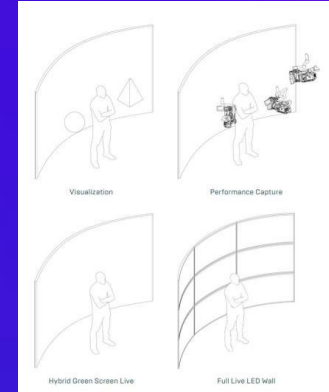


Introduction To Virtual Production & Unreal Engine

Introduction To Motion Capture.

April 2022



Virtual Production Curriculum Delivered By Mavrix Studios
Unreal Engine Curriculum Delivered By Escape Studios
Motion Capture Curriculum Delivered By Piranha Bar

Course Objectives

Track #1 – Virtual Production in Green Screen Environment

To give a broad overview of virtual production using **Unreal Engine**, its applications, benefits and limitations. The trainee will develop a basic understanding of Virtual Production and how **Unreal Engine** makes this workflow possible within a green screen environment.

The trainee will see how to start a project, implement assets from a package/other project, create apply and change materials and build lighting.

This will enable trainees to have a foundation from which they can launch their first VP project.

Most of the skills learned are transferable to output in an LED wall environment.

Track #2 – Motion Capture

Basic introduction to using MoCap, Maya and Unreal Engine to incorporate into a Virtual Production pipeline.

Software and Resources

- Unreal 4.27
- MoSys VP Pro
- MoSys Star Tracker
- Epic Marketplace
- Substance Source
- Megascans
- Quixel Bridge
- XSens Suit



Studio Facilities



10m × 4m × 5m Cyclorama -

Unreal Server 1 -

- AMD Ryzen Threadripper Pro
- 128 GB Ram
- GPU- NVIDIA RTX A6000
- 48 GB Vram



Unreal Server 2 -

- INTEL Xeon W-2133
- 32 GB RAM
- GPU - NVIDIA Quadro RTX 6000
- 24 GB Vram

2 × MoSys Star Tracker systems. Fully mapped.

2 × Blackmagic URSA 4.6k G2

1 × Blackmagic URSA 12k

Full DMX Studio Lighting

OVERVIEW

Track 1 // Virtual Production

Location: Studio 1

Participants // 9

Day 1 // Friday 22nd // Introduction To Virtual Production

- Mavrix Induction Day // Intro to VP
- Masterclass with Hi Res// Producing & Directing for Virtual Production

Location: Off Site

Day 2 // Saturday 23rd // Reading & Research Day

Location: Remote

Workshops Run By Escape Studio

Day 3 // 24th// Unreal Fundamentals,
Full Day Workshop

DAY 4, 5 & 6 // Monday 25th - Wed 27th Location: Studio 1
VP Workshops Cont'd. (Practical)

DAY 7 //Thursday 28th

- Lighting for Greenscreen Masterclass (**Track 1 - a.m**)
- Shoot Day prep

DAY 8 // Friday 29th

VP shoot day

WRAP

Track 2 // Motion Capture

Location: Studio 2

Participants // 12

Day 1// Fri 22nd // Introduction to VP

- Mavrix Induction Day // Intro to VP
- Masterclass with Hi Res

DAY 2, 3 // Tuesday 26th - Wednesday 27th
Working with Motion Capture (Practical)

DAY 4 //Thursday 28th

- Lighting for Greenscreen Masterclass (**Track 2-p.m**)

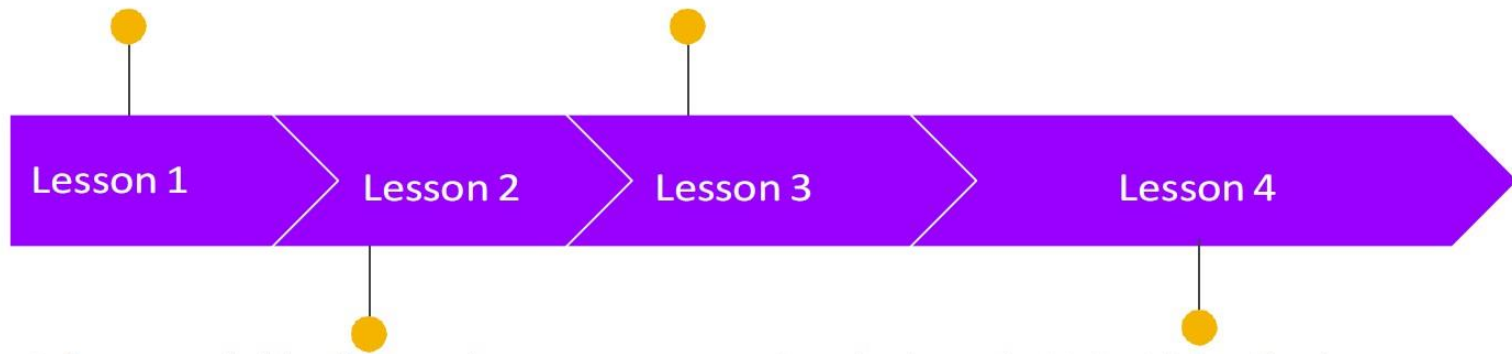
WRAP

TRACK 1 // VP DAY 1

Studio Introduction. Presentation broadly introducing VP & Green Screen.

P.M: VP Masterclass (Hi Res)

Rapid deep dive on Unreal - windows/menus/navigation/materials/sequencer



Software needed, hardware and useful resources.

Briefly touch on other available Tracking Solutions.

Introduction to the MoSys VP Pro Plugin.

Off Site Tasks

Trainees will be asked to complete 'My first Hour in Unreal' on the Epic learning platform.

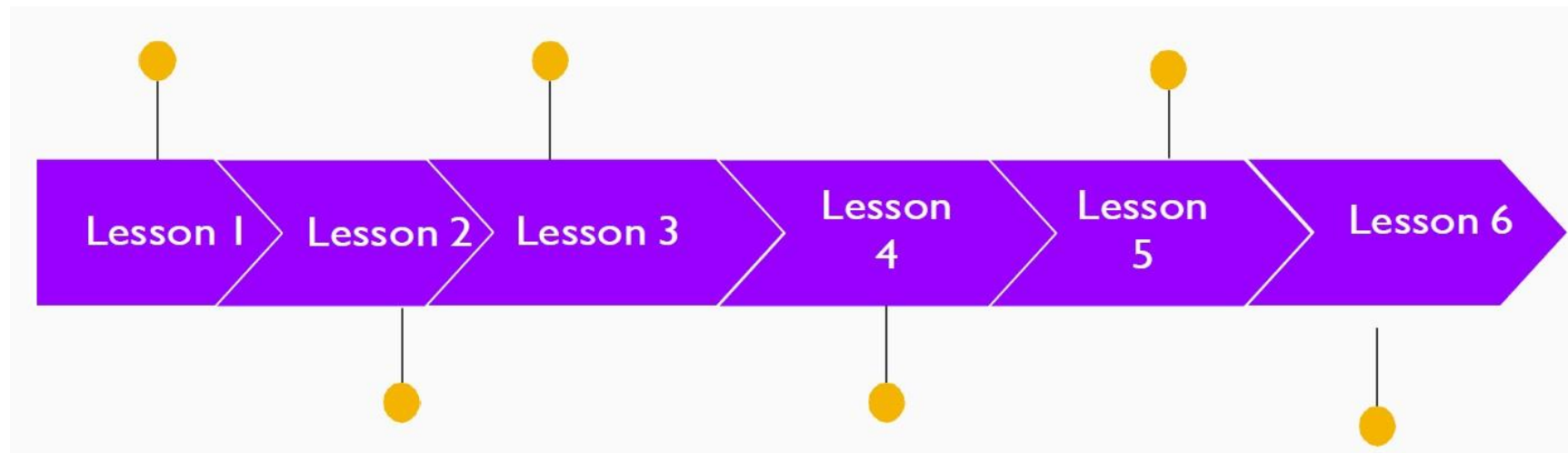
It will also be advised that trainees read the first two volumes of the Virtual Production field guide, also available on the Epic site.

TRACK 1 // VP DAY 4

Starting your first
project- basic organization

Reflections/Lighting
Workflow

Animation, Sequencer & Rendering



Setting up the scene-adding
assets from asset pack
and other project/vaults

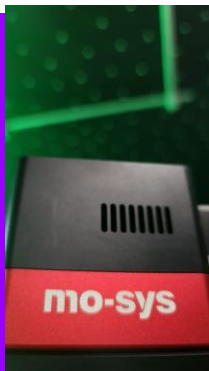
Optimisation

Blueprints

Off Site Tasks

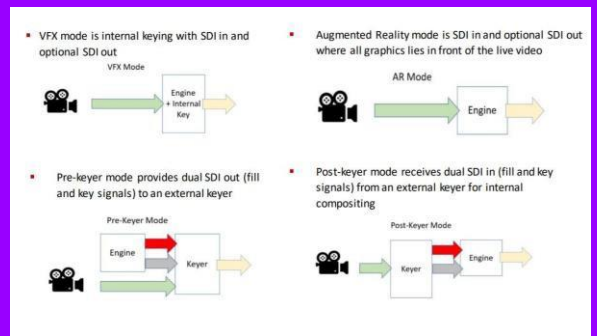
Trainees will be asked to set up their own project and scene, add assets to it , change one material and do a medium light build.

If the students feel comfortable, they can add an animation provided by the Instructor.



TRACK 1 // VP DAY 5,6

Star Tracker Mapping & Camera Fundamentals



Objective

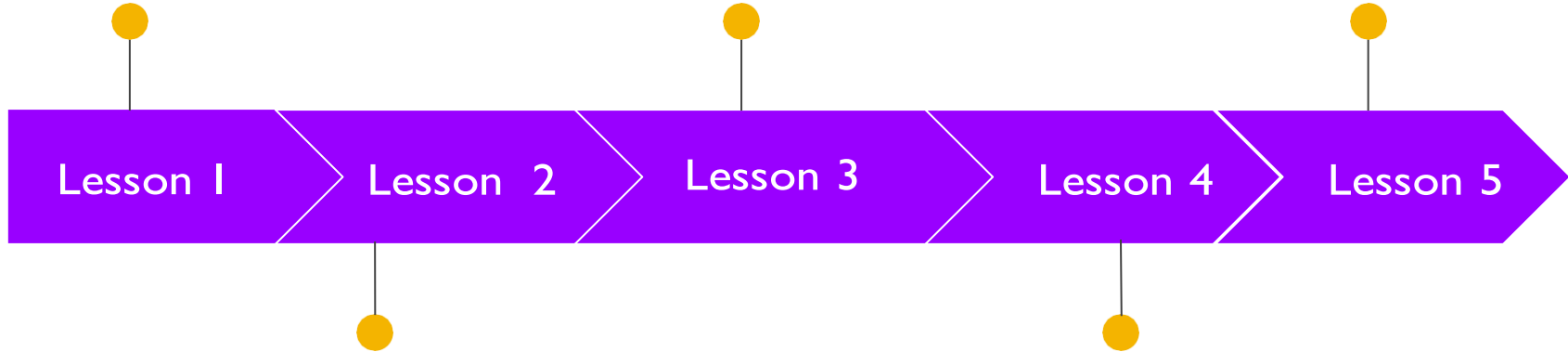
The objective is to have a fully prepped project ready to shoot.

The trainee will have a project that has the MoSys VP PRO plug in installed , running at the correct stable frame rate , have the correct inputs and outputs running with Fill and Key signals, have the MoSys stage in the correct position, have garbage mattes set up for the sides of the stage and for a virtual element that the 'talent/live action' can be occluded by.

Reviewing project stability- Installing plug in

Pre Keyer workflow.

Shoot Day Prep



Importance of tracking calibration and scale -Creation of 3d replica of Cyc.

Troubleshooting issues and solution

Gen Lock and Syncing Cameras

Off Site Tasks

Trainees will be advised to read the Mo Sys VP Pro manual.

Each trainee will be asked to create a very simple script based on one of the following headings 'Strangers Meet' 'The Bar Fight' 'Inept Bartender' or another preferred scenario subject to tutor approval and available assets.

TRACK 1 // VP DAY 7

- Masterclass
 - Lighting For Green Screen
- Shoot Prep Day

TRACK 1 // VP DAY 8

Shooting a scene



Objective

All areas covered will be put into practical use.

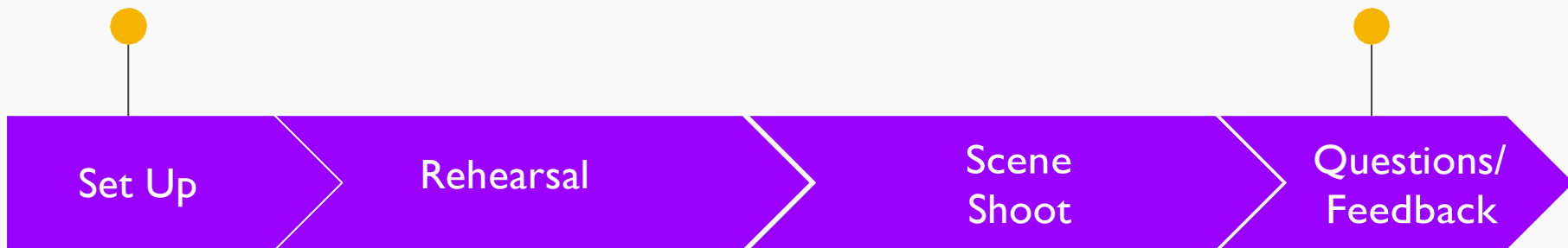
Trainees will vote on a single script to shoot. They will then be split into designers, Unreal operators , Camera operators. The roles will be rotated scene by scene so each trainee can get a feel for other disciplines.

To maximise the benefit to the trainees, the script will be based on movement not dialogue , this is to allow the fundamentals of camera tracking and scene blocking be the focus, rather than script writing.

The trainee will implement accumulated knowledge.

Script review // Vote

Trainees will have the opportunity to ask questions and seek further guidance on how to progress.



Scene blocking with talent- scene rehearsal

The selected scene will be shot.

Course Title:

TRACK 2 // Motion Capture // Studio 2

Day 1 - Intro to VP (Studio Induction & Masterclass)

Day 2 & 3 - MoCap Workshop (In Studio)

Day 4 - Lighting For Green Screen (Masterclass)

Day 2 - Morning

Introductions

- Short reel of Pirahna Bar work made using mocap - practical professional application.
- Demonstration of mocap linked to character in Maya and UE4
- Link Explained
- Awinda Explained
- Sensors Explained
- Firmware

- Gotchas!!
- Hardware and software updates - conflict issues with Windows experienced in the past
- General troubleshooting while on set (distance, walls, interaction with sound equipment, heat)

Afternoon

- Setting up Human IK in Maya to receive mocap (hands on setting up scene)
- Setting up mocap link in UE4 (hands on setting up scene)

- Mocap clean-up - animation

Day 3. Morning

Split into two groups. Both groups will be hands on for the second day. And get to set up the Xsens suits and capture data and apply it to a model.

- Body Measurements demo
- Suit setup and calibration method (hands on)
- Interactive demonstration - “having a go”
- Streaming mocap live into maya or UE4

Afternoon

- Apply mocap recordings to Maya and UE4 files set up from the previous day
- Navigating in MVN, read/write files, resetting scene, recalibration, reprocessing performances