COURSE TITLE	**VISUAL EFFECTS**
COURSE CODE	**05MA0304**
COURSE CREDITS	**2**

Objective:

1 Understand real-time compositing and visual effects principles using Nuke and Unreal Engine.
2 Integrate 3D assets and live-action footage in real-time environments.
3 Explore virtual production techniques using camera tracking and LED volumes.
4 Use Nuke for compositing CG elements and Unreal for environment and lighting.
5 Develop real-time VFX pipelines for films, series, and virtual production.

Course Outcomes: After completion of this course, student will be able to:

1 Students will understand real-time compositing techniques using Nuke.
2 Students will integrate live-action and CG content with spatial accuracy.
3 Students will build environments and scenes in Unreal for VFX shots.
4 Students will work with tracked footage and 3D camera movement.
5 Students will produce a high-quality VFX shot using real-time techniques.

Pre-requisite of course: Basic knowledge of node-based compositing, green screen keying, and 3D space understanding in VFX.

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
0	2	0	0	0	0	50	50

Contents : Unit	Topics	Contact Hours
Total Hours		

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	**Introduction to Realtime VFX** Overview of Unreal + Nuke workflows Green screen shooting & cleanup Importing footage into Nuke Basic keying, rotoscoping, and tracking	15

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Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
2	**Unreal Engine for VFX** Setting up virtual sets Creating environments, lighting, and materials Camera tracking using Live Link & CineCamera Importing VFX assets for real-time playback Realtime Compositing & Final Project – Combining Unreal renders and Nuke comps Real-time feedback loop – Nuke Unreal Final Shot Composition: CG + Footage + VFX elements Final Project showcasing real-time VFX workflow	15
Total Hours		**30**

Textbook :

1 The Art and Science of Digital Compositing, Ron Brinkmann, Morgan Kaufmann (Elsevier), 2008

References:

1 Virtual Production Field Guide, Virtual Production Field Guide, Epic Games, Epic Games, 2020

2 Compositing Visual Effects: Essentials for the Aspiring Artist, Compositing Visual Effects: Essentials for the Aspiring Artist, Steve Wright, Routledge, 2017

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Higher order Thinking / Creative**
10.00	15.00	25.00	25.00	25.00	0.00

Instructional Method:

1 Demo, Practical Work

Supplementary Resources:

1 https://learn.foundry.com/nuke/

2 https://www.unrealengine.com/virtual-production

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