For Examinations to be held in the December 2021, 2022,2023

Class: M.Tech 3rd Semester
Branch: CSE
Course Title: Multimedia and Virtual Reality
Course No.: MCSE32B
Duration Exam: 3 HRS

L	T	P	C	Theory (External)	Internal
3	-	-	3	75	25

Course overview: This course addresses the field of virtual reality (VR) from the end-user's perspective. This course will present various rationale justifying the need for virtual reality (VR) and outline what VR can offer beyond traditional computer solutions. This course examines the features of VR technology and relates these features to specific applications. The course concentrates on identifying how VR can be applied to help solve today's science and engineering challenges and does not focus on exploring the various VR hardware and software products available on the market.

Course Outcomes: By the end of the course students shall be able to:

CO32B.1	Demonstrate an ability to do research by designing and conducting experiments, analyze and interpret multimedia data individually as well as part of multidisciplinary teams.
CO32B.2	Demonstrate an ability to design a system, component or process as per needs and specifications of the customers and society needs.
CO32B.3	Acquire an ability to prepare short films and documentaries to showcase their knowledge of multimedia tools.

Detailed Syllabus

UNIT 1 : Multimedia preliminaries and applications : Development and use of multimedia packages; Introduction to virtual reality and modelling languages; CD-ROM and the Multimedia Highway, Introduction to making multimedia :The Stages of project, the requirements to make good multimedia, Multimedia skills and training, Training opportunities in Multimedia. Motivation for multimedia usage; Frequency domain analysis, Application Domain & ODA ; Multimedia Hardware and Software: Multimedia Hardware – Macintosh and Window production Platforms, Hardware peripherals – Connections, Memory and storage devices, Media software – Basic tools, making instant multimedia, Multimedia software and Authoring tools, Production Standards. **(08 hrs)**

UNIT 2 : Multimedia building blocks Multimedia : Text, Sound, Images, Animation and Video, Digitization of Audio and Video objects; Data Compression: Different algorithms related to text, audio, video and images ; Working Exposure on Tools like Dream Weaver, 3D Effects, Flash . **(06 hrs)**

UNIT 3 : Multimedia and the Internet : History, Internet working, Connections, Internet Services, The World Wide Web, Tools for the WWW : Web Servers, Web Browsers, Web page makers and editors, Plug-Ins and Delivery Vehicles, HTML; Designing for the WWW – Working on the web; Multimedia Applications: Media Communication, Media Consumption, Media Entertainment, Media games. **(07 hrs)**

UNIT 4 : Multimedia looking towards Future: Digital Communication and New Media, Interactive Television, Digital Broadcasting, Digital Radio, Multimedia Conferencing, Assembling and delivering a project-planning and costing, Designing and Producing content and talent, Delivering; CD-ROM technology. **(07 hrs)**

UNIT 5 : Virtual Reality : Introduction to Virtual reality & Virtual reality Systems, Related Technologies: Tele-operation & augmented reality system, VRML Programming, Domain Dependent Applications like Medical, Visualisation Visibility computation ,Time Critical rendering. **(07 hrs)**

Note: The Question paper will comprise of 7 questions of 15 marks each uniformly distributed over the entire syllabus based on teaching hours. The candidates shall have to attempt any 5 questions.

Suggested Books:

- Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK.
- Tay Vaughan, 'Multimedia: Making it Work', TMH
- Keyes, 'Multimedia Handbook', TMH