



**VIRTUAL PRODUCTIONS**  
**Workshop Series**  
**Manual 01**

# Course Goals

The purpose of this workshop is to give the attendees a strong foundation in the creation of video and film projects using virtual production-assisted technology. The goal is for the participants to gain an understanding of the various stages involved in the development of a video or film production, including pre-production, production, and post-production. This may include topics such as storyboarding, casting, filming, editing, and special effects. By the end of the workshop, it is hoped that the participants will have a clear understanding of the process of creating a video or film using assisted computer technology and will have the skills and knowledge necessary to begin developing their own projects.



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# Virtual Production

## Introduction

Virtual production is a film and video production process that involves the use of computer-generated imagery (CGI) and real-time computer graphics to create and capture filmed content.

This technique allows filmmakers to visualize and control the visual effects in real-time as they are shooting the live-action elements of the film, rather than adding them in post-production.

In a virtual production, filmmakers can use digital graphics tools to pre-visualize and design shots, set up and block out scenes, and even rehearse with actors before actual filming begins. This allows for greater flexibility and control in the production process, as filmmakers can make changes and adjustments to the virtual environment on the fly.

**Virtual production enables real-time creation and capture of visual effects, streamlining film and TV production by shifting work from post- to pre-production.**





This production process enables filmmakers to visualize and manipulate the visual effects in real-time as they are shooting the live-action elements of the film. This means that filmmakers can make changes and adjustments to the visual effects immediately, rather than having to wait until post-production to see how they will look. This can help filmmakers to better understand how the final film will look and make any necessary adjustments before the shoot is finished.

Additionally, virtual production allows filmmakers to create and manipulate digital assets in real-time, using a process that is similar to traditional animation techniques. This means that they can experiment with different visual effects and see how they look in the final film without having to spend time and resources creating and rendering the effects in post-production.

During filming, virtual production techniques can also be used to capture live-action footage and integrate it with CGI elements in real-time. This can be done using specialized cameras and VR headsets, allowing the filmmakers to see the final composite image as they shoot.

Virtual production offers a wide range of benefits to filmmakers, including increased efficiency and cost-effectiveness, greater creative control, and the ability to create complex and visually stunning content that might not be possible using traditional film and video production techniques alone.

Production allows filmmakers to create more complex and realistic visuals while also streamlining the production process and reducing costs. It is a powerful tool that is becoming increasingly popular in the film and television industry.



# Course

# Content

In this program, you and your team will have the opportunity to bring a short movie script to life using Virtual Production techniques. The script provided to you will be for a film that is 30 to 60 seconds in length, and it will be up to your team to turn it into a fully realized film using the Virtual Production tools and techniques at your disposal.

We will follow the known production pipeline, which refers to the series of steps that are followed in order to produce a film, from conception to distribution. These steps can vary depending on the specific needs of a project, but generally, the film production pipeline includes the following stages:



- **Script:** This is the initial stage where the idea for the film is developed and the script is written.
- **Pre-production:** prepare for the actual production of the film. This includes assembling the cast, scouting locations, and develop in-camera visual effects.
- **Production:** This is the stage where the film is actually shot. This can take place on location or on a soundstage, depending on the needs of the project.
- **Post-production:** After the film has been shot, it enters the post-production phase, where the footage is edited, special effects are added, and the final soundtrack is mixed and mastered.
- **Distribution:** Once the film has been completed, it is released to the public through a variety of distribution channels, such as theaters, streaming platforms, and home video releases.



**A film is never really finished, only abandoned.**

**George Lucas**



During this workshop, we will investigate the benefits of shifting a significant amount of work from the post-production phase to the pre-production phase. In traditional film production, many elements of a film, such as sets, props, and visual effects, are created and captured separately and then combined in post-production.

With virtual production, these elements can be created and captured in real-time, which means that they can be fine-tuned and adjusted during the shoot, rather than having to be fixed in post.

This shift in the workload can help to streamline the production process, allowing filmmakers to save time and money by reducing the need for costly reshoots and post-production work. It can also allow filmmakers to be more creative and flexible, as they can make changes and try out different ideas in real-time, rather than having to wait until post-production to see how everything will look. By putting in the work upfront, the team can streamline the production process and ensure that the final product meets the desired vision and standards.

Another benefit of virtual productions is the reduction of travel costs as a lot of environments can now be simulated. An additional positive point of virtual productions is the possibility of offering a safer work environment as for dangerous shots, e.g. a burning warehouse or a ship in a storm, the stage can be used instead of recreating the shots in real life.



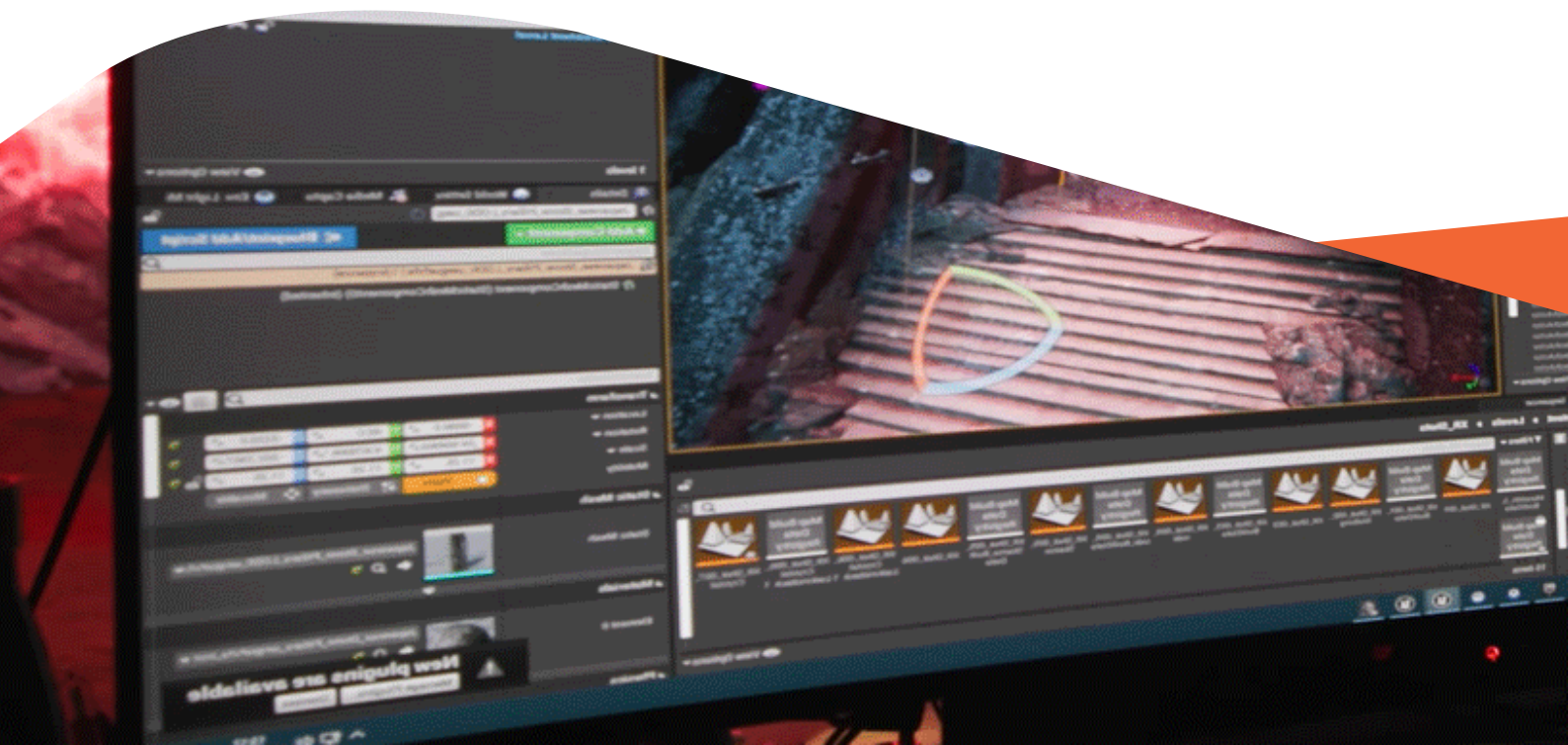
# Tech Tools

Throughout the film production pipeline, there are many different tools supporting the project lifecycle.

In this workshop, we will be focusing on two essential tools that are crucial for multiple phases of the project pipeline.

While there are other important tools that also play a vital role in the production process, these two tools have been chosen for their versatility and ability to cover multiple aspects of the project pipeline. By mastering these tools, participants will have a better understanding of the project pipeline and the ability to handle different stages of production with more efficiency.

They will serve as valuable assets in every stage of the project, from planning, execution and assessment. By the end of the workshop, you will have a solid understanding of how to use these tools.







### Unreal Engine

The world's most advanced real-time 3D creation tool for photoreal visuals and immersive experiences.

Unreal offers a framework for creating high-fidelity digital realistic real-time immersive 3D content for Game Dev, Automotive, Architecture and Film & TV.



### DaVinci Resolve

DaVinci Resolve is the only solution that combines editing, color correction, visual effects, motion graphics and audio post production all in one software tool.

That means you can work with camera original quality images throughout the entire process. It's like having your own post production studio in a single app!



# Roles & Responsibilities

## Film Productions

### Director

The director is the person responsible for the overall creative vision and execution of a film or television show.

They work closely with the writer to develop the concept and script, and with the rest of the production team to bring the project to fruition.

The director is responsible for interpreting the script and communicating the desired look, feel, and mood of the film or television show to the rest of the production team. They work with the cast and crew to block out and rehearse scenes, and give instructions on camera placements, lighting, and other technical aspects of the production.

During filming, the director works closely with the director of photography (DP) to create the desired visual style and mood, and with the editor to ensure that the final cut of the film or show reflects their vision.

Overall, the director plays a crucial role in the film and television production process, working to carry out the creative vision of the project and ensuring that all of the various elements of the production come together seamlessly.

Each person on the film production crew plays a vital role in bringing the project to life. There are many different roles and responsibilities that must be fulfilled, including producers, directors, writers, actors, cinematographers, editors.

A film crew is a team of professionals hired by a production company to create a movie or a motion picture. This group is different from the cast, which refers to the individuals who act in front of the camera or provide voices for characters in the film.



## Producer

A producer is a person who is responsible for overseeing the development and production of a film, television show, stage play, or other form of entertainment. The producer is responsible for bringing together all of the various elements of the project, including the script, the cast, the crew, and the budget, and ensuring that everything runs smoothly and efficiently.

The producer is usually involved in the project from the very beginning and is responsible for managing the budget and making sure that everything stays on schedule. They may also be involved in core decisions and coordinating with other departments. Overall, the role of the producer is to ensure that all of the various elements of the production come together seamlessly and that the finished product is of high quality.



## Director of Photography

The director of photography (sometimes shortened to DP or DoP) is a key member of the film and television production team, responsible for the visual look of the production. The DP works closely with the director to create the desired visual style and mood of the film or show, and is responsible for the selection and operation of the camera and lighting equipment. The DP is responsible for the overall look of the film or show, including the composition, lighting, and camera movement. They work with the gaffer (the chief lighting technician) to design and execute the lighting plan, and with the camera crew to operate the camera and choose the appropriate lenses and other camera equipment.

The DP is also responsible for managing the camera and lighting crew and coordinating their work with the rest of the production team. They may also be involved in the color correction process, working with the colorist to ensure that the final image looks as intended.

Overall, the DP plays a crucial role in the film and television production process, working to create the desired visual style and mood of the production and ensuring that the technical aspects of the camera and lighting work seamlessly together.





## Production Designer

A production designer is a key member of the film production team who is responsible for creating the visual style and overall look of a film. The production designer works closely with the director and the cinematographer to conceptualize and design the sets, locations, and costumes that will be used in the film. They are responsible for creating a coherent visual style that supports the story and the themes of the film, and that is consistent with the director's vision.

The production designer's role needs to research and develop the visual style of the film, taking into account the time period, location, and themes of the story. They are responsible for designing and creating detailed sketches and concept art of the sets, locations, and costumes. Furthermore, they work closely with the art department to oversee the construction and dressing of sets, and the sourcing and acquisition of props and costumes.

The production designer is responsible for bringing the script to life and creating the visual world of the film. They are the ones who are responsible for the overall look and feel of the film, and their work is essential to creating an immersive and believable environment for the audience. They are responsible for creating a visually rich and consistent story-world, that supports and enhances the script and the themes of the film.



**Alone we can do so little, together we can do so much.**

**Helen Keller**



## Gaffer

In the film and television industry, the gaffer is the chief lighting technician on a production. They are responsible for the design and execution of the lighting plan for a film or television show, working closely with the director of photography (DP) to create the desired lighting look and mood for the production.

The gaffer is responsible for selecting and positioning the lighting equipment, including lights, reflectors, and filters, and for setting up and operating the lighting control systems. They may also be responsible for managing and coordinating the work of the lighting crew, including electricians and grips.

In addition to managing the lighting setup, the gaffer may also be responsible for ensuring that the lighting equipment is properly maintained and troubleshooting any technical issues that may arise during the production process.

Overall, the gaffer plays a crucial role in the film and television industry, as they are responsible for creating and executing the lighting plan for a production and ensuring that the lighting looks and functions as intended.



# Production Bible

The production bible is a document that contains important information about a film production. This can include things like the film's concept and story, characters, settings, and production schedule, as well as information about the cast and crew.

A production bible is typically created during the development phase of a film, before filming begins, and is used by the various members of the production team to ensure that everyone is on the same page and working towards the same goals.

It's important to note that the content of a production bible can vary depending on the project and the production company.

## Examples of information that might be included in a production bible are:

- Script
- Creative Vision
- Storyboards
- Location information and scouting photos
- Prop and costume design
- Makeup and special effects notes
- Music and sound design notes
- Marketing and promotional materials.
- Character descriptions and backgrounds
- Episode synopses and outlines
- Production schedules and budgets



# Step 01

## Vision

This step will follow a structured approach, designed to guide participants through the various stages of the production pipeline.

The focus of the first section of this workshop preparation will be on pre-production elements that are relevant to Virtual Production. This section will cover the important aspects of pre-production that must be considered before beginning a virtual production project.

By the end of this step, participants will have a comprehensive understanding of the pre-production phase and will be equipped with the knowledge and skills necessary to successfully plan and execute a virtual production.

## Goals



### Creative Vision

Consider and explore the different artistic style and moods, and define a appropriate vision that should be maintained throughout the project.



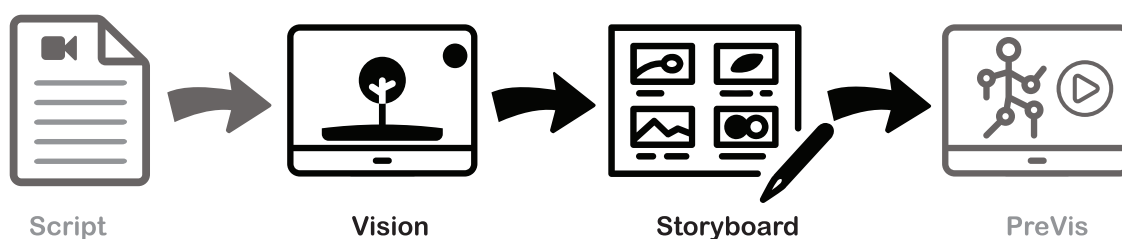
### Unreal Engine 5 Proficient

Get acquainted and comfortable using with Unreal Engine 5 tool.



# Activities

To achieve the proposed goals, we planned a series of practical activities for the participants to perform with key deliveries depicted in the image.



The script for the short film will be provided. The workshop participants as a group will have to develop a Production Bible for this short film.

In this phase, the Production Bible will contain a set of sections which will document the process and planning of the production. It will include, the creative vision, storyboard, previsualization, in-camera virtual assests and the detail planning about the production, also known as technical vizualization, before the filming with real actors actually happens.

Workshop participants will be supplied, with template documents to support the pipeline.

## Step 01: Activity List




 **Develop your Creative Vision**

 **Develop your Storyboard**

 **Become proficient in Unreal Engine 5**

# Creative Vision

Creative Vision refers to the overall aesthetic and thematic. The creative vision of filmmaking of a film can be shaped by the director and other key members of the creative team. It encompasses elements such as the film's:

-  **Mood**
-  **Tone**
-  **Style**

## Mood

The mood of a film refers to the emotional atmosphere or feeling that it evokes in its audience, such as suspense, fear, joy, or nostalgia. Mood can be established through the use of various visual and auditory elements, such as lighting, color, music, and sound design.

For example, a dark and moody film might use a lot of shadows, low-key lighting, and a subdued color palette to create a sense of unease and foreboding. This is often seen in horror films or films that have a psychological thriller genre, where the tension and sense of being on the edge is the main focus.

On the other hand, a film that is meant to evoke feelings of joy and nostalgia might use bright colors, upbeat music, and a warm and inviting visual style to create a sense of nostalgia and comfort.

Sound design and music composition also play a crucial role in creating the mood of a film. A tense scene, for example, might be accompanied by a fast-paced and dissonant score, while a peaceful scene might be accompanied by a slower, more melodic and harmonious score.

The mood of a film can change and evolve throughout the story, often reflecting the emotional arc of the characters. For example, a film might start off with a light and comedic mood, but as the story progresses and the

characters go through difficult experiences, the mood may shift to become more serious and somber.

The tone and style of a film serve as powerful tools for creating an emotional connection between the audience and the story. These elements can help to immerse the audience in the world of the film, making the story more relatable, memorable, and impactful.

It's important to note that the audience's perception of the mood is just as important as how the creative team intended it to be.





## Tone

Tone refers to the overall atmosphere or feeling that a movie conveys to its audience. This can include elements such as the cinematography, music, and performances of the actors.

Tone can be used to create a specific emotional response in the audience, and can vary greatly from one film to another. For example, a horror movie will generally have a different tone than a romantic comedy. In a horror movie, the tone might be suspenseful, dark, and eerie, while in a romantic comedy, the tone might be light-hearted and joyful.

The tone of a film can also change during the course of the movie. For example, a drama may start off with a tone of hopelessness and despair, but then shift to one of hope and triumph as the story unfolds.

Some other examples of different tones that a movie can have:

- Suspenseful, tense
- Nostalgic, sentimental
- Dark, gritty
- Lighthearted, comedic
- Romantic
- Action-packed



It's worth noting that tone is not the same thing as genre, as a film can have multiple tones within the same genre. A horror film can have suspenseful, scary tone, but it also can have a comedic tone as well.

The tone of a film is set by the director, and is an important tool in creating a specific emotional experience for the audience. The tone can be used to make the audience feel a certain way about the characters, the story, and the themes of the film, and can be a key element in the overall impact that a film has on its audience.



**Tone is everything in a film. The tone of Goodfellas, for example, is completely different from that of Raging Bull. Goodfellas is a comedy, in a sense, a dark comedy about very violent people. Raging Bull is very serious, a tragic film. It's the tone that makes the difference.**

**Martin Scorsese**

## Style

Style refers to the distinct visual and technical choices that a filmmaker makes in order to create a certain aesthetic or visual look for their movie. This can include elements such as the use of color, lighting, camera angles, editing, and special effects.

The style of a film is often closely tied to the mood and tone, as the visual choices made by the filmmaker can be used to reinforce and enhance the mood or feeling that the film is trying to convey. For example, a film with a dark and gritty tone might use a lot of shadows and low lighting to create a sense of unease, while a film with a lighthearted and comedic tone might use bright colors and fast-paced editing to create a playful and energetic feel.

Film style is also often associated with specific directors and their unique visual signatures. For example, the style of Stanley Kubrick is known for meticulous control over every aspect of the film, emphasizes symmetrical framing, use of long takes and meticulous use of music, while Quentin Tarantino's is associated with frantic camera movement, overlapping dialogue and an eclectic choice of music.

Overall, film style is an important tool that filmmakers use to create a specific visual aesthetic for their movie, which can help to reinforce the tone and themes of the film and ultimately enhance the overall viewing experience for the audience.



# Breakdown

## Creative Vision

A film's creative vision is the overall artistic direction that the filmmaker wants to take the film in, in terms of the emotions and feelings they want to convey to the audience, the aesthetic they want to create, and the themes they want to explore. This vision can be achieved through the use of mood, tone, and style.

A good creative vision can be complemented by a concept board, which is a collection of visual elements used to convey a specific style. It is typically a collage of images, colors, text that gives a general idea of the aesthetic, tone, and feel of a project.



### Mood

Mood refers to the overall atmosphere, feeling, or emotion that a film conveys to its audience. It's about the emotional impact the film has on its audience and the emotions it evokes in them.



### Tone

Often associated with the filmmakers, general attitude or approach of a piece of literature or film, such as serious, comedic, satirical, etc. For example, a film can have a serious tone or a comedic tone.



### Style

Distinct visual and technical choices that a filmmaker makes in order to create a certain aesthetic or visual look for their movie. Style is often associated with the filmmaker's personal vision and it's how they translate their ideas into images on the screen.



**Develop your Creative Vision (template supplied).**



# Film Creative Vision

## The difference between film tone and style



Film “style” and “tone” are closely related, but they refer to different aspects of the film.

Style refers to the distinct visual and technical choices that a filmmaker makes in order to create a certain aesthetic or visual look for their movie. This can include elements such as the use of color, lighting, camera angles, editing, and special effects. Style is often associated with the filmmaker’s personal vision and it’s how they translate their ideas into images on the screen.

To give an example: A film with a dark and gritty tone might use a lot of shadows and low lighting to create a sense of unease(mood), while also having a hand-held camera movement and non-linear storytelling(style). Both the style and the mood can be used to create a sense of realism in the film, and to immerse the audience in the story.



# Story Board

A storyboard is a visual representation of a film or animation, created in a sequence of illustrations or images displayed in a specific order. It is used by filmmakers, animators, and other creative professionals to plan and communicate the different elements of a project, such as camera angles, shot compositions, and the flow of the story.

A typical storyboard is created using a series of illustrations or images arranged in chronological order, along with notes and other annotations to indicate things like dialogue, sound effects, and other important information. These illustrations or images can be hand-drawn, created using animation software or any other medium that effectively communicates the creative vision of the storyboard artist.

Storyboards are commonly used in the pre-production stage of a film or animation project, and are essential for helping the director, producer, and other key members of the production team to plan out and visualize the overall structure and pacing of the project, as well as the individual shots and scenes that make it up. They also help in communicating the idea and vision to the other members of the crew and department heads as well as the clients.

Additionally, storyboards can also be used during production to plan the logistics of filming and animating a scene, such as camera positions, movement, and special effects, and can also be used in post-production to plan the editing and visual effects of the film.

In animation, storyboarding is a key process of planning out the animation sequence, the timing, the action and the dialogue of the animation. It's the backbone of the animation process and it's used to visualize how the final animation will look like before actual production starts.

Overall, storyboards play a critical role in the planning and execution of a film or animation project, by allowing the filmmakers and animators to clearly communicate their creative vision, plan out the logistics of production, and ensure that the final product is as close to their original vision as possible.



# How to Storyboard

The process of developing a storyboard can vary depending on the specific project and the preferences of the filmmaker or animator, but there are some general steps that are typically followed:

- **Script breakdown:** The first step in developing a storyboard is to read and analyze the script for the film or animation. This will involve breaking down the script into individual scenes and shots, and identifying key elements such as dialogue, character actions, and special effects.
- **Planning:** After the script breakdown, the storyboard artist will start planning out the visual composition of each shot and scene. This will involve deciding on things like camera angles, shot lengths, and the movement of characters and objects within the frame.
- **Sketching:** Once the planning stage is complete, the storyboard artist will begin sketching out the individual shots and scenes, using illustrations or images to represent the different elements of each one. They may also include notes and annotations to indicate things like camera movements, dialogue, and sound effects.
- **Revisions:** After the initial storyboard is complete, it will be reviewed by the director and other key members of the production team, who may suggest revisions or changes to the storyboard. The storyboard artist will then make the necessary adjustments and revisions to the storyboard.
- **Finalizing:** After revisions are made, the storyboard is finalized and it will be used as a reference for the entire production process, including pre-production, production and post-production stages. The storyboard will be used to plan out the logistics of filming or animating a scene, as well as to plan the editing and visual effects of the final product.

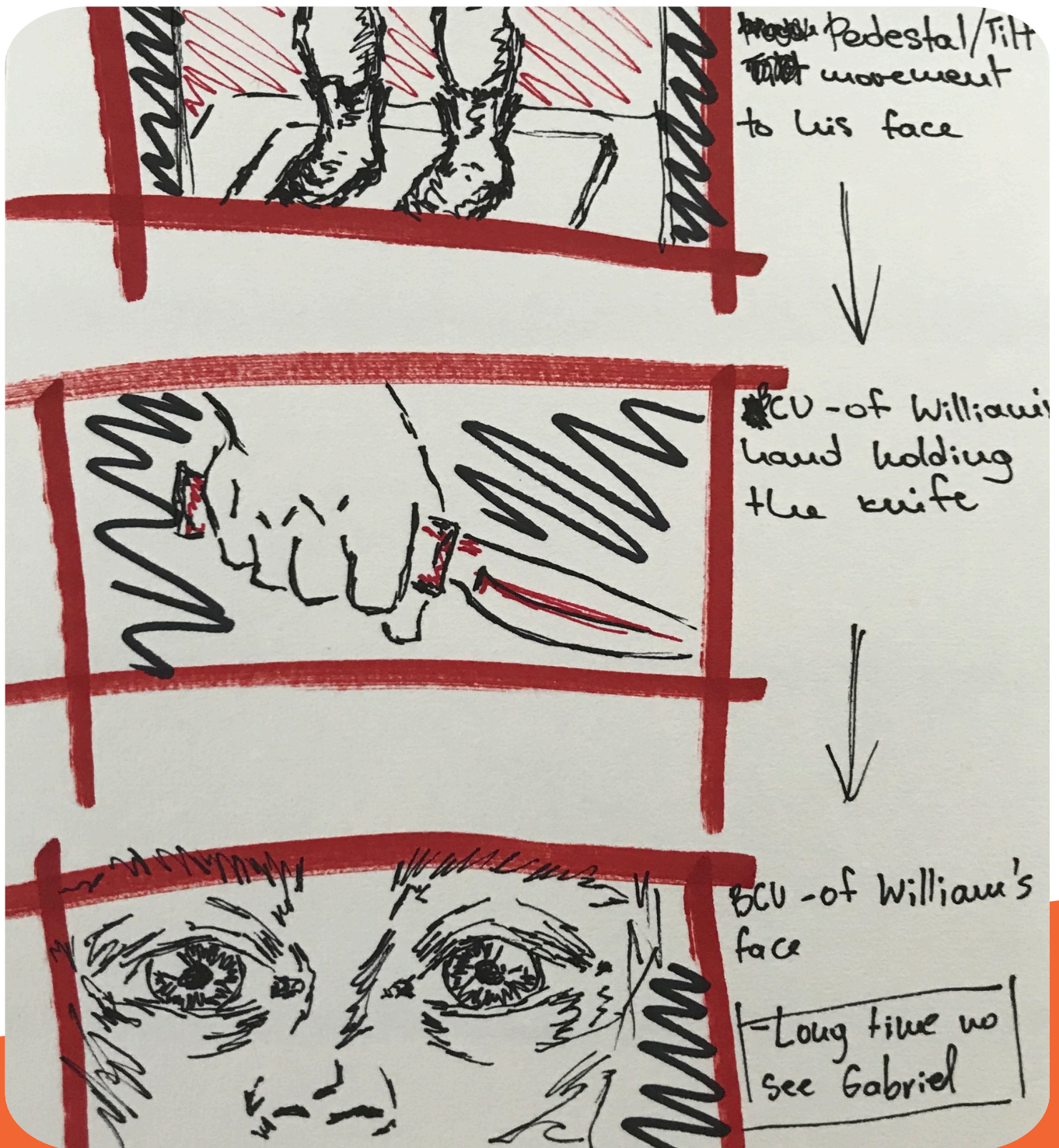
For animation the process is slightly different, the storyboard will be used as a reference for the entire animation pipeline. Animation storyboards is broken down into panels, called key frames. Each panel represent a specific moment in the animation and it's the animator's reference for the action and the timing of the animation. Key frames will be then passed to other departments such as layout, animation, and compositing to be brought to life.

It's worth noting that the process of storyboarding can be quite time-consuming and can require a lot of attention to detail, but it's a crucial step in the filmmaking or animation process, it helps ensure that the final product is as close as possible to the original creative vision of the filmmaker or animator.



**Develop your Storyboard (template supplied).**





A film storyboard is a visual representation of a film, using illustrations or images to represent each shot and panel that will be in the final film.



# Cinematic Shots

Cinematic shots refer to the way in which a scene is captured by the camera. Different shots have different effects on the audience, and they are used to create a particular visual style or to convey a certain mood or emotion.

Some examples of cinematic shots include close-ups, which show the subject in great detail, and wide shots, which show the subject in relation to their surroundings. There are also medium shots, which show the subject from the waist up, and extreme close-ups, which show only a small part of the subject in great detail.

The director and the director of photography (DP) work together to create the cinematic shots that will be used in a film or video production. The director is responsible for the overall vision and direction of the film, and they work with the DP to decide on the types of shots, camera angles, and movements that will best convey the themes and emotions of the story.

The DP is responsible for capturing the director's vision on camera. They use their technical knowledge of lighting, lenses, and camera equipment to create the desired visual effects. They also work with the camera crew to set up and execute the shots.

The director and DP will collaborate on the shot list, which is a plan that outlines all the shots that will be needed for the film. This plan will consider how the shots will be used to tell the story and create a certain visual style or convey a certain mood or emotion. They may also use storyboards to visualize the different shots, angles and movements before shooting.

During the filming, the director and DP will work together to make sure that each shot is executed according to the shot list and to the director's vision. They will also make any necessary adjustments to the lighting, camera angles, and movements to ensure that the shots are visually compelling and effectively convey the story.

**In summary, the director and the DP play a key role in creating cinematic shots, by deciding on the types of shots, camera angles, and movements that will be used to tell the story, and capturing the director's vision on camera.**

# Framing Shots

Framing shots are camera shots that use visual elements to frame the subject and convey meaning.

## Long shot

A long shot is a type of cinematic shot that captures the entire subject and their surroundings, usually used to establish a location or to show the subject in relation to their environment.



## Medium shot

A medium shot is a type of cinematic shot that captures the subject from the waist up, often used to show the subject in relation to their surroundings and to focus on their gestures and facial expressions.

## Close up

A close-up shot is a type of cinematic shot that captures a person or an object in great detail, often used to focus on the subject's face, emotions, or a particular object in the scene.

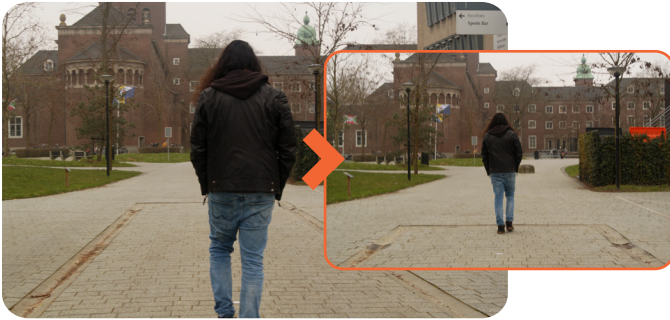


## Bird's eye

A bird's-eye shot is a type of cinematic shot that is taken from an overhead angle, giving the audience a view of the scene as if they were looking down on it from above, often used to provide a sense of the overall layout or to show the relative positions of characters or objects in a scene.

## Moving Shots

Moving shots are camera shots that are captured while the camera is in motion.



### Tracking shot

A tracking shot is a camera movement where the camera follows a moving subject by moving along with it, it can create a sense of motion and immersion and reveal more of the environment. It's often used to follow a character and to create smooth transitions between different shots.

### Tilt shot

Tilting is when the camera stays in a fixed position but rotates up/down in a vertical plane. Not moving the camera up or down on a vertical axis (That is called Pedestal, or Boom up/down)



### Panning shot

A panning shot is a type of camera movement where you move your camera horizontally; either left to right or right to left, while its base is fixated on a certain point.

### Zoom shot

A zoom shot is a type of camera movement where the lens of the camera is adjusted to change the focal length, it can be used to create the illusion of moving towards or away from the subject or to change the perspective of the scene.





## View Shots

View shots are camera shots that are provide a specific stylized point of view, often to convey a particular atmosphere, and emotional visual effect.

### Dutch angle

A Dutch angle or Dutch tilt, also known as a canted angle, is a type of shot in which the camera is deliberately tilted to one side. It creates a sense of disorientation or unease and is often used to convey a character's emotional state, to show a character's point of view or to create a dramatic effect.



### Over the shoulder

An over-the-shoulder shot is a type of shot where the camera films a subject from behind another's shoulder, it's used to show interaction and facial expressions of both characters, and to show a character's point of view.

### Point of view

A point-of-view shot (POV) is a type of shot that is filmed from the perspective of a particular character, allowing the audience to see the scene from their point of view. It can be used to create a sense of immersion and to show a character's perspective or mental state. It can also be used to create suspense or to reveal information to the audience.



## Want to know more?

Here are some online resources which show cinematic shots in more detail:



[14 Basic Cinematography & Film Techniques for Better Cinematic Shots](#)

Quick reference guide of different cinematic shots with video references



[Cinematography Manual: The Ultimate Guide to Becoming a DOP](#)

Extensive information about the role of DOP, lenses, cameras, shot & lighting

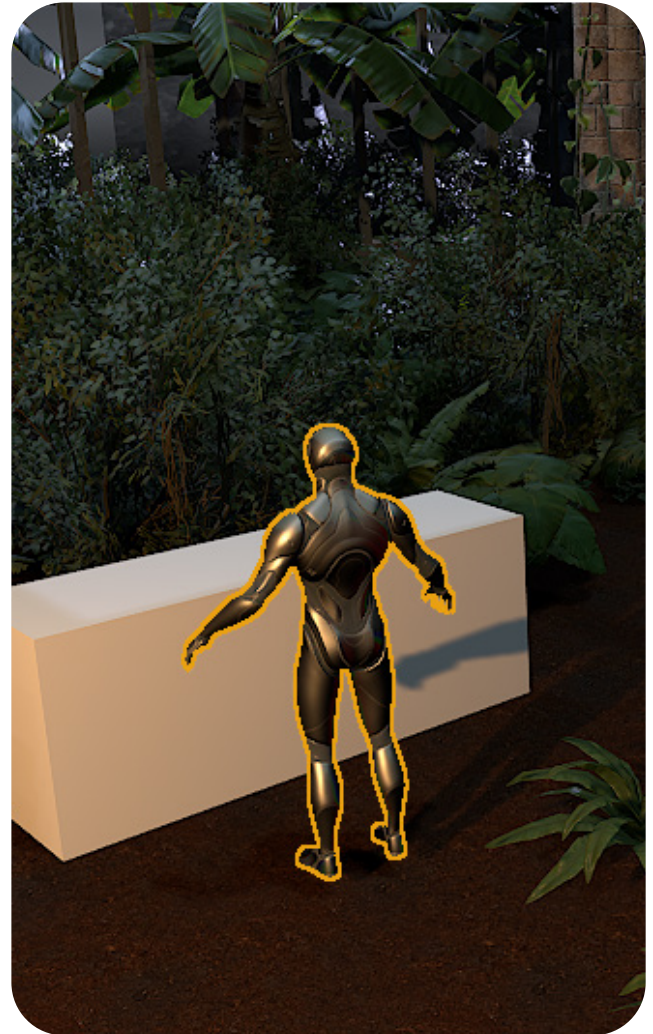


<https://www.studiobinder.com/blog/ultimate-guide-to-camera-shots/#camera-movement>

Example guide for Camera Movement

# Pre-vis

Previs, short for “previsualization,” is the process of creating a rough animation or 3D visualization of a film or video game scene before it is shot or produced. The goal of previs is to plan and communicate the visual elements of a scene, such as camera angles, character movements, and special effects, in a way that is easy to understand and change.



**Previs is a critical tool for filmmaking, it allows us to plan and communicate the visual elements of a scene in a way that is easy to understand and change.**

**David Dozoretz, The Third Floor**

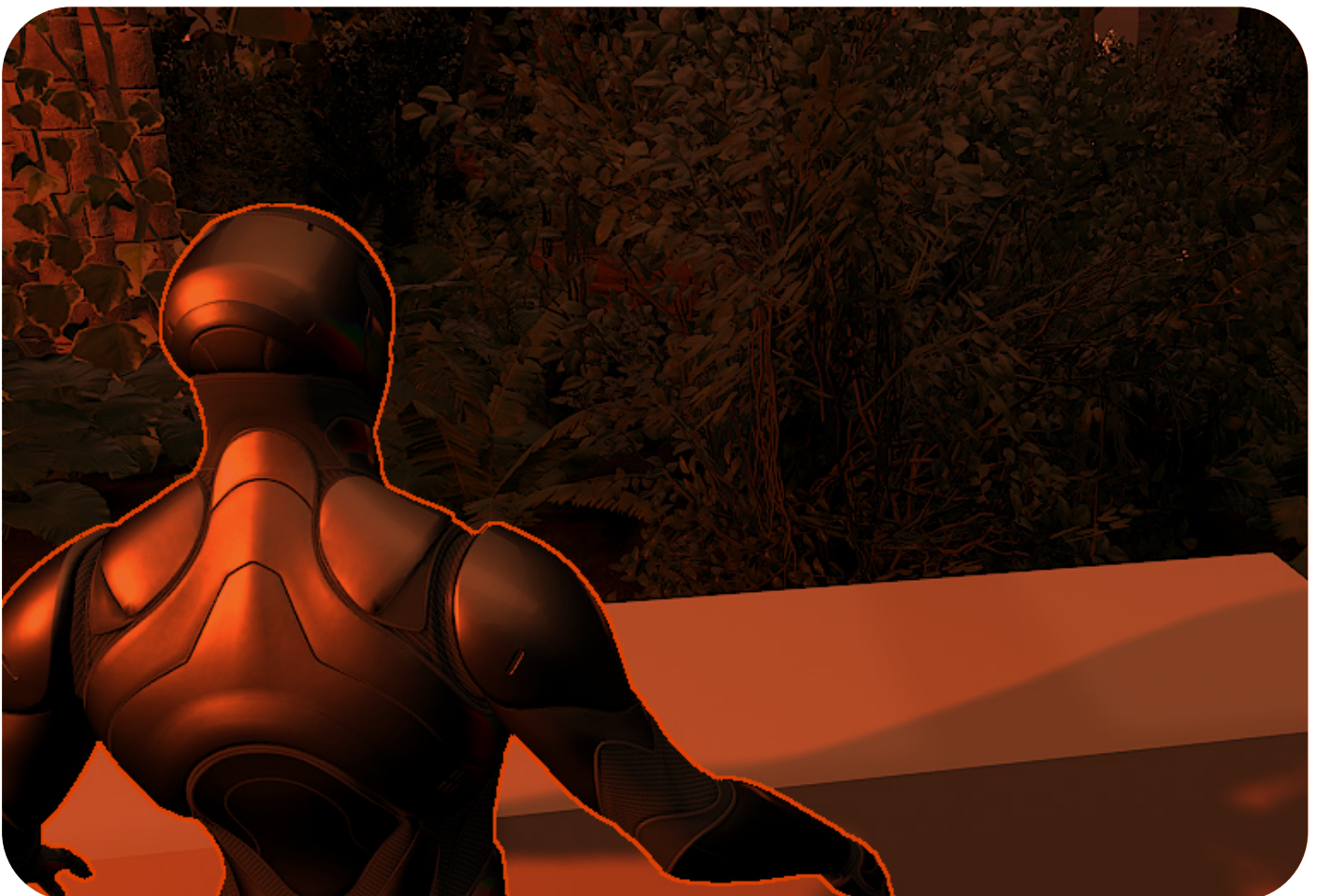
# Explained

## Pre-vis

This process allows the director, cinematographer, and other members of the production team to make decisions and adjustments to the scene before it is filmed or produced, which can save time and money in the long run.

Previs is typically done using specialized software and can include a wide range of techniques such as 3D animation, motion capture, and virtual camera work. It can be used for different stages of production, from pre-production to post-production and special effects integration.

The process of previs can vary depending on the project and the production company, but the main idea is to have a visual representation of the scene, and use it as a reference for planning the filming or production.





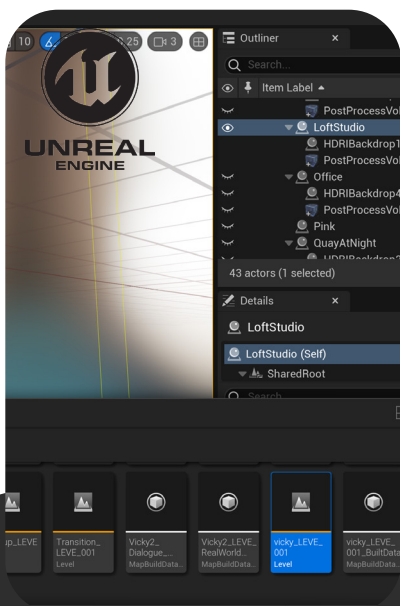
# Unreal Engine

## Pre-vis

To quickly create a previs (previsualization), you can use the built-in assets of Unreal Engine, such as characters and environments, or import your own models and textures. Furthermore, you can also use the Unreal Engine's lighting and visual effects tools to enhance the look of your previs.

Once you have your scene set up, you can use the Sequencer tool to create a cinematic previs by creating a timeline and adding cameras and animation to it.

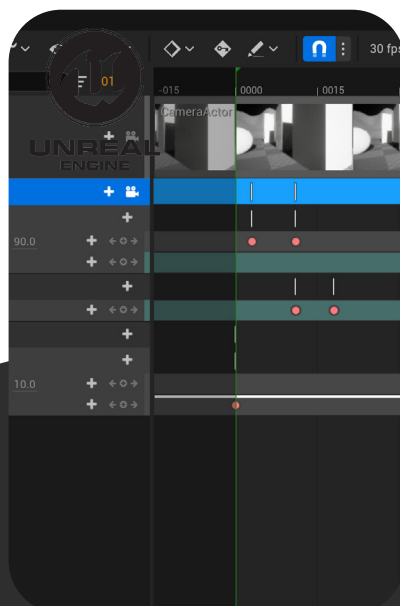
It's a good idea to have some experience in Unreal Engine before diving into previs creation. Here are some helpful tutorials and documentation, to start with.



### Unreal Engine 5 Beginner Tutorial



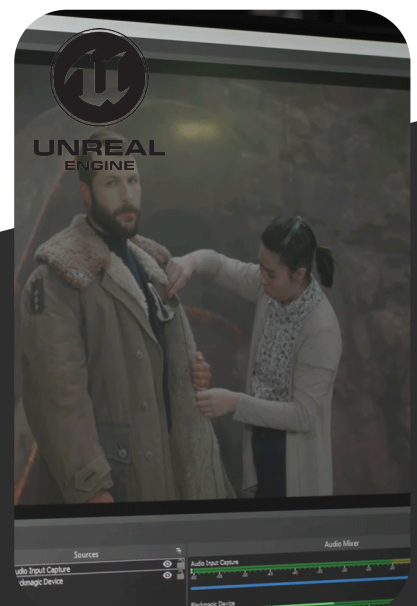
You will learn how to install Unreal Engine, navigate the 3D viewport, create materials and worlds, sculpt landscapes, paint foliage, program in Unreal using Blueprints, and end with creating a photorealistic world in real time.



### Create Cinematics in Sequencer



Learn how to use the sequencer to create cinematics. Includes Camera & Object workflows, setting up animations, and edit them with the curve editor.



### Virtual Production in UE5



Learn how to animate a virtual camera for Virtual Production. Learn the basics of the user interface, create an environment and animate a virtual camera for Virtual Productions.



**Become proficient in Unreal Engine 5**

# Unreal Engine Extra

Here are some additional recommended tutorials for Unreal Engine. These are not mandatory, but provide more insights on setting up Virtual Productions environments.



## Quickly Create 3D Environments



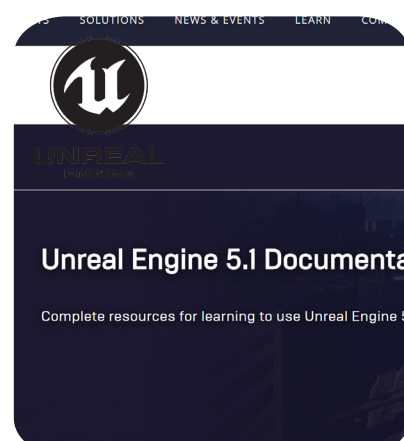
Learn how to quickly block out the camera angle, environment, and lighting.



## Tutorial | Nordic Cave Environment



In this UE5 tutorial you will learn to create a Realistic Cave Environment using UE5.



## Unreal Engine 5.1 Documentation



Complete resources for learning to use Unreal Engine 5

# Unreal Engine Advanced

Here are some additional recommended tutorials for Unreal Engine. These are not mandatory, but they are recommended for improving some specific skills related to Virtual Productions.



## [Unreal Engine 5 - Optimizing Lumen, Lumen Reflections and Troubleshooting Virtual Shadow Maps](#)

Advanced settings for lumen, lumen reflections, and virtual shadow maps.



## [Capturing Lofoten in Unreal Engine 5](#)

A workflow and process video on how to set up a realistic scene in UE5.



## [Lumen Explained](#)

How to set up an UE5 scene using Lumen.

# Step 02

## Workshop

In this workshop, we will focus on learning how to develop two essential support artefacts. They work in tandem to depict the creative and envisioning process that enables film production.

The pre-visualization is more than an animated storyboard. It allows for all the parties, Producers, Visual Department, Director, and Director of Photography to work together and understand what is required to be developed for each individual shot:

- ☐ Talent
- ☐ Props
- ☐ Vehicles
- ☐ Equipment
- ☐ Stunts
- ☐ Special Effects
- ☐ Virtual Assets

## Goals



### Learn PreVis Animation

Based on the storyboard, use Unreal Engine to learn how to develop a virtual film that will be able to stand in for the different individual shots.



### Learn TechVis Planning

Learn how to develop an extensive planning strategy required for each individual shot, broken down into components.



### Studio tools

Get acquainted with the available studio resources.



# Daily Planning

## Day 1 : PreVis

- Unreal Template
- Sequences
- Plan V

## Day 2 : TechVis

- Studio equipment tour
- Tech-Vis Planning
- Next Steps



# Requirements

Workshop participants needs to bring their own laptops:

- Minimum disk space required 100 Gb
- Unreal Engine (version 5), with the following [computer requirements](#)
- Custom Unreal Engine Plugins (to be provided 1 week before the workshop)
- Unreal Engine Template Project (to be provided 1 week before the workshop)

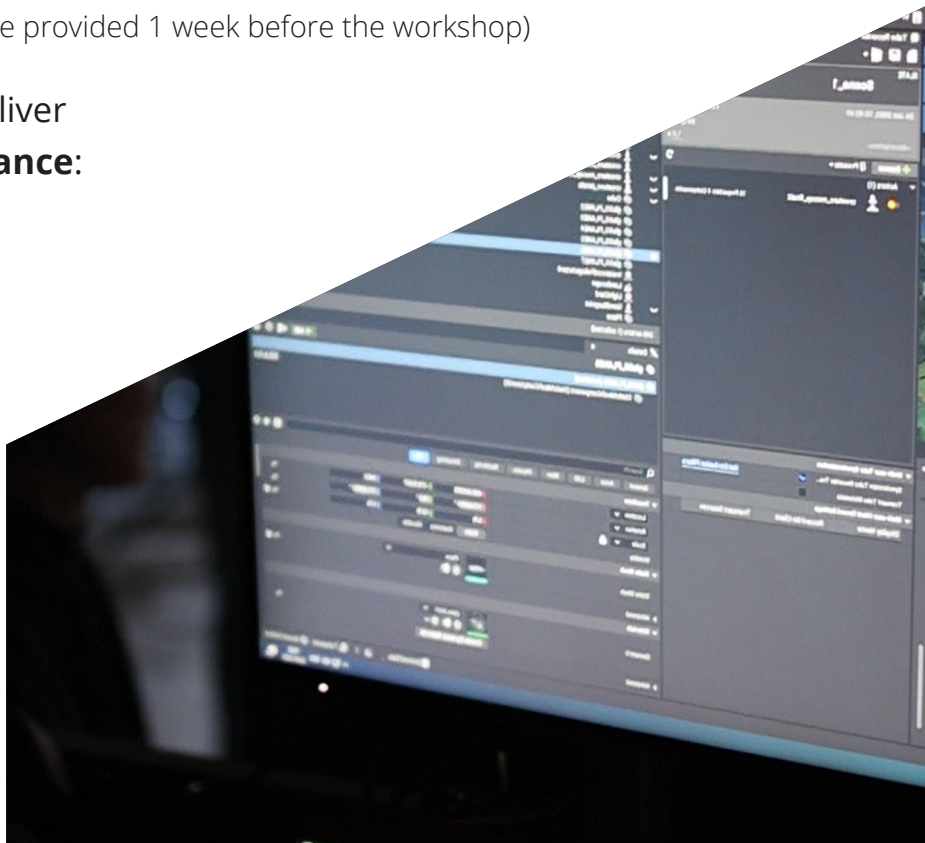


Workshop participants needs to deliver  
Step 01 activities **one week in advance:**

- Creative Vision
- Storyboard

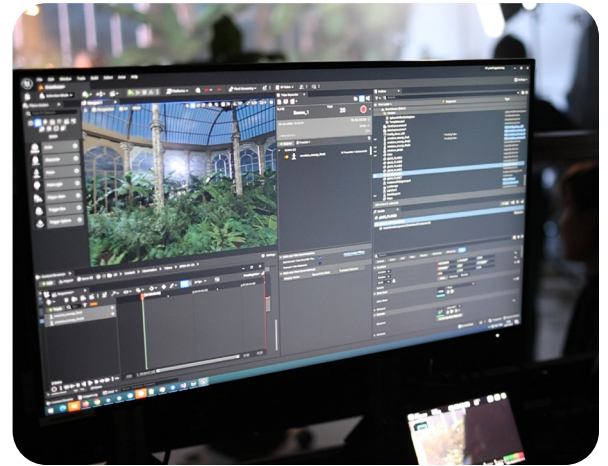
Workshop participants need to  
complete Unreal Engine tutorials

- UE Introduction
- Environment Development
- Sequencer



# Tech-vis Plan

A technical visual plan is a document that outlines the technical and visual aspects of a film or video production, including the use of cameras, lenses, lighting, and special effects.



It is an important tool that helps the director of photography (DP) and the director to communicate their vision to the rest of the production team and to ensure that the final product meets their creative and technical specifications.

The DP and the director, in collaboration with other production team members, such as the gaffer, the key grip, and the special effects supervisor, usually create the tech-vis plan. It is often an iterative document that includes information about the types of shots, camera angles, and movements that will be used, as well as details about the lighting, lenses, and camera equipment that will be required. It also includes information about how the visual effects will be achieved and how the visual style will be developed.



The tech-vis plan is used to plan the shooting schedule, it will specify the necessary equipment, crew and time required to shoot each scene. It also helps to identify any potential technical or logistical challenges that may arise during the production. This plan will give the team an idea of the number of cameras and lenses they would need, the kind of lighting equipment and the number of crew members required on set.

The tech-vis plan is also useful for managing the budget, it will help to identify the resources and costs required for each shot and to make sure that the production stays within budget. It's also a useful tool for communicating with other departments, for example, the costume and production design teams can use it to ensure that the visual style aligns with the director's vision.

# Breakdown

## Tech-Vis Plan

The development of a tech-vis plan based on a pre-vis is a collaborative process that involves the director, the DP, and other members of the production team, it's important to have clear communication and coordination.

### 01 Review the pre-vis

The first step is to review the pre-vis, which is a rough animation or 3D mockup of the film or video production. This will give you an idea of the overall visual style and the types of shots, camera angles, and movements that will be used.

### 02 Shot evaluation

Based on the pre-vis, you will need to identify the technical requirements for each shot, such as the type of camera and lenses used, the lighting equipment, and any special effects required, and revise the Pre-vis whenever necessary.

### 03 Shot list

Create a shot list, which is a plan that outlines all the shots that will be needed for the film. This plan will consider how the shots will be used to tell the story and create a certain visual style or convey a certain mood or emotion.

### 04 Call Sheet

Plan the shooting schedule. Using the shot list, you can plan the shooting schedule and the daily call sheet to identify any potential technical or logistical challenges that may arise during the production.

### 05 Coordinate departments

Coordinate with other departments such as costume, production design, and special effects to ensure that the visual style aligns with the pre-vis and the director's vision.



**We changed and adapted the Techvis daily, there was a constant back and forth of ideas and solutions between multiple departments to come up with the most efficient way to shoot VFX heavy sequences.**

**Joanne Smithies (Visualization Supervisor for Shadow and Bone)**



# Shot List

A shot list is a document that outlines all of the shots that are planned for a particular film or video production.

It is a detailed and organized list of each shot that the director and the cinematographer have planned to capture on set for the movie, including the type of shot, the camera angle, the lens to be used, and the movement of the camera, if any. It also includes information about the location, the actors involved, and the props and equipment needed for each shot.

The shot list is used as a guide for the production team, including the director, the camera operator, and the lighting and sound crews, to ensure that all necessary shots are captured during filming and that the final product meets the director's vision.

Additionally, the shot list is also used as a reference during the editing process, to make sure that all the necessary shots are included in the final cut and that they are used in the correct order to tell the story effectively.

Shot	Camera movement	Camera angle	Gear	Lens	Description
MEDIUM	Dolly	Slight High Angle	Dolly tracks	50mm	WORKER 1 is sleeping with his head on the table
MEDIUM CLOSE UP	Handheld	Eye level	Shouder rig	85mm	Worker 2 walks in the room and wakes up worker 1
MEDIUM	Handheld or Static	Shoulder level	Shoulder rig or Tripod	50mm	Worker 1 gets up and they both leave the room
COWBOY or MEDIUM FULL SHOT	Static	Shoulder level	Tripod	35mm	Both Workers walk through the hallway one after each other
MEDIUM	Handheld or Static	Low Angle	Shoulder rig or Tripod	85mm	Worker 2 walks in frame and looks for the wreck
MEDIUM FULL SHOT	Handheld or Static	Shoulder level	Shoulder rig or Tripod	24mm	Worker 2 is looking at the wreck, emergency lights turn off, Worker 1 walks in frame and stands next to Worker 2
MEDIUM	Handheld or Static	Eye level or Low angle	Shoulder rig or Tripod	85	Both workers stand in front of the wreck

# Call Sheet

A call sheet is an essential tool for keeping the production running smoothly and on schedule, by providing everyone involved with the necessary information to be at the right place, at the right time, with the right equipment.

A call sheet is a document that is distributed to the cast and crew of a film or video production, typically on a daily basis, that provides important information about the schedule for the upcoming day of filming.

A typical call sheet includes:

- ❑ The call time (when cast and crew should arrive)
- ❑ Key member contact information
- ❑ Shooting schedule for the day including the scenes, order, and expected timeline
- ❑ Equipment, props and other film and set needs
- ❑ Information about transportation for cast and crew
- ❑ Emergency Contact information
- ❑ Meal and break times
- ❑ Special requests or instructions for the day

Name of Talent	Role	Phone number	E-mail	Call Time
Aiden	Aiden	011 8 1234567	aiden@breda.nl	10:00
Marion	Marion	011 8 7654321	marion@breda.nl	10:00
Director	director	011 8 1234567	director@breda.nl	9:00
Producer	producer	011 8 1234567	producer@breda.nl	9:00
DoP	DoP	011 8 1234567	dop@breda.nl	9:00
Artist / UE operator	artist / UE operator	011 8 1234567	artist@breda.nl	9:00
Colorist	colorist	011 8 1234567	colorist@breda.nl	9:00
Audio recordist	audio recordist	011 8 1234567	audio@breda.nl	9:00

Time	Tasks	Cast/Crew	Location
9:00	set up	crew	XR stage
9:30 – 10:00	actors call time / costume / stand up	Cast	XR stage
10:00 – 12:00	shot 31 + 34 / Make A Wish	cast + crew	XR stage
12:00 – 13:00	lunch	cast + crew	-
12:50 – 13:00	set up	crew	-
13:00 – 15:00	shot 33 + 36	cast + crew	XR stage
15:00 – 15:15	break	cast + crew	-
15:15 – 17:00	shot 35	cast + crew	XR stage
17:00	wrap / back up footage	crew	XR stage

# Advice

## Production Bible

A production bible is a “live” document in the sense that it is not a static document, but one that is constantly updated and revised as the production progresses. During the development phase of a film, the production bible is used to capture all of the important information about the project, such as the concept, story, characters, and production schedule. But as the production moves into pre-production, production, and post-production, new information is generated, and the production bible should be updated to reflect this new information.

As the production progresses, new details will emerge, and the production bible should be updated to include this information. It serves as a reference for all members of the production team, including the director, producer, casting director, and crew members. Keeping it updated ensures that everyone has access to the most current information, which can help to avoid confusion and delays. It's also very useful as a historical reference, after the production is finished, it can be used to look back on the journey of the film, and as a reference for future productions.

Here are a few suggestions for how to keep and maintain a production bible:

- Assign a dedicated team member to be responsible for updating the production bible. This person should be familiar with the project and have access to all the relevant information.
- Use a digital format for the production bible. This will make it easier to update and share with the production team. Cloud-based document-sharing platforms like google drive, dropbox, and others can be useful in this regard.
- Schedule regular updates to the production bible.
- Use version control, in case of digital format, this will be helpful in case of any discrepancy or to refer back to any previous version.
- Finally, encourage feedback from the team, this will help identify any missing information and ensure that it meets the production team's needs.

**Please develop your Production Bible and share with us, so we can support the development of your film.**



# Next Steps

The next steps will be covered by an independent Course Manual, which will be supplied after Day 02 of the workshop. Still, to provide appropriate framing and context for the current steps we are revealing a bit under the hood.

## Step 03 Pre-Production

### Goals



#### Film Pre-Production

Based on the script, define and develop the resources required for a successful filming phase, including finding appropriate solutions without compromising the vision.

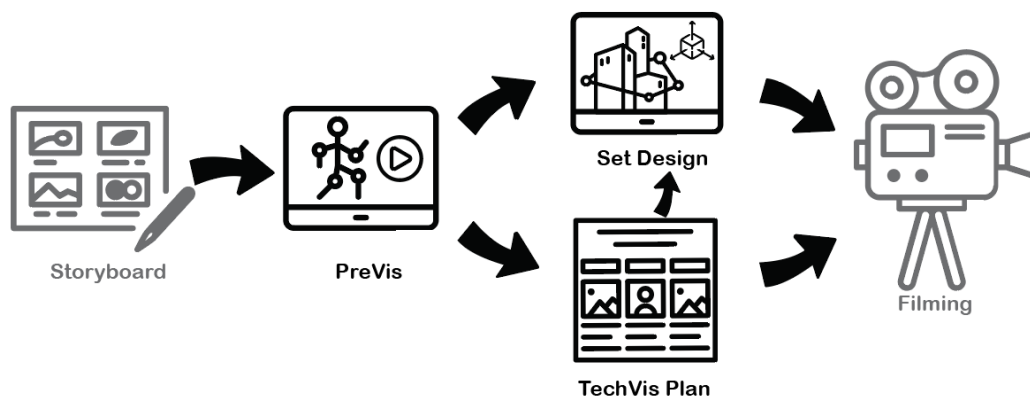


#### Become proficient with DaVinci Resolve

Get acquainted and comfortable with the Unreal Engine 5 tool.

### Activities

The main activities for this step are to finish the PreVis, do a proper TechVis Plan, and optionally adjust digital assets to fit the Creative Vision.





# Step 04

# Production

## Goals



### Film Production

Using the shot-list and call sheet to execute a successful film production.

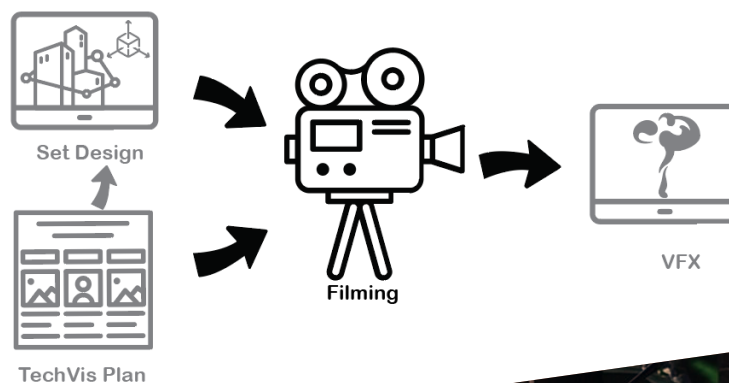


### Working with a LED Volume

Understand the limitations and the advantages of using a LED Volume for developing Film Productions.

## Activities

During this hands-on workshop, we will explain how to work with the LED Volume, camera tracking, and setup the environment and lighting.





This Virtual Production Workshop Series has been created by Breda University of Applied Sciences, within the scope of VPSN Erasmus+ Project.

# Credits

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