002 MULTIMEDIA COMPRESSION AND COMMUNICATION

DETAILED SYLLABUS

OBJECTIVES:

The student should be made:

- To understand the compression schemes for text, voice, image and video
- To understand the QoS issues in multimedia network
- To know the communication protocols for multimedia networking

UNIT I AUDIO COMPRESSION

Sampling and Quantization of Speech (PCM) - Adaptive differential PCM - Delta Modulation - Vector Quantization- Linear predictive coding (LPC) - Code excited Linear predictive Coding (CELP)

UNIT II IMAGE AND VIDEO COMPRESSION

Graphics Interchange format- Tagged image file format-Digitized documents- Digitized pictures JPEG-Video Encoding-Motion estimation –Overview of H.263 and MPEG-2

UNIT III TEXT COMPRESSION

Static and Dynamic Huffman coding – Arithmetic coding –Lempel-Ziv coding – LZW coding

UNIT IV GUARANTEED SERVICE MODEL

Best Effort service model – Scheduling and Dropping policies – Network Performance Parameters – Quality of Service and metrics – WFQ and its variants – Random Early Detection – QoS aware Routing – Admission Control – Resource Reservation – RSVP - Traffic Shaping Algorithms – Caching – Laissez Faire Approach - Possible Architectures – An Overview of QoS Architectures

UNIT V MULTIMEDIA COMMUNICATION

Stream characteristics for Continuous media – Temporal Relationship – Object Stream Interactions, Media Levity, Media Synchronization – Models for Temporal Specifications – Streaming of Audio and Video – Jitter – Fixed playout and Adaptive playout – Recovering from packet loss – RTSP –– Multimedia Communication Standards – RTP/RTCP – SIP and H.263

TEXT BOOK:

1. Fred Halsall, —Multimedia communication- Applications, Networks, Protocols and Standards‖, Pearson education, 2007.

REFERENCES

1. Tay Vaughan, —Multimedia Making it work, McGraw-Hill Osborne Media, 2006.

2. Kurose and W. Ross, —Computer Networking —A Top Down Approach, Pearson education, 3rd ed, 2005.

3. KR. Rao,Z S Bojkovic, D A Milovanovic, —Multimedia Communication Systems: Techniques, Standards, and Networks‖, Pearson Education 2007

4. R. Steimnetz, K. Nahrstedt, —Multimedia Computing, Communications and Applications‖, Pearson Education, First ed, 1995.

5. Nalin K Sharda, Multimedia Information Networking, Prentice Hall of India, 1999

6. Aura Ganz, Zvi Ganz and Kitti Wongthawaravat, Multimedia Wireless Networks: Technologies, Standards and QoS', Prentice Hall, 2003.

7. Ellen Kayata Wesel, _Wireless Multimedia Communications: Networking Video, Voice and Data', Addision Wesley, 1998