INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPT./CENTRE: **Electronics and Computer Engineering**

1. Subject Code: **EC – 654N** Course Title: **Multimedia Techniques**

2. Contact Hours: **L: 3** **T: 0** **P: 0**

3. Examination Duration (Hrs.): **Theory** 0 | 3 **Practical** 0 | 0

4. Relative Weight: **CWS** 15 **PRS** 00 **MTE** 35 **ETE** 50 **PRE** 00

5. Credits: 0 | 3 6. Semester [ ] **Autumn** [√] **Spring** [ ] **Both**

7. Pre-requisite: **EC – 202 or Equivalent**

8. Subject Area: **MSC**

9. Objective: To expose students to the concepts and issues of multimedia data acquisition, communication and presentation technologies.

10. Details of the Course:

Sl. No.	Contents	Contact Hours
1.	**Introduction to Multimedia Systems:** Architecture and components, multimedia distributed processing model, synchronization, orchestration and quality of service architecture.	5
2.	**Audio and Speech:** Data acquisition, sampling and quantization, human speech production mechanism, digital model of speech production, analysis and synthesis, psycho-acoustics, low bit rate speech compression, MPEG audio compression.	7
3.	**Images and Video:** Image acquisition and representation, composite video signal, NTSC, PAL and SECAM video standards; Bilevel image compression standards, JPEG and MPEG.	6
4.	**Multimedia Communication:** Fundamentals of data communication and networking, bandwidth requirements of different media; Real time constraints: Audio latency, video data rate; Multimedia over LAN and WAN, multimedia conferencing.	8
5.	**Hypermedia Presentation:** Authoring and publishing, linear and non-linear presentation, structuring information, different approaches of authoring hypermedia documents, hypermedia data models and standards.	8
6.	**Multimedia Information Systems:** Operating system support for continuous media applications, limitations of OS, new OS support,	8

	media stream protocol, file system support for continuous media, data models for multimedia and hypermedia information, content based retrieval of unstructured data.	
	Total	**42**

12. Suggested Books:

Sl. No.	**Name of Books/Authors**	**Year of Publication**
1.	Li, Z.N. and Drew, M.S., "Fundamentals of Multimedia", Pearson Education.	2004
2.	Hillman, D., "Multimedia Technology and Application", Galgotia Publication.	1998
3.	Steinmetz, R., "Multimedia Computing, Communication and Applications", Pearson Education.	2001
4.	Buford, J., "Multimedia Systems", Addison Wesley.	1996