VIRTUAL PRODUCTIONS
Workshop Series
Manual 02

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Workshop Series

This manual covers various topics related to film production. First, it provides an overview of colour theory, which is important for creating a visually pleasing film. Second, it discusses lighting, focusing on the three-point lighting technique, which is a popular technique for illuminating subjects on camera. Finally, it includes information on cameras, lenses, or Look-Up Tables (LUTs), which are used to adjust the colour and contrast of footage during post-production. In summary, this manual aims to provide readers with a basic understanding of some key concepts and techniques that are essential for creating high-quality films.

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Nutshell
Colour Theory

Colour theory is a set of guidelines and principles used to determine which colours will look harmonious and appealing when used together. It explains how colours interact with each other and how they can be combined to create visually captivating compositions.

In the 19th century, James Maxwell demonstrated the nature of colour vision by showing that all colours could be additively created based on the primary red, green, and blue using spinning disks at high speeds, producing a visual blend of colours. In contemporary times, Maxwell's disc concept has been expanded and integrated into various colourimeters and spectrophotometers, employed to measure and quantify the properties of light and colour in diverse settings, including the CIE 1931 colour space.

The CIE 1931 colour space, also known as the CIE XYZ colour space, is an international standard for representing and defining colours. It was created by the International Commission on Illumination (CIE) in 1931 and is based on the human visual system and takes into account the sensitivity of the average observer to different wavelengths of light. It defines a colour as a set of three numerical values, X, Y, and Z, which represent the amount of red, green, and blue light that is needed to match the colour being measured.

In practice, the CIE 1931 colour space is often used in colour management, quality control, and colour matching because it is device-independent, meaning it can be used to accurately describe colours across different displays, printers, and lighting conditions.

It is important to understand the colour gamut of the cameras and lights that are being used and to ensure that they are matched to the intended colour representation, to ensure accurate colour reproduction and to prevent colour discrepancies.

If the camera or light has a limited colour gamut, some of the colours in the scene may not be accurately represented in the image or output. This can result in a loss of colour accuracy and may require colour correction or adjustments to be made to achieve a more accurate representation of colour.

Harmony
Colour Composition

In colour theory, colour harmony is achieved by using colour combinations that are aesthetically pleasing and that create a sense of balance, unity, and order in a design. There are several principles of colour harmony that can be used to create visually appealing colour combinations:
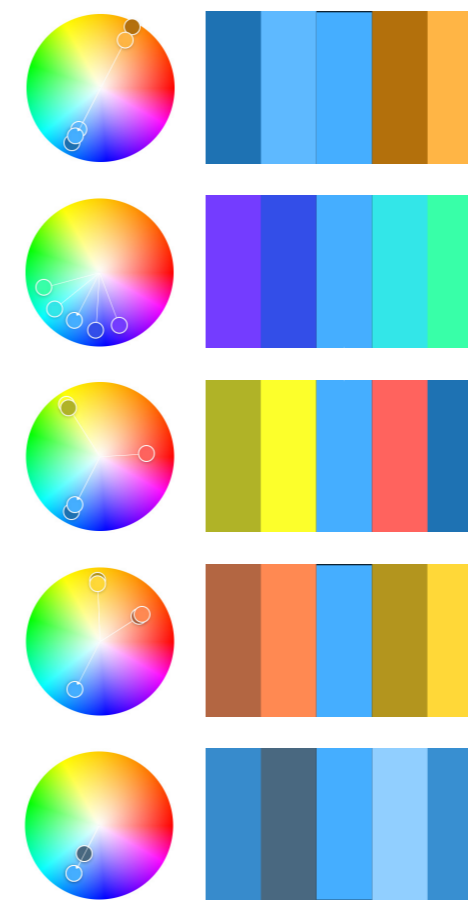
Complementary colours: Complementary colours are pairs of colours opposite each other on the colour wheel. When used together, they create high contrast and can be used to create a bold, dynamic look.

Analogous colours: Analogous colours are colours that are adjacent to each other on the colour wheel. When used together, they create a harmonious and unified look, and are often used to create a calming and soothing atmosphere.

Triadic colours: Triadic colours are colours that are evenly spaced around the colour wheel. When used together, they create a balanced and harmonious look, and are often used to create a vibrant and energetic atmosphere.

Split-complementary colours: Split-complementary colours are a combination of a colour and the two colours that are adjacent to its complementary colour on the colour wheel. This creates a harmonious colour combination that is less intense than a complementary colour combination.

Monochromatic colours: Monochromatic colours are different shades and tints of the same colour. When used together, they create a cohesive and harmonious look, and are often used to create a calming and soothing atmosphere.

image source: colour.adobe.com

Warm versus Cold Colours

In colour theory, warm and cold colours are used to create contrast and evoke certain emotions in design and art. For example, a warm colour like red can be used as an accent to draw attention to a specific area, while a cool colour like blue can be used as a background to create a sense of calmness.

It's worth noting that the perception of warm and cold colours can vary based on culture, personal preference, and the context in which they are used. Nevertheless, warm and cold colour associations are widely recognized and used in various forms of visual arts and design.

Device Calibration
Colour Balance

A colour histogram is a graphical representation that displays the distribution of colours in an image or video. It depicts the frequency of pixels associated with specific colour values, thereby facilitating colour adjustments to enhance visual appearance and accuracy.

Colour histograms are used to analyze the colour content of an image or video and to understand the distribution of colours in a scene. They are commonly used in image and video processing, colour correction, and image analysis applications.

By analyzing the colour histogram, it is possible to determine the dominant colours in an image or video, to identify any colour imbalances, and to make colour adjustments to correct these imbalances. For example, if the colour histogram shows that an image has a dominant blue colour cast, colour correction can be applied to reduce the blue cast and to achieve a more neutral colour balance.
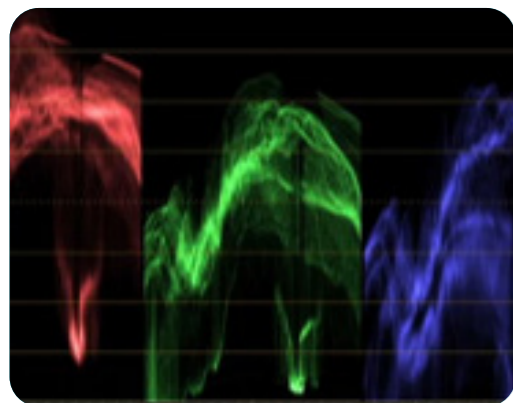
In addition, colour histograms are also used in computer vision and image recognition applications to help identify and classify objects and scenes. By analyzing the colour histogram of an image, it is possible to extract features that can be used to train machine learning algorithms to recognize specific objects or scenes.

The exact correction will depend on the desired tone and style.
A Macbeth chart, also known as a Macbeth Colour Checker, is a colour calibration target used in photography, cinematography, and other imaging applications. It is a standardized colour chart that consists of 24 square patches of various colours, including neutral grays, skin tones, and primary and secondary colours.

The purpose of the Macbeth chart is to provide a reference for colour accuracy and consistency. By photographing or scanning the chart, you can analyze the colours captured by a camera or scanner and determine if they are accurate and consistent. This information can then be used to make adjustments to the camera or scanner settings to ensure that the colours are captured correctly. In addition to colour calibration, the Macbeth chart is also used in colour grading, which is the process of adjusting the colours and tones in an image or video to achieve a specific visual style or look.

By comparing the colours in the image or video to the reference colours on the Macbeth chart, you can determine if the colours are accurate and make adjustments to the colour grading settings as needed.

The Macbeth chart is widely used in professional imaging applications, such as photography, cinematography, and printing, due to its standardized and well-regarded colour reference. It is an important tool for ensuring colour accuracy and consistency across different devices and applications

A blue colour cast means that the entire image has a blue tint, making all colours look blueish.
This can occur due to incorrect white balance settings on the camera, lighting conditions, or other factors.
One common method is to adjust the temperature and tint settings, and reduce the blue cast and achieve a more neutral colour balance.

Colour Correction
& Filming in RAW

Colour correction is the process of adjusting the colours and tones to achieve a specific visual style or look, or to correct any colour inaccuracies or inconsistencies. It is an important step in the post-production process, and it is often performed using specialized software.

Filming in RAW refers to the process of capturing digital images or videos in a raw, unprocessed format, instead of a compressed or processed format such as JPEG or H.264. Raw formats capture a much larger amount of information about the image or video, including colour, luminance, and other data, which provides more flexibility and control during post-production.

As the raw data provides more information about the colours and tones, it allows for more precise adjustments to be made to the colours, including adjustments to the hue, saturation, and luminance, as well as the use of Look-Up Tables (LUTs) to apply pre-determined colour adjustments.

Using LUTs
Look Up Tables

A LUT is a mathematical formula used in image processing and video production to map one set of colours to another. A LUT is used to correct a video's colours and ensure that the colours are accurate and consistent.

LUTs are used to perform colour grading, which is the process of adjusting the colours and tones in an image or video to achieve a specific visual style or look. By using a LUT, you can apply a set of pre-determined colour adjustments to an image or video in a single step, making the colour grading process quicker and more consistent.


Orange/Teal
The Orange and Teal look enhances the depth of the shot by pushing the blues/teals into the shadows and oranges/yellows into the highlights making skin tones stand out against blue shadows.

Muted yellow
The muted yellow look is a distinct look created by lowering the saturation of the shot, reducing the blue tones in the highlights, mid-tones, and shadows, leaving a predominantly yellow image.
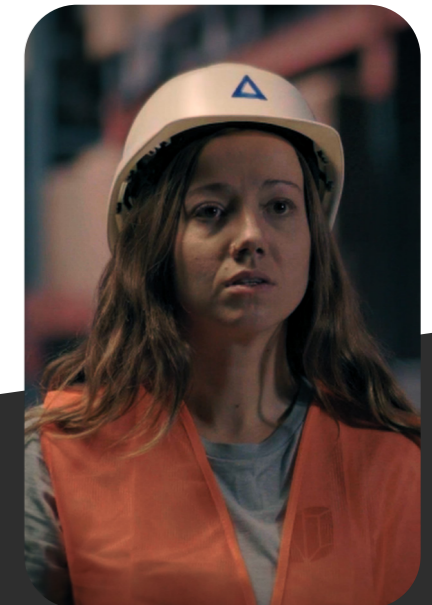
Cross Processing
The cross-processing look is achieved by opposite adjustments to colours, most commonly with red/blues, increasing the red highlights and lowering shadows while increasing the blue shadows and lowering highlights.

Physics & Optics
Light

Light is a form of energy that travels through space as electromagnetic waves and is perceived by the human eye as visible light. Light can also be described as a stream of photons. It has both wave-like and particle-like properties and its behaviour is described by both classical physics and quantum mechanics.

Light can have different effects as it interacts with different materials and surfaces.

Specular Reflection

Specular reflection is the reflection of light from a smooth, shiny surface in a single, well-defined direction, and the innability from the material to intake light. This results in the creation of sharp, clear reflections that can be used to create highlights and define the shape of an object.

Diffuse

Diffuse reflection refers to the scattering of light in all directions after it strikes a rough or irregular surface. This causes light to be reflected in many different directions, creating a soft, uniform illumination that lacks distinct shadows. Diffuse reflection is what gives objects their overall brightness and appearance of texture
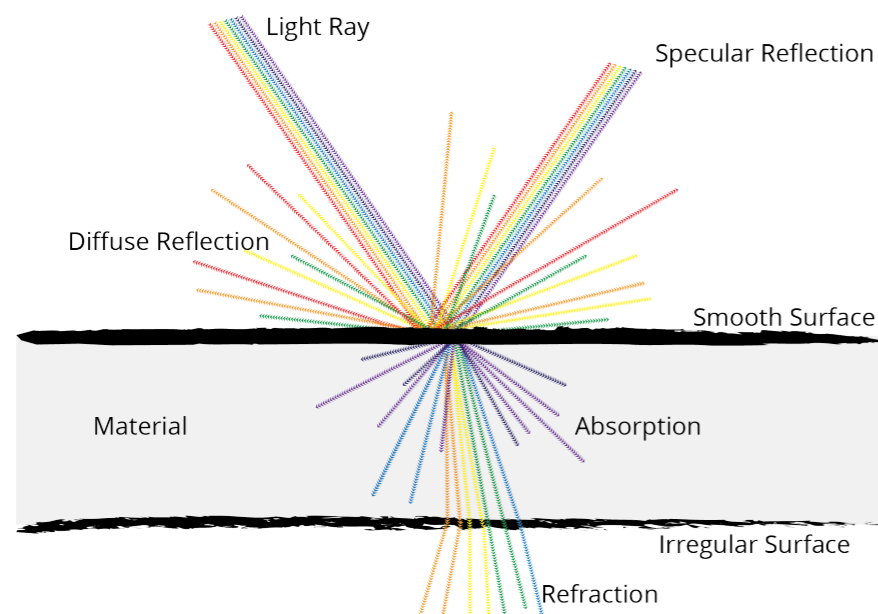
Absorption

Absorption refers to the process by which light is absorbed by a material. This happens when the photons in the light are absorbed by the electrons in the material. The amount of absorption depends on the properties of the material and the frequency of the light, and is typically transformed in heat.

Refraction

Refraction is the bending of light as it passes from one material to another with a different refractive index. This can cause light to change direction and is what makes objects appear distorted or like they have moved when viewed through a lens or a curved surface.

Design Process
Lighting

'Lighting' refers to the use of artificial light sources to illuminate a subject or scene in a controlled environment. Studio lighting is often used to create specific lighting effects, such as highlighting, shading, or creating contrast, or to simulate natural or ambient lighting conditions.

The individual responsible for orchestrating and configuring the lighting for a shoot is commonly referred to as a gaffer. Their responsibilities include devising a comprehensive lighting plan that encompasses the selection of appropriate lighting equipment, determining optimal placement and angles, and adjusting the power levels to achieve the desired effect.

The light design process typically involves several steps:

- Determine the desired look and feel for the shoot, and to plan the lighting setup accordingly;

- Select the lights and other equipment required for the shoot, such as stands, gels, and reflectors, based on the lighting plan;

- Set up and test the lights and make any necessary adjustments to ensure they illuminate the scene correctly;

- Adjusting the lights during the shoot, in coordination with the director's or cinematographer's instructions and the subject or scene;

- Tearing down the lights, after the shoot and return the equipment to storage.

> **"And where do we get those big portable lights? Borrow them from Batman?"**
>
> **Art Evans - Barnes**
> **Martin Scorsese**

Three Point Lighting

Three-point lighting is a traditional method for illuminating a subject in a scene with light sources from three distinct positions. The three types of lights are key light, fill light, and backlight.

Key light

The key light is the main source of illumination for the subject and provides the primary lighting effect. The position and intensity of the key light determines the overall mood and feel of the scene, and can be adjusted to create a range of different lighting effects.

In general, the key light is placed to one side of the subject, at a 30-45 degree angle, to create a dramatic and interesting lighting effect. The position of the key light should be chosen based on the desired lighting effect, and can be adjusted to create a range of different lighting styles, from dramatic and moody to soft and natural.

The intensity of the key light is also important, and can be adjusted to control the exposure and balance of the scene. A higher intensity key light will result in a brighter and more dramatic lighting effect, while a lower intensity key light will result in a softer and more natural lighting effect.

By adjusting the position and intensity of the key light, the lighting technician can control the overall exposure and balance of the scene, and create a range of different lighting effects. Whether creating a dramatic, moody look or a soft, natural look, the key light is a critical element of the three-point lighting process, and plays a central role in determining the final look of the scene.

Fill light

The fill light is an important component in the three-point lighting process. It serves to "fill in" or soften the shadows created by the key light, and provides a secondary source of illumination to balance the lighting in the scene.

In general, the fill light is placed on the opposite side of the key light, and is aimed at the subject from a lower angle. The fill light should be positioned and adjusted in intensity to balance the lighting in the scene, and to reduce or eliminate the shadows created by the key light. The intensity of the fill light is generally lower than that of the key light, and can be adjusted to control the overall lighting balance in the scene. A lower intensity fill light will result in a softer, more natural lighting effect, while a higher intensity fill light will result in a brighter, more dramatic lighting effect.

The fill light is a critical component of the three-point lighting process, as it helps to balance the lighting in the scene, and to create a more natural and appealing look. Whether creating a dramatic, moody look or a soft, natural look, the fill light is an important part of the lighting setup, and helps to achieve a well-balanced and professional lighting effect.

Backlight light

The backlight, also known as the rim light, is the third and final component of the three-point lighting setup. Its role is to add depth and separation to the subject, by illuminating the edges and creating a subtle "halo" effect around the subject.

The backlight is placed behind the subject and aimed at the back of the head or shoulders, and should be positioned so that it creates a gentle separation between the subject and the background. The intensity of the backlight can be adjusted to control the degree of separation between the subject and the background, and to create a range of different lighting effects.

In general, a lower intensity backlight will result in a subtle, natural separation effect, while a higher intensity backlight will result in a more pronounced separation effect. The backlight can also be adjusted in colour temperature to create different lighting effects, and to match the overall lighting style of the scene.

The backlight is a critical component of the three-point lighting process, as it adds depth and separation to the subject, and helps to create a more visually interesting and appealing lighting effect.
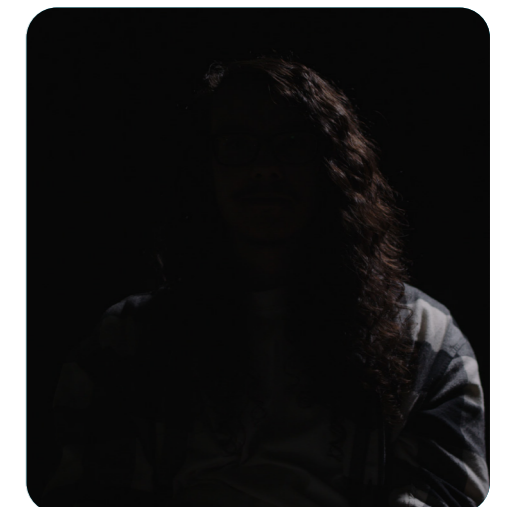
Four Point Method
Background light

The four-point lighting method is a lighting setup used in photography and videography, which involves adding a fourth light source to the traditional three-point lighting setup.

This fourth light source, is an additional light, which is positioned behind the subject and used to separate the subject from the background. Therefore, creating a more visually interesting and appealing image.

The background light, unlike the backlight, is used to shed light on the background elements such as walls or outdoor landscapes rather than creating a halo or an outline around the subject. Both light options are used for separation, and enhance each other.

Tips and Tricks

- **Plan** your lighting scheme before the shoot begins. Sketch out the set, the subject, and the lighting positions so you can visualize how the final image will look.
- Start with a basic **three-point lighting** system, it is a good foundation for your lighting scheme, and you can add additional lights as needed.
- **Balance** the key and fill lights. If the key light is too bright, the subject will look flat and one-dimensional. If the fill light is too bright, the subject will look washed out.
- The **background** can have a big impact on the overall look of your production. Make sure the background is properly lit so it doesn't distract from the subject.
- Different **colour temperatures** can evoke different emotions and moods.
- **Shadows** can add depth and dimension to your images, but they can also be distracting if not properly controlled. Use flags and gobos to control the shadows and make sure they fall in the right places.
- Take the time to **test** your lights and make adjustments as needed.

Four point illumination composition

In film, we sculpt time,
we sculpt behaviour and we sculpt light.

David Fincher

Light Checker Spheres

The fill reflector balls are two reflective spherical objects, usually made of chrome-plated metal that is used in visual effects and cinematography to visualize light references.

By placing the balls in the scene, the gaffer or cinematographer can see how light and reflections interact with the environment by being used as reference for reflections in the scene, and make adjustments accordingly. They provide a simple way to visualize and record the lighting conditions in a scene, which can then be replicated in digital scenes, like the LED Volume or post VFX.

The diffuse and specular chrome balls are used together to provide a complete picture of the lighting conditions in a scene. By using both types of chrome balls, filmmakers can ensure that the lighting in their final shots will be consistent, even if different shots were captured at different times or in different locations.

Specular Ball

The specular chrome ball is designed to capture the highlights and reflections in a scene. The ball is made of a highly reflective, shiny material, such as chrome-plated metal. The specular chrome ball is used to record the reflections in a scene, such as those from windows, mirrors, or other reflective surfaces.

Diffuse Ball

The diffuse chrome ball is designed to record the overall light level and colour temperature in a scene, without capturing any direct reflections or highlights. The ball is covered in a diffuse, matte material that scatters light in all directions, which allows it to record the ambient lighting in the environment.

🔗 **The Grey, the Chrome and the Macbeth Chart**

A breakdown of reflection spheres and Macbeth chart for look development and lighting.

General workflow:

- ☑ Set up the set and digital scenes
- ☑ Place the diffuse & specular reflection balls in the set, and place the diffuse & specular reflection balls in the digital scene
- ☑ Analyze the chrome ball, looking into diffuse and specular light reflection, direction of the light, and the intensity of the light, colour temperature, and match it.
- ☑ Capture the scene using the camera(s), to make sure you create reference footage for VFX.
- ☑ The Digital VFX team will use the information from the chrome balls to replicate the lighting conditions in the scene in post-production. This could involve colour grading the footage, adding light sources and reflections and shadows.

Post Processing Volumes

Post processing volumes are virtual 3D spaces that are used to control various aspects of the final image. These volumes are used to apply different effects and have precise localized control over the look and feel of their scenes.

A post processing volume can be created for a specific portion of a scene, such as over a particular object or a set piece. Within the volume, the artist can adjust parameters such as light intensity, shadow density, and colour grading, to create the desired look. This way, different parts of the scene can have different lighting conditions and can be treated differently.

For example, a filmmaker might use a post processing volume to adjust the lighting and colour grading of a set to make them stand out in a scene. Or control the blend between the props in the studio and the digital assest in the LED Volume.

To use post-processing volumes effectively for in-camera VFX, filmmakers must have a strong understanding of the technical aspects of visual effects, as well as experience working with cameras, lighting equipment, and visual effects software.

Particular care should be taken when using special visual effects and lighting equipment. For example, smoke or fog can be added to a the physical scene with a fog machine, and this might require modification of the digital assets to create a matching look and feel.

🔗 **Unreal Engine 5 - Post Processing Volume Tutorial**

Looking into Post Process Volumes and an introduction to global illumination for cinematic lighting.

Parameters Explained
Cameras

Digital cameras capture images by converting light into an electrical signal through the use of a light-sensitive sensor. Light enters the camera through the lens and falls onto the sensor, where it is converted into a digital signal. Cameras have a set of important controls which allow us to regulate the image.

Shutter speed

Shutter speed refers to the amount of time that a camera's shutter remains open to allow light to enter and hit the camera's sensor. It is measured in seconds or fractions of a second, such as 1/60th or 1/250th of a second. The shutter speed has a significant impact on the final image and can affect the sharpness, motion blur, and amount of light captured in the photo.

In low light situations, a slower shutter speed may be required to allow more light to enter the camera, which can result in a well-exposed image. However, if the subject is moving, a slower shutter speed may result in motion blur.

ISO

ISO is a camera setting that adjusts the sensitivity of the camera's image sensor to light. It influences the image by adjusting the amplification of the camera's image sensor signal.

A higher ISO value results in a brighter image, but also increases the amount of noise in the image. A lower ISO value results in a darker image but with less noise. The ISO setting can be used to control the exposure of the image, and is often adjusted along with the shutter speed and aperture to produce an image with the desired brightness and depth of field.

Aperture

Aperture refers to the size of the opening in a camera lens that allows light to pass through and reach the camera sensor. It influences the amount of light that enters the camera, and as a result, affects the exposure of the image.

Aperture also plays a significant role in determining the depth of field, which is the amount of the image that is in focus. A larger aperture (i.e., a smaller f-number) will result in a shallower depth of field, causing the background to be blurred while keeping the subject in focus.

Conversely, a smaller aperture (i.e., a larger f-number) will result in a deeper depth of field, keeping both the foreground and background in focus. Aperture settings can be used creatively to control the focus and separation of elements in an image.

Focus

Focus refers to the state of the lens in which an image is sharp and clear. In photography and videography, adjusting the focus allows the camera to determine what part of the scene will be in sharp focus and what will be blurry. This is an important tool for controlling the perception of depth, creating visual interest, and guiding the viewer's attention.

The focus can be adjusted manually or automatically, and different focusing methods, such as single-point, continuous, or face detection, can be used depending on the scene and desired effect. How the focus influences an image determines what elements in the frame will draw the viewer's eye, and can be used to guide the viewer's attention and emphasize certain elements of the composition.

DOF with 24mm lens

Depth of field

Depth of Field (DOF) is cinematography term that refers to the portion of a scene that appears in focus and sharp in a photograph or movie. It's determined by the aperture size, distance between the lens and the subject, and the focal length of the lens. Aperture size, which can be adjusted, has the most significant impact on the DOF.

A shallow DOF refers to having a small portion of the image in focus while having the foreground and background out of focus and blurry. This effect is often used to create a sense of depth and to draw attention to a particular subject. On the other hand, a deep DOF refers to having most of the image in focus, which is often used to capture landscapes, architectural details, and other scenes with more elements that need to be in focus.

In summary, the aperture size controls the amount of light entering the camera, which in turn determines the DOF, affecting the sharpness of the image and how much of the scene appears in focus.

DOF with 85mm lens

Camera
Lenses

The role of lenses is to capture and focus light onto the image sensor, and determine the field of view, perspective, and control various optical aberrations and distortions. They also play a significant role in determining the depth of field, bokeh, and overall image quality.

Different types of lenses offer various focusing and zooming capabilities, by choosing the right lens for a specific shot, filmmakers can control the visual style and mood of their images. In film making, some of the most commonly used lenses include:

- Prime lenses: offer a fixed focal length and provide a sharp, high-quality image.
- Zoom lenses: provide a range of focal lengths in one lens, allowing for greater versatility.
- Anamorphic lenses: provide a distinctive look for wide shots and produce a distinctive widescreen format.
- Macro lenses: designed for close-up photography and provide high magnification.
- Tilt-shift lenses: provide the ability to control perspective and perspective distortion.

Macro and Tilt-shift lenses are included so you will be familiar with them, but they are not typically seen in Virtual Production settings.

"A good idea is like a lens. It keeps you focused!"

Abhijit Kar Gupta

Bokeh

The term bokeh comes from the Japanese word "boke," which means "blur" or "haze." Bokeh is a term used to describe the quality of the out-of-focus blur in a photograph. The bokeh effect can be used to create a shallow depth of field, making the subject stand out by separating it from the background, which appears blurred and out of focus. Bokeh is determined by a number of factors, including the size and shape of the lens aperture, the focal length of the lens, and the distance between the camera and the subject.

Prime lenses

A prime lens is a camera lens with a fixed focal length. This means that the lens cannot zoom in or out and has a single, fixed field of view. Prime lenses are typically faster than zoom lenses and offer wider apertures, which allows for shallower depth of field and better low-light performance. They also tend to be more compact and lighter than zoom lenses, making them a popular choice for photographers and videographers looking for high image quality and creative control. Additionally, prime lenses often produce sharper and more detailed images than zoom lenses due to their simpler construction.

Zoom lenses

Zoom lenses are lenses that allow the user to change the focal range, and this makes them very versatile for filming. However, they tend to be larger and heavier than prime lenses. Additionally, zoom lenses tend to have less control over aperture parameters which can make the footage look "flat" or lackluster, as the range of focal lengths can make it more difficult to create a shallow depth of field or achieve a cinematic look. This is because zoom lenses tend to have a smaller maximum aperture than prime lenses, which means that they allow less light to reach the camera's sensor and create less of a shallow depth of field effect.

Anamorphic lenses

Anamorphic lenses are a type of lens used in filmmaking that horizontally compress the image. This results in a wider aspect ratio compared to standard lenses. When the anamorphic footage is played back on a screen with the correct aspect ratio, the image is stretched horizontally to fill the screen, resulting in a widescreen look. Anamorphic lenses can create unique and desirable visual effects such as horizontal lens flares, oval-shaped bokeh, and a distinctive, cinematic look. They can also create a shallow depth of field, which can be useful for isolating a subject from the background.

🔗 [Anamorphic vs. Spherical Lens Explained](#)
How to distinguish between lenses, detail effect explanations.

Focal Length

The focal length of a lens determines its angle of view, which in turn affects how much of the scene is captured in a single frame and how the subject is presented in the photo or video.

A lens with a shorter focal length (e.g., 18mm) has a wider angle of view, meaning it can capture more of the scene in a single frame. This is ideal for landscape, architecture, and interior photography where you want to capture a lot of the scene.

On the other hand, a lens with a longer focal length (e.g., 50mm) has a narrower angle of view, meaning it can capture less of the scene in a single frame. This is ideal for portrait, wildlife, and sports photography where you want to isolate the subject from the background and create a shallow depth of field.

In summary, the focal length of a lens determines its angle of view, which in turn affects how much of the scene is captured in a single frame and how the subject is presented in the photo or video.

The choice of lens mm will depend on the desired composition and effect for the shot. A wider angle can create a sense of expansiveness, while a longer lens can compress the scene and isolate the subject from the background.

35mm

50mm

85mm

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.

Moiré Effect

The moiré effect is an undesirable pattern that can occur in digital images or video when a repetitive pattern or texture in the subject being photographed interacts with the sampling pattern of the camera's sensor.

The moiré effect is a common artifact in digital imaging that occurs when two patterns with different frequencies are overlaid or superimposed on one another. This results in an interference pattern that can cause unwanted visual distortion, particularly in areas of fine detail or patterns, such as fabrics or architectural elements.

In digital cameras, the moiré effect can occur when a subject contains fine details or patterns that do not align with the camera's sensor resolution or the pattern of the camera's anti-aliasing filter. The anti-aliasing filter is designed to blur the image slightly, reducing the likelihood of moiré, but it can also soften the image slightly.

To minimize the moiré effect, some high-end digital cameras and cinema cameras use a sensor with a high resolution and no anti-aliasing filter, while others use specialized software to reduce the effect in post-production. Filmmakers may also avoid certain patterns or fabrics that are more likely to produce moiré, or use anamorphic lenses that can reduce the likelihood of the effect.

Ways to reduce moiré for Virtual Productions:

- ◼ Avoid focusing on the screen's pixels. Instead, direct the focus on the actors and foreground elements, rather than the horizon.

- ◼ Shoot at a shallow depth of field - the more depth you have in your shot the less the moiré will translate to your cameras sensors.

- ◼ Adjust camera angle and distance: Changing the camera angle and distance can reduce the chance of Moire by altering the perspective and changing the pattern of the subject.

- ◼ Use a low-pass filter: A low-pass filter can be applied to the camera lens to help reduce the interference between the sensor and subject pattern.

Learning
DaVinci Resolve

DaVinci Resolve is a robust video editing software that is used by professionals in the film and video industry. It offers a wide range of features and tools to enable users to create high-quality videos with a professional look and feel. The software is available in both free and paid versions, making it accessible to a broad range of users.

One of the key features of DaVinci Resolve is its powerful editing tools. The software includes a timeline for arranging video clips, advanced trimming tools for precise cuts, multicam editing, and more. This makes it easy for users to edit their footage and create a compelling narrative.
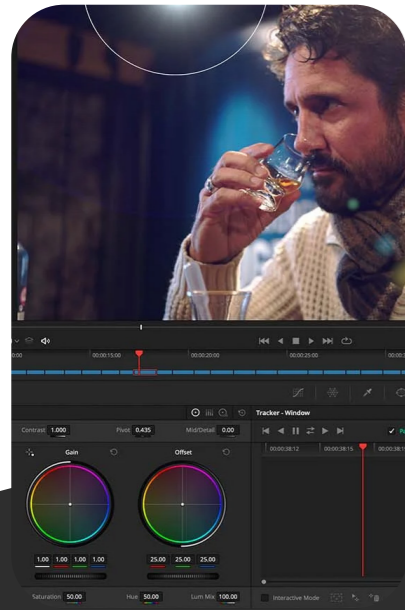
Introduction to Colour

This video provides a compreensive introduction to the colour, and it is the first of a series that delves into the art of colour grading. Learn how and why you should use the primary and secondary grading features.
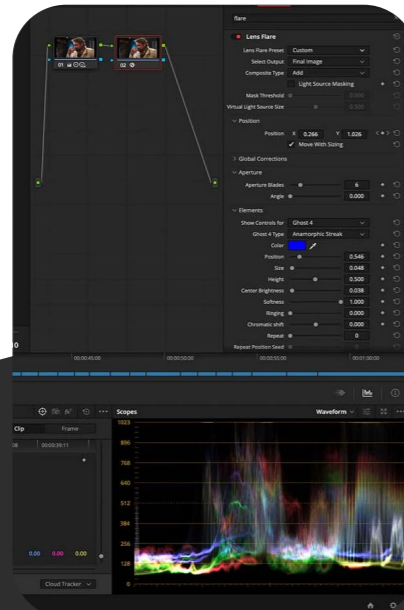
Colour Grading vs. Colour Correction

This article take you through the process of colouring digital video so that you can control the mood of your project. You'll be ready to establish your unique video style.
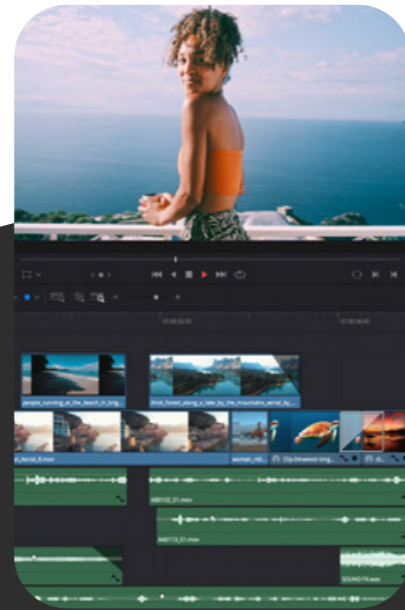
Using Resolve for video editing

In this step-by-step tutorial, learn how to use and edit videos with DaVinci Resolve 18. We walk through how to get DaVinci Resolve, import media, make edits, and render a final video.

DaVinci Resolve is also known for its advanced colour correction capabilities. The software includes a range of tools for adjusting the colour and tone of footage, such as curves, colour wheels, and LUTs. This allows users to achieve the desired look and feel for their videos and ensure consistency across multiple clips.

Another major feature of DaVinci Resolve is its visual effects capabilities. The software includes a range of tools for adding and manipulating visual elements within footage, such as compositing, keying, and motion graphics. This allows users to add special effects, overlays, and other visual elements to their videos.

In addition to its editing and visual effects features, DaVinci Resolve also includes a complete audio editing suite. Users can mix, master, and process audio tracks, ensuring that their videos have high-quality sound to match the visual components.

Finally, DaVinci Resolve includes features for collaborating with other users. This includes real-time remote editing and shared project databases, making it easy for multiple users to work together on the same project.

Overall, DaVinci Resolve is a powerful and versatile video editing software that offers a range of features and capabilities for professionals and hobbyists alike. Its advanced editing, colour correction, visual effects, audio editing, and collaboration tools make it a popular choice for filmmakers and video editors around the world.

DaVinci Resolve Advanced

Here are some additional recommended tutorials for DaVinci. These are not mandatory, but they are recommended for improving some specific skills.

Advanced colour & colour management
Learn how to set up colour management, and how to structure grades.

What are LUTs and how to use them
This article will explain LUTs so that you can use them to colour grade.

DaVinci Resolve: Fusion
Fusion is the compositing & motion graphics software for Resolve.

Complete the advise DaVinci Resolve tutorials

Step 03
Finish Pre-Production

In this step, we would like to request you to complete the pre-production, which is the first stage in the filmmaking process where the planning and preparation for the production takes place. It involves everything that needs to be done before the cameras start rolling, such as, creating storyboards, designing sets and costumes, and scheduling the shoot.

During pre-production, the creative team work closely together to plan and visualize the film's look, feel, style, budget, schedule, and logistics of the production, ensuring everything is in place for a smooth shoot.

To complete the pre-production the following documents should be part of your current Production Bible:

- Creative vision & moodboard
- Script breakdown
- Storyboard
- Pre-visualization
- Shot breakdown
- Shot list
- CallSheets

Other production work like hiring actors, crew, sets development, and visual art department should be already in place

Script → Vision → Storyboard → PreVis → Set Design / TechVis Plan → Filming
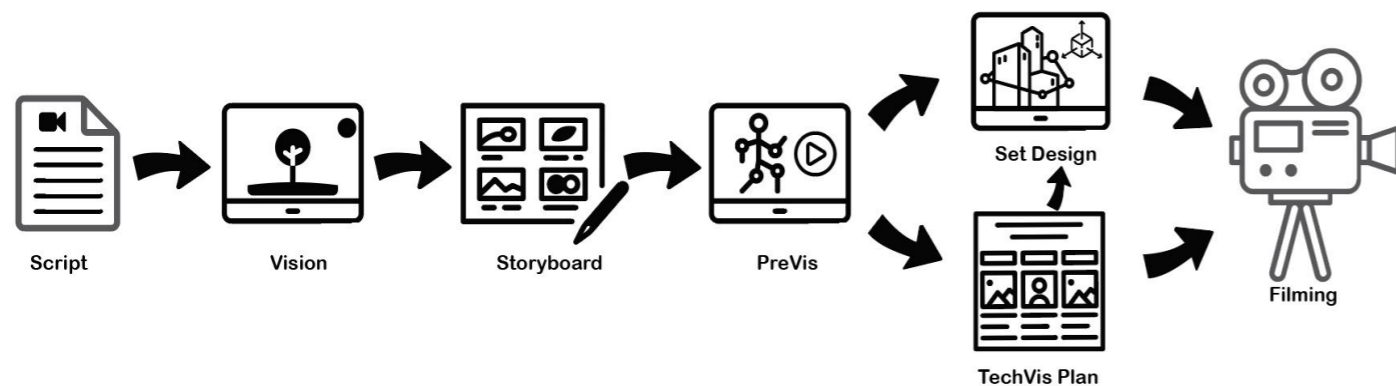
Goals

Film Pre-Production
Based on the script, define and develop the resources required to have a sucessful filming phase, including finding appropriate solutions without comprimising the vision.

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 it with us, so we can support the development of your film.

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OF APPLIED SCIENCES

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VPSN
Virtual Production Studios Network

Erasmus+

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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