Department of CSE
Details of Lesson Plan

S. No.	Particulars	Details
1.	Course Name	Multimedia and Virtual Reality
2.	Course Code	MCSE32B
3.	Academic Year	2024-25
4.	Semester	3rd
5.	Number of Lesson plans	35
6.	Faculty Assigned	Dr. Rajneet Kaur Bijral

Faculty Signature

Lesson Plan No. 1.1	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	**Multimedia preliminaries and applications: Development and use of multimedia packages**. **Motivation for multimedia usage**
Objectives	At the end of the lesson the student shall be able to: a. Understand Multimedia b. Explain significance of Multimedia and its application. c. Understanding the concept of multimedia packages and their uses.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	1. **Introduction** (5 minutes) - Ask questions: What do you understand by multimedia? - What is the application of multimedia? - Have a discussion on the significance of multimedia by introducing how multimedia is improving the way content is created, shared, and consumed 2. **Development** (30 minutes) - Define Multimedia a. Understand multimedia component - The various components of multimedia include text, images, audio, video, animation, and interactivity. b. Understand need of multimedia - how multimedia is improving content in various fields: - Elaborate how it Enhanced Engagement and Interactivity. - By Better Understanding and Retention. - Catering to Different Learning Styles c. Summarize the need and significance of multimedia. 3. **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH

	Homework: 3. **Activity**: Understanding the need and significance of multimedia. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Nearpod / Mentimeter Quiz on need of multimedia and its applications. **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 1.2	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	**Introduction to virtual reality and modelling languages**
Objectives	At the end of the lesson, the student shall be able to: a. Understand the basic concept of Virtual Reality (VR). b. Identify key characteristics and applications of VR. c. Differentiate between VR and related technologies (AR, MR, XR).
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	1. **Introduction** (5 minutes) - Ask questions: - What is Virtual Reality? - Define the term Virtual Reality. - What is Modelling language? - Application of Virtual Reality. 2. **Development** (30 minutes) a. What are Modelling Languages?: - A modelling language is a formal language used to represent objects, data, and interaction in VR environments. - Examples include X3D, VRML (Virtual Reality Modelling Language), and Collada. b. VRML (Virtual Reality Modelling Language) - Overview of VRML: A language used to describe 3D environments for VR. c. Challenges in VR and Modelling Languages - Discuss the technical and practical challenges in VR and modelling. - Understand the future trends in VR development and modelling languages. d. Summarize the need of virtual reality and its significance. 3. **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.

	2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: 3. **Activity**: Suggested reading on VR trends and modelling languages from selected research papers or textbooks. **Activity References**: a) Jed Hartman "The VRML 2.0 Handbook: Building Moving Worlds on the Web": b) by Tony Parisi "Learning Virtual Reality: Developing Immersive Experiences and Applications for Desktop, Web, and Mobile" Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Google form Quiz on the topic virtual reality and modelling. **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 1.3	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	CD-ROM and the Multimedia Highway
Objectives	At the end of the lesson the student shall be able to: a. Understand the basic concept and structure of CD-ROM. b. Learn how CD-ROMs store and retrieve multimedia content. c. Recognize the historical significance and development of CD-ROM technology. d. Define and explain the concept of the Multimedia Highway. e. Understand how CD-ROM fits into the broader context of the Multimedia Highway. f. Explore the transition from CD-ROM to other multimedia distribution channels.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	1. **Introduction** (5 minutes) - Ask questions: What is the basic concept and structure of CD-ROM - Define the term Multimedia Highway. - CD-ROM's Role in the Multimedia Highway: 2. **Development** (30 minutes) a) What is the Multimedia Highway?: b) CD-ROM's Role in the Multimedia Highway: - CD-ROM as one of the first means of distributing large multimedia content (video, images, audio, and interactive software). - Discuss early multimedia applications like Microsoft Encarta, educational software, and interactive games. c) Evolution Beyond CD-ROM: 3. **Exercise** (10 minutes) – - CD-ROM technology and its impact on multimedia distribution. - The technical aspects of CD-ROM and the rise of modern multimedia platforms.
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.

	2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: 3. **Activity**: How CD-ROM technology contributed to the early development of multimedia content distribution and how it compares to modern-day streaming services. **Activity References**: a) Tay Vaughan, 'Multimedia: Making it Work', TMH Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Google form Quiz on the topic CD-ROM and multimedia Highway. **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 1.4	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	**Introduction to making multimedia :The Stages of project, the requirements to make good multimedia, Multimedia skills and training**
Objectives	At the end of the lesson, the student shall be able to: a. To introduce students to the stages of a multimedia project b. Discuss the essential requirements for creating good multimedia content. c. Highlight the necessary skills and training needed for multimedia production.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube d. Use of Nearpod / Mentimeter / Kahoot tools.
Teaching Development	1. **Introduction** (5 minutes) - Ask questions: what is the need of creating good multimedia? - What are the necessary skills needed for multimedia? 2. **Development** (30 minutes) a. **Definition of Multimedia**: Multimedia: A combination of text, images, audio, video, and animation to create an engaging and interactive experience. **b. Importance of Multimedia:**Uses in education, entertainment, business, and communication. **c.** Stages of a Multimedia Project **d.** Multimedia Skills and Training 3. **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity** : Break students into small groups and ask them to outline a simple multimedia project (e.g., a 3-minute promotional video or a

	multimedia e-learning module). Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpod. **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 1.5	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Frequency domain analysis, Application Domain & ODA
Objectives	At the end of the lesson, the student shall be able to: a. Understand the fundamentals of Frequency Domain Analysis and its applications. b. Recognize the significance of Application Domains in software and system design. c. Grasp the principles of Object Domain Analysis (ODA) in object-oriented development.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube d. Use of Nearpod / Mentimeter / Kahoot tools.
Teaching Development	1. **Introduction** (5 minutes) - Ask questions: what is the concepts of Frequency Domain Analysis, Application Domains, and Object Domain Analysis (ODA)? - What is the importance and applications in real-world scenarios? 2. **Development** (30 minutes) a) Definition of Frequency Domain Analysis: - Explanation of how signals can be analyzed in the frequency domain rather than the time domain. - Comparison of Time Domain vs. Frequency Domain. b) Applications of Frequency Domain Analysis: - Signal Processing: Audio processing (removing noise, equalization), video compression. - Control Systems: Frequency response analysis for system stability. - Vibration Analysis: Detecting faults in mechanical systems by identifying dominant frequencies. - Communication Systems: Modulation, transmission, and filtering of signals. 3. **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity** : Frequency Domain Analysis and how it helps in understanding signals and systems in terms of their frequency components. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpod. **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 1.5	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Frequency domain analysis, Application Domain & ODA
Objectives	At the end of the lesson, the student shall be able to: a. Understand the fundamentals of Frequency Domain Analysis and its applications. b. Recognize the significance of Application Domains in software and system design. c. Grasp the principles of Object Domain Analysis (ODA) in object-oriented development.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube d. Use of Nearpod / Mentimeter / Kahoot tools.
Teaching Development	1. **Introduction** (5 minutes) - Ask questions: what is the concepts of Frequency Domain Analysis, Application Domains, and Object Domain Analysis (ODA)? - What is the importance and applications in real-world scenarios? 2. **Development** (30 minutes) a) Definition of Frequency Domain Analysis: - Explanation of how signals can be analyzed in the frequency domain rather than the time domain. - Comparison of Time Domain vs. Frequency Domain. b) Applications of Frequency Domain Analysis: - Signal Processing: Audio processing (removing noise, equalization), video compression. - Control Systems: Frequency response analysis for system stability. - Vibration Analysis: Detecting faults in mechanical systems by identifying dominant frequencies. - Communication Systems: Modulation, transmission, and filtering of signals. 3. **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity** : Frequency Domain Analysis and how it helps in understanding signals and systems in terms of their frequency components. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpod. **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 1.7	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Media Software – Basic Tools, Making Instant Multimedia
Objectives	At the end of the lesson, the student shall be able to: a) Identify basic media software tools used in multimedia creation. b) Understand the purpose of each tool and its role in multimedia production. c) Create simple, instant multimedia content using available software.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	1. **Introduction** (5 minutes) - Ask questions: what are the essential media software tools for multimedia production. - Have they used these tools to create instant multimedia content. 2. **Development** (30 minutes) - Introduction to Media Software - Definition of Media Software & Importance of Media Software - Basic Media Software Tools - Animation Software. - Key Principles for Creating Instant Multimedia: Simplicity, Efficiency, Quality over Quantity 3. **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity** : Ask students to use Canva or any available software to create a simple multimedia piece (e.g., a poster or a short video). Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpod.s

	3. MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 1.7	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	**Multimedia software and Authoring tools, Production Standards.**
Objectives	At the end of the lesson, the student shall be able to: a) Understand the functions of multimedia software and authoring tools. b) Identify various multimedia software used in different production stages. c) Learn the production standards required for developing high-quality multimedia projects. d) Explore the role of authoring tools in structuring interactive multimedia projects.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	1. **Introduction** (5 minutes) - Ask questions: What is Multimedia Software? Name any multimedia software. 2. **Development** (30 minutes) - Introduction to Multimedia Software - Definition of Multimedia Software: Types of Multimedia Software: - Multimedia Software Workflow - Pre-production - Production - Post-production - Multimedia Authoring Tools - Definition and Purpose of Authoring Tools - Production Standards in Multimedia - Define Production Standards 3. **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Ask students to use a basic authoring tool like PowerPoint or Adobe Captivate to create a simple interactive multimedia presentation with text, images, and clickable navigation buttons.

	Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpod.s **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 1.7	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	**Multimedia building blocks Multimedia : Text, Sound, Images, Animation and Video**
Objectives	At the end of the lesson, the student shall be able to: a) Understand the role of each multimedia building block (text, sound, images, animation, and video). b) Explore how these elements work together to create engaging multimedia content. c) Learn basic techniques for using and integrating these elements into multimedia projects.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: Define multimedia and importance of its building blocks. - **Development (30 minutes)** - Introduction to Multimedia and its Building Blocks - Definition of Multimedia - Importance of Building Blocks in Multimedia - Multimedia Building Blocks - Role of text in Multimedia - Role of Sound in Multimedia - Role of Images in Multimedia - Role of Animation in Multimedia - Role of Video in Multimedia - Emphasize how these elements work together to create an engaging multimedia experience. **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Encourage students to experiment with different multimedia elements in their projects to enhance engagement and information retention.

	Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 2.2	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Digitization of Audio and Video objects
Objectives	At the end of the lesson, the student shall be able to: a) Understand the concept and importance of digitizing audio and video objects. b) Grasp the basic principles and processes involved in digitization. c) Identify key tools and technologies used in the digitization of audio and video. d) Recognize challenges and solutions in ensuring high-quality digital conversion.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: - What is digitalization? - Why do we need it? - Do you know how digitization is done? - **Development (30 minutes)** - Introduction to Digitization - Definition of Digitization and its importance. - Basic Concepts and components of Digitization - Digitization Process - Challenges and Best Practices in Digitization **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Encourage students to explore advanced digitization techniques and experiment with various formats and software to gain practical experience. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through

	nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 2.3	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	**Data Compression: Different algorithms related to text, audio, video and images**
Objectives	At the end of the lesson, the student shall be able to: a) Understand the concept of data compression and the need for compressing various media types. b) Differentiate between lossless and lossy compression. c) Identify key compression algorithms for text, audio, video, and images. d) Understand how these algorithms work and their applications in the real world.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: what is data compression? What is the need of these algorithms? Can you name any data compression technique - **Development (30 minutes)** - Definition of Data Compression: - Importance of Data Compression - Types of Compression: - Lossless Compression brief discussion on different types of lossless compression algorithm - Lossy Compression brief discussion on different types of lossy compression algorithm - **Exercise (10 minutes) –** - Have a discussion to summarize the lecture - Ask Questions Related to Topics
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Encourage students to explore the application ares where lossy and lossless compression can be used and also explore their importance in different domain. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss.

	2. Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 2.4	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Different lossless data compression algorithms
Objectives	At the end of the lesson, the student shall be able to: a) Understand the concept of lossless data compression. b) Differentiate between various lossless compression algorithms. c) Recognize the applications of these algorithms in real-world scenarios. d) Analyze the advantages and limitations of each algorithm.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: what is lossless data compression? What is the need of these algorithms? Can you name any lossless data compression technique - **Development (30 minutes)** - Definition of Lossless Data Compression - Importance and applications of Lossless Compression - Common Lossless Compression Algorithms - Run-Length Encoding (RLE). How it Works. Its advantages and disadvantages. - Huffman Coding. How it Works. Its advantages and disadvantages. - Lempel-Ziv-Welch (LZW) Compression. How it Works. Its advantages and disadvantages. - Comparison of Lossless Compression Algorithms - **Exercise (10 minutes) –** - Have a discussion to summarize the lecture - Ask Questions Related to Topics
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Ask students to compress a text file using both Huffman coding and LZW compression technique. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to

	answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 2.5	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Different lossy data compression algorithms
Objectives	At the end of the lesson, the student shall be able to: a) Understand the concept of lossy data compression. b) Understand and apply various lossy compressions algorithms. c) Recognize the applications of these algorithms in real-world scenarios.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- Introduction (5 minutes) - Ask questions: what is lossy data compression? What is the need of these algorithms? Can you name any lossy data compression technique - Development (30 minutes) - Definition of Lossy Data Compression - Importance and applications of Lossy Compression - Common Lossy Compression Algorithms - JPEG Algorithm for Image Compression - Audio Compression Algorithms - Video Compression Algorithms
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Compress an image using JPEG at different quality levels (e.g., 100%, 80%, 50%) and compare file sizes and visual quality. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 3.1	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	**Multimedia and the Internet : History, Internet working, Connections, Internet Services**
Objectives	At the end of the lesson, the student shall be able to: a) Definition of multimedia: Text, images, audio, video, and interactive elements b) Role of the internet in delivering and accessing multimedia content c) Importance of the internet for modern multimedia applications.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: What is the role of multimedia in the internet? What is the role of internet in multimedia? - **Development (30 minutes)** - Brief History of the Internet - Impact of Internet on Multimedia: - Early multimedia content on the web: Text-based and simple images - Growth of internet bandwidth and multimedia streaming technologies - Internet Working - Definition of internetworking: Connecting multiple networks through devices like routers and switches - OSI Model overview: Understanding key layers (Physical, Data Link, Network, Transport, Application) - How Multimedia Travels Over the Internet: - Data transmission: Packets, protocols (TCP/IP), and error correction - Quality of Service (QoS): Importance for multimedia (streaming, gaming, etc.) - Internet Connections - How different types of connections influence multimedia experiences (buffering, streaming quality, real-time communication) - **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.

	2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Do research on a multimedia streaming service (e.g., YouTube, Netflix) and discuss how it handles streaming over different internet speeds. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 3.2	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	**The World Wide Web, Tools for the WWW : Web Servers, Web Browsers**
Objectives	At the end of the lesson, the student shall be able to: a) Definition of the World Wide Web (WWW) b) Differences between the Internet and the World Wide Web c) Brief history of the WWW: Tim Berners-Lee's contribution and the development of HTTP, HTML, and web browsers d) How the WWW revolutionized information sharing, commerce, and communication
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: What is World Wide Web? How the World Wide Web Works? - **Development (30 minutes)** - Define world wide web - The client-server model: How users access web pages - Definition of web servers: Software and hardware that deliver web pages to clients - Role of web servers in handling HTTP requests from browsers and serving web pages - Definition of a web browser as a software application that retrieves, presents, and navigates web resources - Role in interpreting HTML, CSS, and JavaScript to display web pages - The Interaction Between Web Servers and Web Browsers - **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics -
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Write a short essay comparing different web servers (Apache, NGINX, IIS) and browsers (Chrome, Firefox, Safari)

	in terms of performance and usability. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 3.3	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Web page makers and editors, Plug-Ins and Delivery Vehicles
Objectives	At the end of the lesson, the student shall be able to: a) Introduction to web development process b) Importance of web page makers and editors for building websites c) Plug-ins and their role in extending website functionality d) Delivery vehicles for distributing web content across different platforms
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: Explain the web development process. - **Development (30 minutes)** - Definition of web page makers: Tools that allow users to build websites without needing to code (drag-and-drop functionality) - Definition of web editors: Tools that allow users to directly write or modify HTML, CSS, and JavaScript - Definition of plug-ins: Software components that add specific features to a website - Importance of plug-ins in enhancing website functionality without modifying core code - Definition of delivery vehicles: Methods used to distribute and deliver web content to users - Delivery through browsers, mobile apps, email, and other platforms - **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics -
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Discuss different delivery vehicle strategies they've seen in modern websites or apps. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss.

	2. Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 3.4	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	HTML; Designing for the WWW – Working on the web
Objectives	At the end of the lesson, the student shall be able to: a) Understand the fundamentals of web design and how it relates to creating effective and accessible websites. b) Fundamentals of HTML
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: What is HTML and what is its role in web development? - **Development (30 minutes)** - Introduction to HTML (HyperText Markup Language)? - Role of HTML in web design and development - Overview of the web design process: Planning, designing, and coding - Basic Structure of an HTML Document (15 minutes) - Designing Web Pages with HTML and CSS - Introduction to CSS (Cascading Style Sheets) - Designing Web Pages with HTML and CSS - Working on the Web: Publishing and Hosting Websites - **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics -
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH c) W3S website for HTML **Home work**: **Activity**: Create a basic personal portfolio website using HTML and CSS, including a home page, about section, and contact form. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods

	3. MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 3.5	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Designing for the WWW – Working on the web
Objectives	At the end of the lesson, the student shall be able to: a) Understand the fundamentals of designing for the World Wide Web (WWW) and the tools required for effective web design. b) Learn the principles and best practices for creating user-friendly, efficient, and aesthetically appealing websites. c) Importance of designing for the web in a digital-first world. d) Key components of a well-designed website (content, structure, visual elements).
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: What is WWW? - **Development (30 minutes)** - Basics of the World Wide Web (WWW) - Key Components: - Web Pages: Documents formatted in HTML (HyperText Markup Language) that contain text, images, and multimedia elements. - Web Browsers: Applications like Chrome, Firefox, Safari, and Edge used to access websites. - Web Servers: Computers that store, process, and deliver web pages to users. - HTTP/HTTPS Protocols: Used to communicate between web browsers and web servers for requesting and delivering web content. - Importance of Web Standards - Discuss how web standards (set by W3C) ensure accessibility, usability, and compatibility across different devices and browsers. - Principles of Good Web Design - Key Web Design Elements - Designing for User Experience (UX) - SEO (**Search Engine Optimization)** and Web Performance Optimization - Tools for Designing and Working on the Web - **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation

	from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH c) W3S website for HTML **Home work**: **Activity**: Designing for the web requires a combination of creativity, technical knowledge, and user-centric thinking. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 3.6	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Media Communication and Media Consumption
Objectives	At the end of the lesson, the student shall be able to: a) Understand the key concepts of media communication and how media consumption habits shape communication processes. b) Explore the relationship between the media industry and the audience. c) Importance of studying these topics in the context of modern digital and traditional media landscapes.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: what is Media Communication and Media Consumption? - **Development (30 minutes)** - Define Media Communication.. - Types of Media Communication: - Mass Communication: Reaches a large audience through mediums like television, radio, newspapers. - Interpersonal Communication: Media used for direct communication between individuals (e.g., social media, emails). - Digital Media Communication: Involves the use of digital platforms like websites, apps, and social media for communication. - Examples of Media Communication - Role of Media in Society: - Media Consumption: Definition and Importance - Key Factors Influencing Media Consumption - **Technology** - **Demographics** - **Cultural Preferences** - Changing Patterns of Media Consumption - The Relationship Between Media Communication and Media Consumption - Types of Media Platforms and Their Impact on Consumption - Media Consumption Patterns and Demographics - Media Communication Strategies Based on Consumption Trends - **Exercise** (10 minutes) – - Have a discussion to summarize the lecture

	- Ask Questions Related to Topics
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH c) W3S website for HTML **Home work**: **Activity**: Media communication and media consumption are closely intertwined, with changing technology and demographics reshaping how content is produced, distributed, and consumed. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 3.6	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Media Entertainment, Media games
Objectives	At the end of the lesson, the student shall be able to: a) Understand the role of media in entertainment and how video games fit into the broader media landscape. b) Explore how technology has transformed media entertainment and the gaming in.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube

Teaching Development	- **Introduction (5 minutes)**
	- Ask questions: Define Media Entertainment. What are the different types of Media Entertainment?
	- **Development (30 minutes)**
	- Media Entertainment: Definition and Types
	- **Types of Media Entertainment:**
	  - Television and Film: Movies, TV shows, web series, documentaries.
	  - Music: Streaming services (Spotify, Apple Music), radio, concerts.
	  - Live Events and Streaming: Online streaming platforms like YouTube, Twitch, and live events.
	  - Social Media Entertainment: Influencer content, TikTok videos, Instagram Reels.
	- The Evolution of Media Entertainment (10 minutes)
	  - 1. Traditional Media Entertainment
	  - 2. Digital Transformation
	  - 3. Social Media's Role
	  - 4. Interactive and On-Demand Media
	- The Role of Technology in Media Entertainment
	  - 1. Streaming Technology
	  - 2. Virtual and Augmented Reality
	  - 3. Artificial Intelligence (AI) in Entertainment
	  - 4. Cloud Gaming and Live Streaming
	- Media Games: Definition and Types
	- Types of Media Games:
	  - Console Games: Played on gaming consoles like PlayStation, Xbox, or Nintendo Switch.
	  - PC Games: Played on personal computers with varying levels of hardware requirements.
	  - Mobile Games: Played on smartphones and tablets, often featuring casual, easy-to-learn gameplay.
	  - Online and Multiplayer Games: Games that allow

	multiple players to interact in real-time, such as MMORPGs (Massively Multiplayer Online Role-Playing Games). - The Growth of the Gaming Industry - Media Games and Media Entertainment Convergence - Challenges in Media Entertainment and Media Games (10 minutes) - **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH c) W3S website for HTML **Home work**: **Activity**: Media entertainment and media games have converged into a dynamic and rapidly evolving industry. Explain how the role of technology, audience behavior, and industry trends is crucial for navigating this space. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 4.1	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Digital Communication and New Media
Objectives	At the end of the lesson, the student shall be able to: a) Understand the fundamental concepts of digital communication and the role of new media in today's world. b) Explore how digital platforms and technologies have transformed communication.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: What is digital communication. - What is new media and its distinction from traditional media - **Development (30 minutes)** - Define Digital Communication - Components of digital communication - Key Features of digital communication - Real-time communication. - Global accessibility. - Multi-modal (text, audio, video). - Definition of New Media - Key Characteristics of new media - Difference Between Traditional and New Media - The Impact of New Media on Society - Key Technologies in Digital Communication and New Media - **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Discuss how new media is impacting their daily lives and society. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss.

	2. Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 4.1	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Digital Communication and New Media
Objectives	At the end of the lesson, the student shall be able to: a) Understand the fundamental concepts of digital communication and the role of new media in today's world. b) Explore how digital platforms and technologies have transformed communication.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: What is digital communication. - What is new media and its distinction from traditional media - **Development (30 minutes)** - Define Digital Communication - Components of digital communication - Key Features of digital communication - Real-time communication. - Global accessibility. - Multi-modal (text, audio, video). - Definition of New Media - Key Characteristics of new media - Difference Between Traditional and New Media - The Impact of New Media on Society - Key Technologies in Digital Communication and New Media - **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Discuss how new media is impacting their daily lives and society. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss.

	2. Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 4.2	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Interactive Television, Digital Broadcasting
Objectives	At the end of the lesson, the student shall be able to: a) Understand the concepts of interactive television (iTV) and digital broadcasting and their roles in modern media. b) Explore the technologies that enable interactivity in television and the evolution from
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: what is interactive television (iTV) and digital broadcasting. Discuss the importance in the context of media convergence and modern consumer expectations. - **Development (30 minutes)** - Define Interactive Television (iTV). - Key Features of iTV - Examples of iTV - Technologies Enabling Interactive Television - Benefits and Applications of Interactive Television - Introduction to Digital Broadcasting - Types of Digital Broadcasting: - Evolution from Analog to Digital Broadcasting - Key Technologies in Digital Broadcasting - Benefits of Digital Broadcasting - Challenges of Interactive Television and Digital Broadcasting - **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics -
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Discuss the technologies, benefits, challenges, or future trends in iTV and digital broadcasting. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through

	nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 4.3	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Data communication Digital Radio
Objectives	At the end of the lesson, the student shall be able to: a) Understand the fundamentals of data communication and how digital radio plays a significant role in the modern communication landscape. b) Explore how data is transmitted and received in digital radio systems.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: What is data communication and digital radio. - Importance of digital radio in modern telecommunications. - **Development (30 minutes)** - Define Data Communication. - Key Components of Data Communication - Data Transmission Types - Analog Signals: Continuous signals that vary in amplitude or frequency (e.g., AM, FM radio). - Digital Signals: Discrete signals represented by binary code (1s and 0s), used in digital communication systems. - Examples of Data Communication: - Email, file transfers, internet browsing, streaming media, video conferencing. - Definition of Digital Radio - Difference Between Analog and Digital Radio: - Key Features of Digital Radio - Improved Sound Quality - Efficient Bandwidth Use - Additional Features - Examples of Digital Radio - DAB (Digital Audio Broadcasting) - HD Radio - Satellite Radio (e.g., SiriusXM) - Technologies Behind Digital Radio - Digital Modulation Techniques - Error Detection and Correction - Compression Techniques - Multiplexing - Benefits of Digital Radio in Data Communication - Digital Radio Standards and Systems - **Exercise** (10 minutes) –

	- Have a discussion to summarize the lecture - Ask Questions Related to Topics -
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Discuss regarding the technologies, benefits, challenges, or future trends in data communication and digital radio. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 4.4	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	**Multimedia Conferencing**
Objectives	At the end of the lesson, the student shall be able to: a) Understand the concept of multimedia conferencing and its role in modern communication systems. b) Learn about the technologies and protocols that enable real-time audio, video, and data exchange between multiple participants.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: What is multimedia conferencing? - Importance of multimedia conferencing in modern telecommunications. - **Development (30 minutes)** - Define multimedia conferencing. - Components of a Multimedia Conferencing System - Audio and Video Capture Devices - Multimedia Servers - Bandwidth and Network Requirements - Conference Software - End-User Devices - Technologies Enabling Multimedia Conferencing - Compression Techniques - Video Compression - Audio Compression - **Real-Time Transport Protocol (RTP)** - **Session Initiation Protocol (SIP)** - **WebRTC (Web Real-Time Communication)** - Types of Multimedia Conferencing - Audio Conferencing - Video Conferencing - Web Conferencing - Telepresence - Benefits of Multimedia Conferencing - Challenges of Multimedia Conferencing - Bandwidth and Connectivity Issues. - Latency and Jitter - Security and Privacy Concerns - Technical Challenges - Limited Non-Verbal Communication - Applications of Multimedia Conferencing - Future Trends in Multimedia Conferencing
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation

	from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Discuss regarding on the challenges, benefits, and future trends of multimedia conferencing. Spend 5 minutes to wrap up and consolidate the leanings .
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 4.5	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Assembling and delivering a project-planning and costing
Objectives	At the end of the lesson, the student shall be able to: a) Understand the importance of project planning and costing in successful project execution. b) Learn how to assemble and deliver a comprehensive project plan that includes cost estimates.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: Definition of project planning. What is the importance of accurate costing in project success? - **Development (30 minutes)** - Define Project Planning. - Key Components of Project Planning - Steps in Project Planning - Define objectives and goals. - Develop a work breakdown structure (WBS). - Create a project schedule with timelines and milestones. - Assign resources and responsibilities. - Understanding Project Costing - Key Elements of Project Costing - **Direct Costs:** Costs that are directly tied to the project (e.g., labor, materials, equipment). - **Indirect Costs:** Overhead costs that are not directly tied to specific project tasks (e.g., administrative costs). - **Contingency Budget:** Extra funds set aside to cover unexpected costs or risks. - **Steps in Project Costing:** - Estimate resource costs (labor, equipment, and materials). - Identify fixed and variable costs. - Allocate a contingency budget for uncertainties. - Develop a cost baseline to track and manage expenses throughout the project. - Steps in Assembling a Project Plan - Steps in Project Costing - Delivering the Project Plan and Cost Estimate - Tools for Project Planning and Costing - **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics

Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Proper planning, resource allocation, and cost estimation help in avoiding overruns and delays, ensuring that the project is delivered within scope, time, and budget.Why ? Explain in detail? Spend 5 minutes to wrap up and consolidate the leanings .
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 4.6	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Designing and Producing content and talent, Delivering
Objectives	At the end of the lesson, the student shall be able to: a) Explore the stages of content design. b) Understand the role of talent in multimedia production. c) Learn techniques for producing engaging multimedia content.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube

Teaching Development	- **Introduction (5 minutes)**
	- Ask questions: What do know about the content designing?
	- **Development (30 minutes)**
	- Definition of content design and production.
	- Key Elements of Content Design:
	  - Audience Identification: Understanding the needs and preferences of the target audience.
	  - Message Clarity: Defining the key message or story that will be conveyed.
	  - Content Structure: Outlining the flow of information, including headings, subheadings, and multimedia elements.
	- Phases of Content Production:
	  - Pre-Production: Planning, scripting, and gathering resources.
	  - Production: Actual creation of the content (filming, writing, recording).
	  - Post-Production: Editing, refining, and polishing the content.
	- Identifying and Managing Talent for Content Production
	- Definition of Talent Management
	- Roles in Content Production
	  - Content Creators
	  - Editors
	  - Directors/Producers
	  - Technical Experts
	  - Managing Talent
	- Designing Content for Specific Platforms
	- Content Production Phases
	  - Pre-Production Phase
	  - Production Phase
	  - Post-Production Phase
	- Delivering Content to the Audience
	- **Exercise** (10 minutes) –

	- Have a discussion to summarize the lecture - Ask Questions Related to Topics -
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Design a content plan for a short multimedia project (3-5 minutes) on a topic of your choice. That must include a storyboard, a content outline, and a plan for talent acquisition. Spend 5 minutes to wrap up and consolidate the leanings .
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 4.7	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	CD-ROM technology
Objectives	At the end of the lesson, the student shall be able to: a) Understand the significance of CD-ROM technology in multimedia delivery. b) Understand the process of creating and delivering multimedia content on a CD-ROM. c) Explore the features, advantages, and limitations of CD-ROM technology. d) Learn about alternatives to CD-ROM technology in modern multimedia delivery systems.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: What do know about the CD-ROM technology? - **Development (30 minutes)** - Definition of Delivering Multimedia - Introduction to CD-ROM Technology - Definition of CD-ROM - History and Evolution - Technical Specifications - Features of CD-ROM Technology - High Data Capacity - Portability and Durability - Cost-Effective - Cross-Platform Compatibility - The Process of Delivering Multimedia Using CD-ROM - Multimedia Authoring - Testing and Debugging - Ensuring multimedia elements (audio, video, interactivity) work seamlessly. - Mastering: - Creation of a master disc from which copies are made. - Duplication and Distribution: - Duplication of the CD-ROM for mass distribution. - Packaging and Marketing: - Creating the physical package (CD case, inserts) and distributing through retail or online. - Advantages and Limitations of CD-ROM Technology - Modern Alternatives to CD-ROM for Multimedia - Cloud Storage and Streaming:. - USB Drives: - Online Platforms (YouTube, Vimeo, etc.)

	- **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics -
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Discuss CD-ROM's role in multimedia delivery, its advantages and limitations, and modern alternatives. Spend 5 minutes to wrap up and consolidate the leanings .
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 5.1	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Introduction to Virtual reality & Virtual reality Systems
Objectives	At the end of the lesson, the student shall be able to: a) Definition of Virtual Reality: Simulated 3D environments where users can interact using specialized devices b) Brief history of VR: From early experiments to modern headsets c) Importance of VR in various industries (entertainment, education, healthcare, etc.)
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- Introduction (5 minutes) - Ask questions: What is virtual reality and discuss its application? - Development (30 minutes) - Key Concepts of Virtual Reality - Difference between non-immersive, semi-immersive, and fully immersive systems - Factors affecting immersion: visual, auditory, and haptic feedback - Components of a Virtual Reality System - Applications of Virtual Reality
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH c) W3S website for HTML **Home work**: **Activity**: Research a specific VR system (e.g., Oculus Quest, HTC Vive) and write a short report on its hardware, software, and use cases. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 5.2	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Tele-operation
Objectives	At the end of the lesson, the student shall be able to: a) Understand the concept of tele-operation and its significance in various fields. b) Explore the components, types, and applications of tele-operated systems.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: Define tele-operation. What is its significance in different domain? - **Development (30 minutes)** - Tele-operation: Concepts - Define tele-operation and Key Components of a Tele-operation System. - Types of Tele-operation Systems - Direct Tele-operation - Supervisory Tele-operation - Its application in different domain - **Exercise (10 minutes) –** - Have a discussion to summarize the lecture - Ask Questions Related to Topics -
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Study how Tele-operation is used in cross-domain applications, from healthcare to industry. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 5.3	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Augmented reality system
Objectives	At the end of the lesson, the student shall be able to: a) Understand the concept of Augmented Reality (AR) and its significance in enhancing real-world environments with digital information. b) Explore different applications and future potential of AR in various fields.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: Define augmented Virtual Reality. Where we use it? - **Development (30 minutes)** - Definition of augmented Virtual Reality. - Key differences between AR and Virtual Reality (VR). - Components of an Augmented Reality System - Types of Augmented Reality (10 minutes) - Marker-Based AR - Markerless AR - Projection-Based - Superimposition-Based AR: - Applications of Augmented Reality - Challenges and Limitations of Augmented Reality - Future of Augmented Reality - **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics -
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Discuss how Augmented Reality enhances the real world by overlaying digital content, offering applications across industries like retail, healthcare, education, and gaming. Spend 5 minutes to wrap up and consolidate the leanings.

Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 5.4	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	VRML Programming
Objectives	At the end of the lesson, the student shall be able to: a) Understand the basic concepts of VRML (Virtual Reality Modeling Language). b) Learn how VRML is used to create 3D virtual environments on the web. c) Historical context of VRML and how it led to newer technologies like WebGL and X3D.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- Introduction (5 minutes) - Ask questions: Define Virtual Reality. Do you know Virtual Reality Modeling Language? - Development (30 minutes) - Understanding VRML (Virtual Reality Modeling Language) - VRML File Structure and Syntax - Animation and Interaction in VRML - Using TimeSensor and Interpolator - VRML supports animation through TimeSensor and Interpolator nodes. - Creating Interactive Objects - Applications of VRML Programming - Future Alternatives to VRML
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Recap the basics of VRML, its structure, applications, and how it paved the way for modern 3D technologies. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 5.5	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	**Domain Dependent Applications of virtual reality (Visualisation Visibility computation)**
Objectives	At the end of the lesson, the student shall be able to: a) Understand the application of Virtual Reality (VR) in domain-specific tasks, particularly focusing on visualization and visibility computation. b) Explore how VR enhances data visualization and visibility determination in fields like medicine, architecture, and engineering.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: Define Visualization and Visibility Computation. - **Development (30 minutes)** - Visualization in Virtual Reality - Definition of Visualization - Applications of VR Visualization - Advantages of Visualization in VR - Definition of Visibility Computation - Key Techniques for Visibility Computation - Applications of Visibility Computation in VR - Importance of Visibility Computation - Domain-Specific Applications of Visualization and Visibility Computation in VR - Challenges in VR Visualization and Visibility Computation - **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics -
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Explore applications of Virtual Reality in domain-dependent visualization, particularly in fields like medicine, architecture, and engineering.

	Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 5.6	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Domain Dependent Applications of virtual reality (Medical)
Objectives	At the end of the lesson, the student shall be able to: a) Understand how Virtual Reality (VR) is applied in different domains, with a specific focus on medical applications. b) Explore the key benefits, challenges, and future potential of VR in healthcare.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: Define Virtual Reality. Do you know Virtual Reality Modeling Language? - **Development (30 minutes)** - Definition of Virtual Reality (VR) - Key Components of VR Systems: - Domain-Dependent Applications of Virtual Reality - Medical Applications of Virtual Reality - VR for Medical Training and Education - Virtual Surgeries and Surgical Planning - VR-Based Therapy and Rehabilitation - Pain Management - Mental Health Treatment - Cognitive Rehabilitation - Benefits of Virtual Reality in Medicine - Challenges of VR in Medicine - **Exercise** (10 minutes) – - Have a discussion to summarize the lecture - Ask Questions Related to Topics -
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Explore the future of VR in medicine with advancements in technology like AI and 5G. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to

	answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 5.7	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Time Critical rendering
Objectives	At the end of the lesson, the student shall be able to: a) Understand the concept of time-critical rendering and its importance in real-time applications. b) Explore different techniques to manage rendering time under tight constraints. c) Explore real-world applications where time-critical rendering is essential.
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- **Introduction (5 minutes)** - Ask questions: Define time-critical rendering. Name the real world examples where time-critical rendering is essential. - **Development (30 minutes)** - Define Time-Critical Rendering. - Importance of Time-Critical Rendering - Applications of Time-Critical Rendering - Techniques for Time-Critical Rendering - Strategies for Time-Critical Rendering in Different Contexts - Time-Critical Rendering and Hardware Considerations - Challenges in Time-Critical Rendering - Future of Time-Critical Rendering - **Exercise** (10 minutes) - Have a discussion to summarize the lecture - Ask Questions Related to Topics -
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH **Home work**: **Activity**: Explore where time-critical rendering is essential in real-time interactive systems, where performance must meet strict time constraints without sacrificing too much quality. Spend 5 minutes to wrap up and consolidate the leanings.
Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through

	nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents

Lesson Plan No. 2.6	Course Name: Multimedia and Virtual Reality	Course No.: MCSE32B

Topics	Exposure on Tools like Dream Weaver, 3D Effects, Flash Working
Objectives	At the end of the lesson, the student shall be able to: a) Introduction to Dreamweaver, 3D Effects, and Flash b) Importance of these tools in web development and multimedia projects c) Real-world applications and use cases
Teaching Aids (if any)	a. PPTs. b. Green board (Chalk and Talk). c. Video Lectures by NPTEL / Youtube
Teaching Development	- Introduction (5 minutes) - Ask questions: What are various tools used in wed development and multimedia? - Development (30 minutes) - Introduction to Dreamweaver. - Key features of Dreamweaver for web design: code editor, visual design tools, live preview - Creating a new web page (HTML, CSS, and JavaScript integration) - Understanding the user interface: Split view, code view, and design view - Adding elements: Text, images, links, and forms - Overview of 3D Effects in Multimedia: - Importance of 3D in design and user experience - Popular tools for creating 3D effects (e.g., Blender, Maya) - Introduction to Flash interface and timeline - Creating simple animations using keyframes and motion tweens - Adding interactivity with ActionScript
Closure	1. Summarize the Lesson Learning Outcomes and get affirmation from students on these. 2. Suggested Reading books and other sourses: a) Steve Heath, 'Multimedia and Communication Systems' Focal Press, UK. b) Tay Vaughan, 'Multimedia: Making it Work', TMH c) Software: Adobe Dreamweaver (or a similar web development tool), a browser that supports HTML5, and optionally 3D modeling software (Blender or Maya). d) Internet connection for live demonstration of web-based tools. **Home work**: **Activity**: Design a simple webpage using Dreamweaver, incorporating text, images, and a responsive layout. Spend 5 minutes to wrap up and consolidate the leanings.

Evaluation	**1.** Reflective Questions (What, Why, Who?). Allow students to answer and discuss. **2.** Asking open-ended questions on Worst-case analysis through nearpods **3.** MCQ / Sessional Test / Assignments Spend 5 minutes to evaluate student assimilation of the lesson contents