PHOTOGRAPHY

MODULE - II

STUDY MATERIAL

PHOTOGRAPHY

MODULE-2

Media & Entertainment Skills Council

THE CONSTITUTION OF INDIA

PREAMBLE

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a [1][SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC] and to secure to all its citizens:

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity;
and to promote among them all

FRATERNITY assuring the dignity of the individual and the [2][unity and integrity of the Nation];

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949, do HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.

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1. Subs. by the Constitution (Forty-second Amendment) Act, 1976, s. 2, for "SOVEREIGN DEMOCRAIC REPUBLIC" (w.e.f. 3-1-1977).
2. Subs. by s. 2., ibid., for "unity of the Nation" (w.e.f. 3-1-1977).

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[1][PART IVA

FUNDAMENTAL DUTIES

51A. Fundamental duties.—It shall be the duty of every citizen of India—

(a) to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;

(b) to cherish and follow the noble ideals which inspired our national struggle for freedom;

(c) to uphold and protect the sovereignty, unity and integrity of India;

(d) to defend the country and render national service when called upon to do so;

(e) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;

(f) to value and preserve the rich heritage of our composite culture;

(g) to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures;

(h) to develop the scientific temper, humanism and the spirit of inquiry and reform;

(i) to safeguard public property and to abjure violence;

(j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement.]

[2][(k) who is a parent of guardian to provide opportunities for education to his child or, as the case may be, ward between the age of six and fourteen years.]

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1. Ins. by the Constitution (Forty-second Amendment) Act, 1976, s. 11 (w.e.f. 3-1-1977).
2. Ins by the Constitution (Eighty-sixth Amendment) Act, 2002, s. 4 (date to be notified).

भारत का संविधान

उद्देशिका

हम भारत के लोग भारत को एक [1][**संपूर्ण प्रभुत्व-संपन्न समाजवादी पंथनिरपेक्ष लोकतंत्रात्मक गणराज्य**] बनाने के लिए, तथा उसके समस्त नागरिकों को :

सामाजिक, आर्थिक और राजनैतिक **न्याय,**
विचार अभिव्यक्ति, विश्वास, धर्म
और उपासना की **स्वतंत्रता,**
प्रतिष्ठा और अवसर की **समता**
प्राप्त कराने के लिए, तथा उन सब में
व्यक्ति की गरिमा और [2][राष्ट्र की एकता
और अखंडता] सुनिश्चित करने वाली **बंधुता**
बढ़ाने के लिए

दृढ़संकल्प होकर **अपनी इस संविधान सभा में** आज तारीख 26 नवम्बर 1949 ई० (मिति मार्गशीर्ष शुक्ला सप्तमी, संवत् दो हजार छः विक्रमी) को **एतद्द्वारा इस संविधान को अंगीकृत, अधिनियमित और आत्मार्पित करते हैं ।**

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1. संविधान (बयालीसवां संशोधन) अधिनियम, 1970 की धारा 2 द्वारा (3-1-1977 से) "**प्रभुत्व-संपन्न लोकतंत्रात्मक गणराज्य**" के स्थान पर प्रतिस्थापित ।
2. संविधान (बयालीसवां संशोधन) अधिनियम, 1970 की धारा 2 द्वारा (3-1-1977 से) "राष्ट्र की एकता" के स्थान पर प्रतिस्थापित ।

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[1][**भाग 4क**

मूल कर्तव्य

51क. मूल कर्तव्य – भारत के प्रत्येक नागरिक का यह कर्तव्य होगा कि वह

(क) संविधान का पालन करे और उसके आदर्शों संस्थाओं, राष्ट्र ध्वज और राष्ट्रगान का आदर करे;

(ख) स्वतंत्रता के लिए हमारे राष्ट्रीय आदोलन को प्रेरित करने वाले उच्च आदर्शों को हृदय में संजोए रखे और उनका पालन करे;

(ग) भारत की प्रभुता, एकता और अखंडता की रक्षा करे और उसे अक्षुण्ण रखे;

(घ) देश की रक्षा करे और आह्वान किए जाने पर राष्ट्र की सेवा करे;

(ङ) भारत के सभी लोगों में समरसता और समान भ्रातृत्व की भावना का निर्माण करे जो धर्म, भाषा और प्रदेश या वर्ग पर आधारित सभी भेदभाव से परे हो, ऐसी प्रथाओं का त्याग करें जो स्त्रियों के सम्मान के विरुद्ध है;

(च) हमारी सामासिक संस्कृति की गौरवशाली परंपरा का महत्व समझे और उसका परिरक्षण करे;

(छ) प्राकृतिक पर्यावरण की, जिसके अंतर्गत वन झील, नदी और वन्य जीव हैं, रक्षा करे और उसका संवर्धन करे तथा प्राणि मात्र के प्रति दयाभाव रखे;

(ज) वैज्ञानिक दृष्टिकोण, मानववाद और ज्ञानार्जन तथा सुधार की भावना का विकास करे;

(झ) सार्वजनिक संपत्ति को सुरक्षित रखे और हिंसा से दूर रहे;

(ञ) व्यक्तिगत और सामूहिक गतिविधियों के सभी क्षेत्रों में उत्कर्ष की ओर बढ़ने का सतत प्रयास करे जिससे राष्ट्र निरंतर बढ़ते हुए प्रयत्न और उपलब्धि की नई ऊंचाइयों को छू ले;

[2][(ट) यदि माता-पिता या संरक्षक है, छह वर्ष से चौदह वर्ष तक की आयु वाले अपने, यथास्थिति, बालक या प्रतिपाल्य के लिए शिक्षा के अवसर प्रदान करे ।]

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1. संविधान (बयालीसवां संशोधन) अधिनियम 1976 की धारा 11 द्वारा (3-1-1977 से) अंत:स्थापित ।
2. संविधान (छियासीवां संशोधन) अधिनियम की धारा 4 द्वारा (अधिसूचना की तारीख से) अंत:स्थापित किया जाएगा।

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Coordinator:

- Smt. Niti Shanker Sharma, Deputy Secretary (Skill Education), Central Board of Secondary Education, Delhi

Content and Design:

- Mr. Gaurav Birla, Head - Standards & QA, Media & Entertainment Skills Council, Delhi.
- Mrs. Palak Golchha, Chief Creator, Creative Junction, India

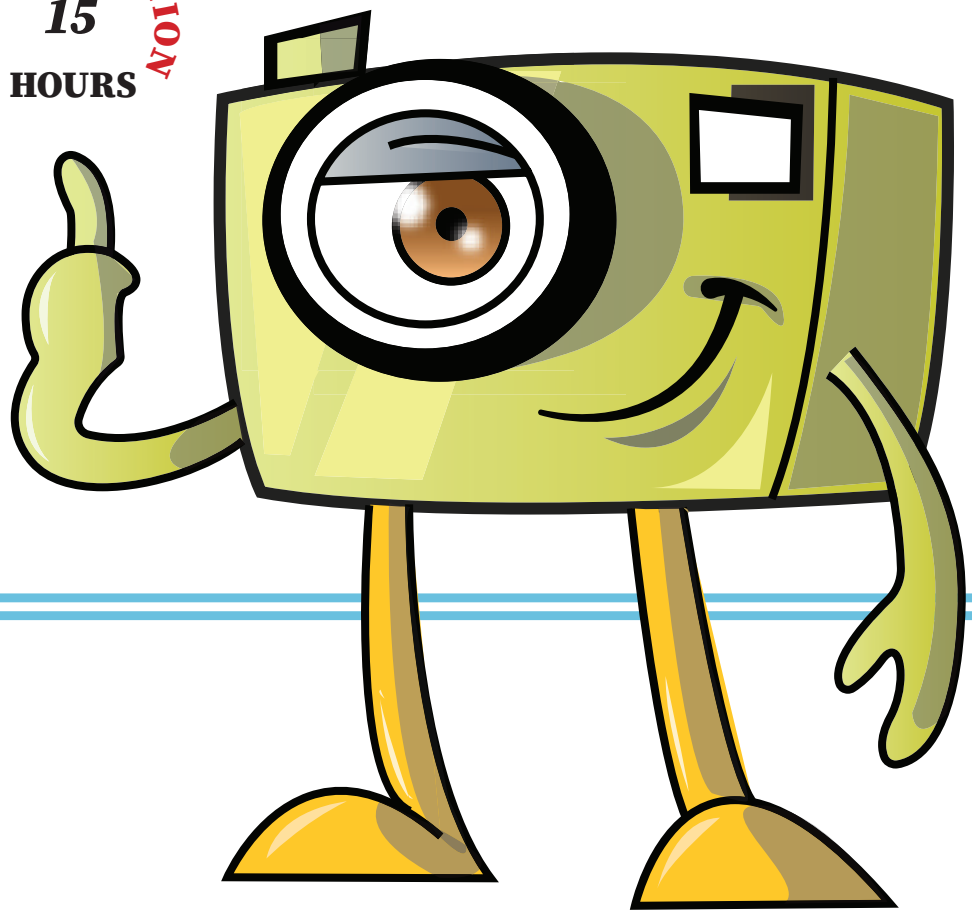
Cover Design:

- Mr. Ritik Kumar, Chief Designer, Ridosk Studios, India

INTRODUCTION TO PHOTOGRAPHY

Course Content

COURSE DURATION
15
HOURS



MARKS DISTRIBUTION: Total 50 marks
(Theory : 15 | Practical : 35)

UNIT- 1
Introduction to Photography

Topics Covered

1.1 Explain the purpose of Photography

1.2 Describe types of Photography

1.3 Describe various genres of Photography

1.4 Things to Remember

1.5 Practical

We are living in a golden age of photography. Photographs are used to tell stories, sell products, and capture moments to share with others. Over time we have seen great advancement in photographic technology. Cameras have shrunk to fit in our pockets, photographic film has largely been replaced by digital film. And mirrorless cameras are nowadays gaining much popularity. But despite of these changes, the basic working of cameras in all the technologies remains the same.

There are six essential elements required to capture an image. They are light, subject, lenses, aperture, shutter speed, and sensor.

Photography has a deeper meaning than just “clicking pictures”. It captures every beautiful moment of our life, connects us to the past, and reminds us of people, places, feelings, and stories. It has become an indispensable part of our lives.

1.1 Explain the Purpose of Photography

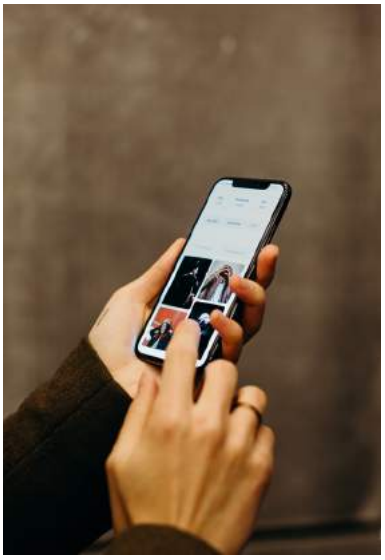
There can be various purposes of photography and it completely depends on the photographer to decide his purpose. You studied different purposes of photography in module-1 of Introduction to Photography. Let us look at some more purposes with some more insights.

1. Memorial

One of the reasons for photographing is to create memories or document the things that are close to us. It gives us immense pleasure to look at past photographs later in life or share those memories with our special ones. We enjoy more to look at the photos of the past rather than enjoying the present moment when the photograph is captured.

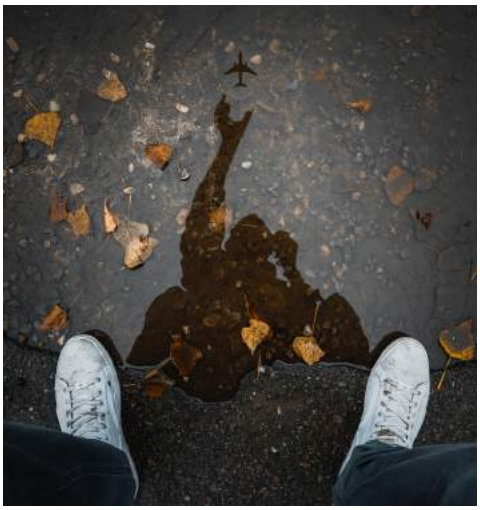
2. Communicative

These are the pictures that act as a medium of communication. It passes information to the world about the current happenings of someone's life. It is more relevant to the present than past events. A person can share his immediate life events by sharing them instantly via any online photo-sharing platform. With the development of digital cameras and mobile phone cameras, it has become very easy to capture images and use them for communication purposes.



3. Creative

The only limit to this kind of photography is your imagination. A thought to create a similar photograph may differ from one artist to another artist. By applying and varying the compositional guidelines in a scene, different emotions can be invoked in each image. For example, a low-angle shot will create a different mood and aesthetic from a high-angle shot of a particular scene. It depends on the artist to choose his style of photographing an image. Creative photography can stimulate you to create outstanding imagery. It takes your art to the next level.



4. Investigative

Photography acts as a powerful tool in the investigation and research works. It helps to keep records of the past. It acts as a medium of proof of the happening of a certain event.

It is also a source of information for scientists and researchers for past works. For example, it is very helpful in the field of astrological research works where images of astronomical entities such as stars and galaxies are taken.

It is also helpful in photo finish i.e., to see who has crossed the finish line in a race. Our naked eyes are not capable to judge the minor difference between the positions of the participants, so photographs decide the winner.

Photography is also used in time-lapse i.e., to capture the change that occurs over a period of time. For example, taking pictures of the life cycle of any plant at regular intervals. Combining those pictures will display a sequence of events

that happened during the growth of that plant.

Photography is widely used in biological research. The analysis of certain cells or viruses can be stored via photography which can be useful in future research works.

5. Advertisement

Photography is widely used in advertisements for displaying their product. An advertisement becomes much more engaging with the addition of relevant images in it. The public is attracted more towards it.

6. History

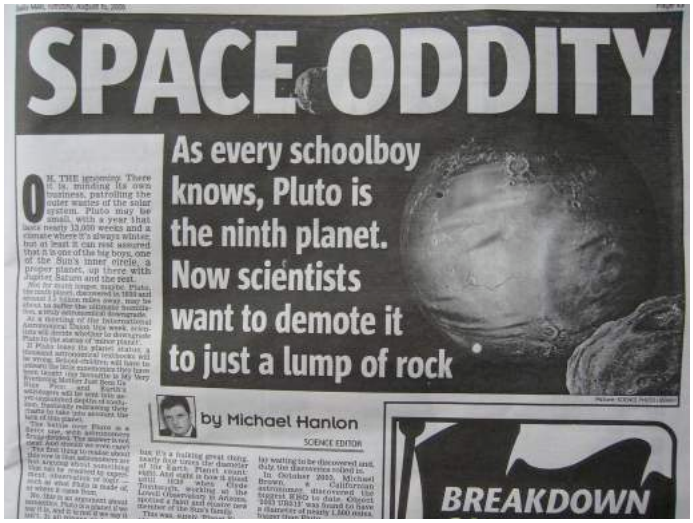
Photographs can help us to know about history. The events that happened before we were born can be easily visualized by watching their photographs. They tell us information about the people, places, and events that happened at that

time in the most realistic way. A feeling of connection is realized while watching them as if we were also present at that moment.

Figure 1.1: A snapshot of World War-II

7. Connection

Apart from written news, photography has contributed a lot to keeping us connected to the world. It acts as an interactive information provider. Suppose there is some interesting article printed related to recent space-related discoveries, refer to figure 1.2, so upon seeing the image of that work, our interest rate exponentially increases to read that article. Thus, it is well said that ***"visual images are more appealing than text".***


SPACE ODDITY

As every schoolboy knows, Pluto is the ninth planet. Now scientists want to demote it to just a lump of rock

by Michael Hanlon

SCIENCE EDITOR

BREAKDOWN

Figure 1.2: An example of Connection

8. Other

There can be countless purposes of photography. It does not have limitations. Self-imagination is the only limitation. Photography is a form of storytelling, as we can capture the sequences of any event happening in small intervals and later can revive those moments by watching those photographs. For example, at weddings, there are many rituals so we capture photographs of every ritual. In the end, we carry a bundle of images with us. And in a later point in time, we can see all the captured pictures and, in a few minutes, we feel that we are reliving those moments.

Photography is also good for mental health as it can help us to bring focus on positive life experiences, enhance our self-worth, and even reduce stress hormones.

Fill in the blanks:

1. Photography connect us to the _____ .

   (a) present (b) past (c) both (a) and (b)

2. _____ photography helps to keep a record of evidence of the past

3. Photography is widely used in advertisements for displaying their _____.

4. _____ photography can stimulate you to create outstanding imagery.

5. In photography, _____ is the only limitation.

NOTES: _____

_____

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_____

_____

1.2 Describe types of Photography

Photography is the process of capturing pictures by using a camera. The camera can be as simple as a mobile camera and as complex as DSLR or mirrorless camera. The obtained picture is termed a photograph which can be stored in both digital and physical form..

There are basically four types/styles of photography. They are:

1. Lifestyle Photography
2. Documenting Photography
3. Traditional or posed photography
4. Art Photography

Lifestyle Photography: This type of photography serves the personal moments of the subject in frame. Its significance lies in its authenticity and realism. The captured image has a personal and emotional touch. There is an importance of location and people in the frame. This type of photography usually displays a candid image that shows the moment as it is.

Documenting Photography: The primary purpose of this type of photography is to record, recall and identify the event by photographs. It can be in the terms of memory that gives us information about the past, documents such as an identity card, any science and space related discoveries, architectural structures, proof of happening of any event, such as weddings, seminars etc.

While doing documenting photography you should keep the following points in mind:

1. The image that you want to capture should be clearly visible as this image can act as a source of information.

2. There should be proper lights when shooting the image.

3. No need to edit the photo in any kind of software as it may lose its authenticity.

4. The photo should be captured under the supervision of elders, if there is any risk while photographing. For example, if you are shooting any scene from roof top, supervision is mandatory.

5. It is suggested to do photography in natural light as it is easily available and free of cost. However, in some cases, you can use artificial lights also such as bulbs and tube lights.

6. The image should be captured from the proper camera angle. Shooting from a different angle can change the meaning of the image.

The image should be taken in such a way that the main part of the object should face the camera.

7. Do not tilt or shake the camera as it may distort your image. You can use a tripod for capturing the object.

Figure 1.3: Documenting Photography

Figure 1.3 shows the identity cards of various employees in a firm. This displays the information about them.

Traditional/Posed Photography:

This is a common portrait style photography where the subject of the photo gives a particular pose. The photos can be captured in studios by using artificial lighting.

Art Photography: This type of photography is done out of one's personal interest. The rules for this type of photography are created by the photographer itself. Art can be landscape, wedding photoshoot, any artistic photography such as figure 1.4 or any kind of photography which are not the source of any important information. There are no strict rules to do this type of photography rather its aim is to give pleasing and eye-catching images.

Figure 1.4: Art Photography

Difference between Documenting and Art Photography

Documenting	Art
It is for everyone who has been assigned to collect the required document.	Art photography is for someone whose has photography as his hobby.
It is done to record and store data in the form of images, which can act as proof of the happening of an event.	It can be used for personal use.
There are certain rules to be followed while capturing documentary photographs. It can vary depending on the instructions provided for any particular project.	There are no rules for art photography. A photographer can make his own rules or can follow the guidelines of composition.

Documenting	Art
Images cannot be modified by any means as the authenticity of the image can be lost.	Images can be modified using photo editing tools and software.
The more natural the image, the more authentic and accurate it will be.	The images can be captured using different camera settings such as setting exposure, brightness, contrast etc.
The image should be clear and crisp	The photo has the freedom to get creatively blurred.
The photo on your identity card is an example of documenting photography	A similar photo on your social media account is an example of art photography

NOTES: _____

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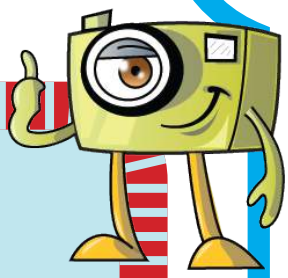
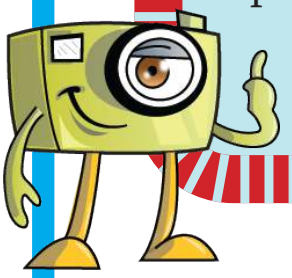
Fill in the blanks:



1. There are basically _____ types/styles of photography.
2. _____ type of photography serves the personal moments of the subject in frame.
3. It is suggested to do photography in _____ _____ as it is easily available and free of cost.
4. _____ is a common portrait style photography.
5. _____ images can be modified using photo editing tools and softwares.



NOTES: _____

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1.3 Describe various Genres of Photography

"There is one thing the photograph must contain, the humanity of the moment." – Robert Frank.

Photography is a powerful tool that tells stories when words feel inadequate. For several decades, photography has become a means to convey emotions, humanity, imagination, and information. There are numerous genres in photography which can be categorized into four types:

1. Nature Photography
2. People Photography
3. Manmade Objects
4. Other Types of Photography

Nature Photography

This type of photography is mainly done outdoors in the presence of natural scenes and beauty. Nature photography includes landscapes, wildlife, plants, underwater, Aerial and Scientific.

The close-ups of natural scenes and textures are seen in nature photography. It tends to put a stronger emphasis on the aesthetic value of the photo making the photo-realistic and pleasing.

Nature photographs are usually published in scientific, travel and cultural magazines such as National Geographic Magazine, National Wildlife Magazine and Audubon Magazine. Ansel Adams, Eliot Porter, Frans Lanting, Galen Rowell, and Art Wolfe are some of the well-known nature photographers.

Landscape Photography:

Landscape photography is the art of capturing pictures of nature in a way that brings the viewer into the scene. Photographs taken of scenery or stills of the Earth's surface are known as Landscape photography. They include valleys, mountains, deserts, buildings, green lands, forests, etc. It captures the true beauty of nature in its actual form.

Wildlife Photography:

Capturing photos of animals, plants, and ecosystems in their natural habitat is known as wildlife photography. This is where professional photographers set up cameras and capture pictures where the animals are present. Mostly these pictures are captured to be printed in journals or magazines. Apart from a good camera, several lenses, a strong flashlight and some patience is needed to click the perfect picture.

Underwater Photography:

In Underwater photography, we use special cameras which are waterproof and can work under extremely high pressure underwater. The photographers wear diving suits to go inside the water's surface and take photographs of sea animals, including fishes, sharks, whales, sea horses, jellyfish, octopuses and even plant life inside the sea bed.

Astrophotography :

Photographs taken of celestial bodies, space, stars, and planets are known as Astrophotography. These objects in space are far from the earth; therefore, we use telescopes and cameras to take photographs from a significant distance scale.

Fact:

To measure the distance between celestial bodies, we use the unit of light years, i.e., the distance travelled by light in 1 year.

Aerial Photography :

The photographs that are taken by an airborne platform such as an aircraft, helicopter or drone are known as Aerial Photography. These photos are taken from a great distance. You may have seen aerial photos of Stadiums, the Statue of Unity, roads of the city etc.

Scientific Photography :

Scientific photography is helpful in collecting scientific data and imagery for scientific research. A good photo can even help to prove or disprove the hypothesis. The main purpose of this type of photography is to record clear and accurate images and share them with others people for future inventions and discoveries in science. Scientific photos could serve as both data records and teaching tools.

Macro Photography :

The skill of capturing close-ups of small creatures and objects is called macro photography. Under macro photography, there are subjects such as flowers, insects, and textures. Photography should be done from a proper distance so that it does not scare living creatures. For macro photography, both DSLRs and mirrorless cameras can work very well. Figure 1.5 shows the example of macro photography.

Figure 1.5: Macro Photography of leaf and sunflower

People Photography

People's pictures fall into two categories: *portraits* and *candid*. Either can be made with or without your subject's awareness and cooperation. Let us look at various people's photography genres.

Portrait Photography :

Portrait photography is about capturing people and their personalities. Portraits are photographs that represent the facial features of a person. It captures their structure, emotions, and environment. It is an art that tells a story about the person in that photograph. It can range from shooting your family members to friends to pets.

Wedding Photography :

Wedding Photography is done to record and store one of the most beautiful and happiest days of one's life. The photographs taken on this day remind us of all the events, people, places, and vibes of that day. By looking at these photographs, one can visually relive the events and moments.

Documentary Photography :

In documentary photography, there is documentation of real-time events which have educational or knowledge purposes. It can range from a wide-angled photograph of war to a

Figure 1.6: Documentary Photography of Hellen Keller's visit in India

close-up shot of people in the streets. These photographs mostly tend to impart information and knowledge of the unseen areas of an event or historical record or scientific work etc.

Sports Photography :

Sports Photography refers to capturing photographs relating to all types of sports. It may include Cricket, Football, golf, horse riding, javelin throwing, Karate, etc. It makes us understand the different stages of a game and how the athletes work together in sports. It helps us to understand the different stages of a game and how the athletes work together in sports.

Fashion Photography :

Fashion Photography is done to represent and display different aspects of Fashion in the industry.
In Fashion photography, the models are photographed under a glamorous light display and fashion accessories such as clothes, shoes etc. This type of photography is majorly done for advertisements and fashion magazines.

Street Photography :

A street photograph is a real moment. It randomly takes pictures of the live actions, with subjects in the frame unaware of being photographed. It captures the parts of life that happen in common areas in a city, such as parks and sidewalks. Good street photos find meaning and purpose in the ordinary captured scene, making viewers think about the scene they unintentionally ignored. It is not necessary to have a person in the frame, i.e., it can be done with still objects also.

Travel Photography :

One of the most exciting types of people photography is travel photography. It allows us to capture beautiful pictures of different locations of the world. Good travel photographs give us knowledge about the cultures and traditions of people and places around the world. The photographs can be candid i.e., without subject awareness, or portraits i.e., with subject awareness.

Manmade Photography

The photography of the objects that are created by us. Manmade photography includes product photography, food photography, still life photography, Architecture photography etc. Let's study all of them.

Product Photography :

Product photography belongs to the display of any product that is for commercial use. It comes in a variety of styles and purposes. It can be an individual shot with one object

in a frame or a group shot having two or more products in one frame. One of the most important factors that attract viewers toward the product is its visual representation. The quality of the photograph is proportional to the first impression any viewer/customer perceives.

Food Photography :

Food photography is one of the most trending photography around the world. Good food photography plays with the mind of viewers and positively draws their attention toward it. It is very important to focus on the composition of the picture. Apart from food, the presentation of it should also be appealing to gain more attention of the people.

Food photography has gained much popularity in recent years since everyone is capturing their plates before having the food, whether at home or a restaurant, to upload photographs on social media. Also, various food delivery platforms such as Zomato, swiggy, etc contain images of food from different restaurants that have greatly increased the ordering of food from them.

Still-life Photography :

Figure 1.7: Still-Life Photography

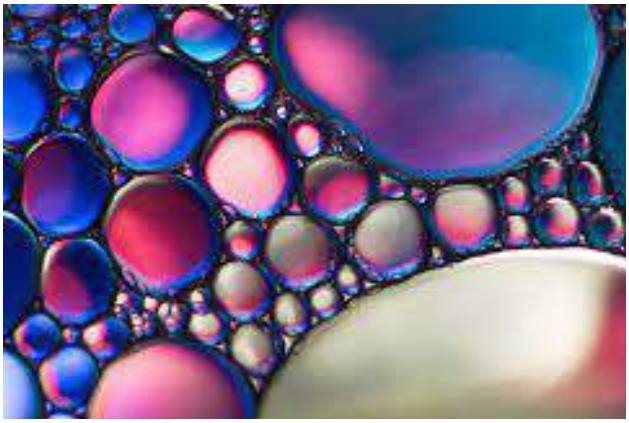
Still, life is a unique genre of photography. Here the subjects are not very interesting. They are just ordinary objects that viewers normally wouldn't pay much attention to. But to make the photo look interesting, a photographer makes the correct arrangements of the elements in the photo. In still-life photography, a simple object can be shown in a very artistic way. Manmade objects like pots, vases, handicrafts, etc., or natural objects like fruits, plants, food, vegetables, rocks, shells, etc. can be taken as subjects for still-life photography. Figure 1.7 shows the still-life photography of jewellery.

Architecture Photography:

Architectural photography is the sub-genre of the man-made object photography discipline where the main focus is on capturing photographs of buildings and similar architectural structures that are both aesthetically pleasing and accurate in terms of representations of their subjects. Architectural

photography includes the photography of the exteriors and interiors of any architectural structures, historical landmarks, bridges, museums, and cityscapes.

Abstract Photography :



A photography that doesn't convey a realistic depiction of the world instead we see images that consist of different elements of design such as forms, color, texture shapes and lines that make an interesting composition without knowing the actual object or subject.

Other Photography

Figure 1.8: Landscape as well as architectural Photography of Golden Temple in India

There can be photographs that do not fit into a single genre. For example any historical monument can come under the architectural photography genre as well as the landscape photography genre. It depends on the photographer, and how he is shooting that image. There are no strict boundaries to describe any photograph in any one genre.

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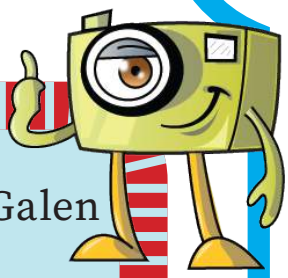
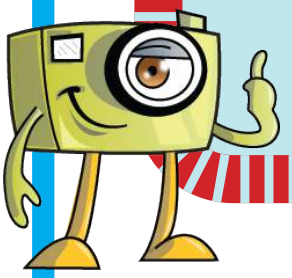


1. Ansel Adams, Eliot Porter, Frans Lanting, Galen Rowell, and Art Wolfe are some of the well-known _____ photographers.
2. Capturing photos of animals, plants, and ecosystems in their natural habitat is known as _____ photography.
3. To measure the distance between celestial bodies, we use the unit of _____ _____.
4. _____ photography belongs to the display of any product that is for commercial use.



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1.4 Things to Remember

Things to Remember

1. There are several purposes of photography such as memorial, communicative, creative, investigative, advertisement, history and connection.
2. There are basically four types of photography. They are: Lifestyle Photography, Documenting Photography, Traditional or posed photography and Art Photography.
3. Landscape, portrait, wildlife, macro, food, travel, product and architecture are some of the common genres of photography.

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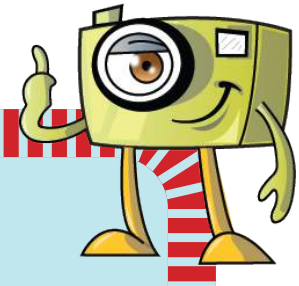
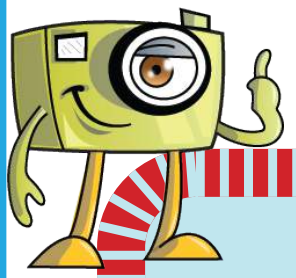
1.5 Practical



Activity 1: Demonstrate Documentary Photography

Tips: A Photography that attempts to capture real-life situations and settings.



Activity 2: Demonstrate various genres of Photography

Tips: Capture pictures that shows the above learned genres of photography. Capture atleast five genres.

UNIT- 2
Understanding Camera

Topics Covered

The ultimate goal of a photographer is to take pleasing and rewarding photographs. An image can be taken from a film camera, mobile camera, DSLR, or mirrorless camera, the main idea is to get an aesthetically sound photograph. You have studied about film cameras and mobile phone cameras in module-1 of Introduction to Photography, now let us dive into DSLRs.

The invention of the DSLR camera brought about a new age of digital photography. The first DSLR camera was made in 1999 that replaced SLR (single-lens reflex cameras) that came to market in the 1930s. The DSLR camera's design combines the optics and mechanisms of an SLR (film)

Figure 2.1: Image of DSLR camera

camera with a digital imaging sensor.

In DSLR, D stands for Digital means that the camera operates with a digital sensor. S stands for Single-lens means the camera uses the same lens for framing, focusing, and taking the photograph. L stands for lenses. The lens is used to focus light from the subject into the sensor. There are many interchangeable lenses in DSLRs. R stands for Reflex which refers to a system where a mirror splits or directs the incoming light towards the optical viewfinder. It allows you to see an exact, optical view of the scene.

2.1 Explain the structure of DSLR

A DSLR (Digital Single Lens Reflex) camera consists of several main components that work together to capture and store images:

Lens: A lens is made up of multiple optical elements, including lenses, mirrors, and prisms, which work together to direct and focus light onto the image sensor. Different lenses have different focal lengths, which determine the field

of view and magnification, and apertures, which determine how much light is allowed to enter the lens. Some lenses also have image stabilization to reduce camera shake.

Figure 2.2: Image of camera's Lens

Image Sensor: The image sensor is a crucial component of a DSLR camera, as it determines the overall image quality. The size of the sensor and the number of pixels it contains determine the resolution and dynamic range of the image.

Figure 2.3: Image sensor

Image Processor: The image processor is responsible for performing various image processing tasks, such as white balance correction, color correction, and noise reduction. It also compresses the image data into a format that can

be stored on a memory card. The quality of the image processor can have a significant impact on the final image quality.

Storage: The memory card used for storage in a DSLR camera can be either an SD (Secure Digital) card or a CF (Compact Flash) card. The type of card used can impact the speed and capacity of the storage. Some cameras also have internal storage, but this is typically limited in capacity.

Figure 2.4: Memory Card

Viewfinder: The viewfinder is an important component of a DSLR camera, as it allows the user to see the scene they are about to capture. There are two main types of viewfinders: optical viewfinders and electronic viewfinders. Optical viewfinders use mirrors and prisms to reflect the light coming through the lens and display it in the eyepiece, while electronic viewfinders use a small display to show a live preview of the image.


Figure 2.5: Viewfinder

Shutter: The shutter is a mechanical component sort of a curtain in the camera which allows the light to pass through the sensor for a certain amount of time. It opens when you press the shutter button on the camera and closes after a fraction of the time. The time how much a shutter is open is

decided by the shutter speed. You will study about shutter speed in detail in chapter 2.4.

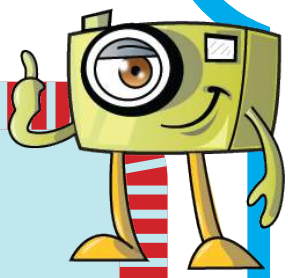
Flash: The flash on a DSLR camera can be used to illuminate the scene in low-light conditions. There are various types of flashes, including built-in flashes, external flashes, and studio flashes. The flash can also be used to control the lighting in a scene, either by filling in shadows or by adding light to specific areas.

Figure 2.6: Flash

Power Source: A DSLR camera typically requires a rechargeable battery to power all of its functions. Some cameras use proprietary batteries, while others use standard batteries such as AA or Lithium-Ion. Some cameras also have an AC adapter that can be used to power the camera for extended periods of time.

Body: The body of a DSLR camera is the housing that contains all of the components and provides access to the controls and buttons. It is important to consider the build quality and durability of the body when choosing a camera, as it will impact the overall user experience. The body also provides mounting points for various accessories, such as a tripod, flash, or microphone.

Fill in the blanks:



1. DSLR stands for : _____ _____

   _____ _____

2. The first DSLR camera was made in _____

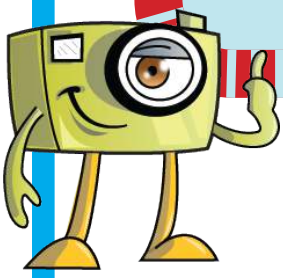
3. The time how much a shutter is open is decided

   by _____

4. There are two main types of viewfinders

   _____ & _____

5. A lens is made up of multiple _____ elements.



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2.2 Explain the working of DSLR

A DSLR camera works by capturing light through the lens, reflecting it into the viewfinder and image sensor, processing the data, and storing the final image on a memory card. The various components of a DSLR camera work together to ensure that the final image is of high quality and accurately represents the scene. Let us first understand the functionality of these components.

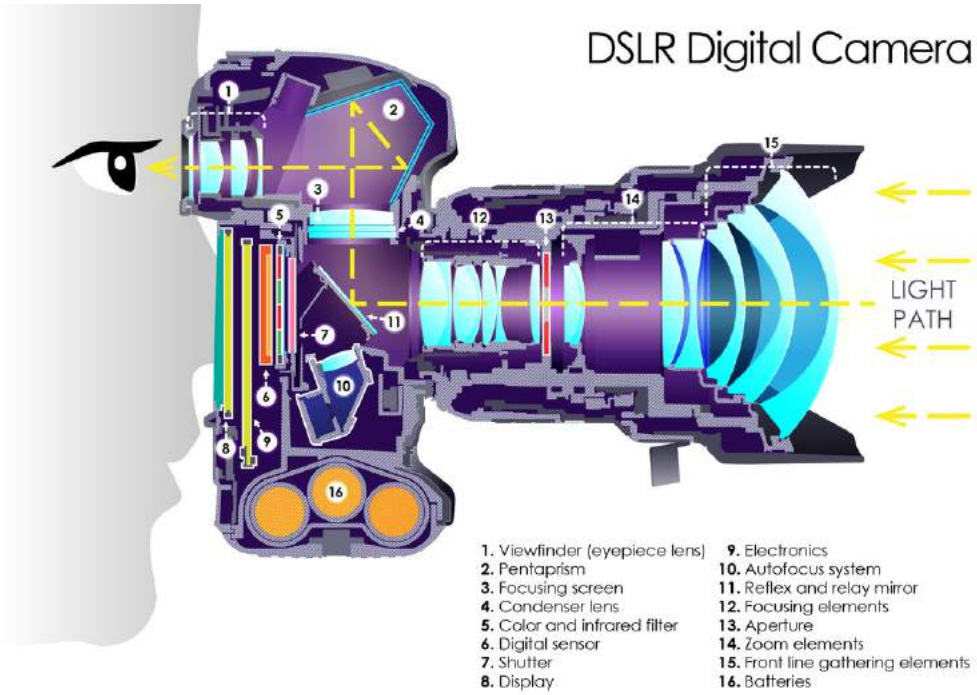


Figure 2.7: Cross-section of a DSLR

Autofocus System: The autofocus system in a DSLR camera uses sensors to determine the correct focus. There are two main types of autofocus systems: phase detection autofocus and contrast detection autofocus.

Phase detection autofocus uses dedicated sensors in the camera body to quickly determine the correct focus, while

contrast detection autofocus uses the image sensor to detect the contrast in the image and adjust the focus accordingly.

Some cameras also have hybrid autofocus systems that use both phase detection and contrast detection autofocus.

Reflex Mirror: A reflex mirror guides the light from the lens into the viewfinder by reflecting it upward.

Focusing screen: A camera's focusing screen is the glass surface on which the camera's mirror projects the image.

Condenser lens: A condenser lens is made up of a pair of matched convex lenses. These are placed back-to-back so that the curved surfaces face each other in the center, with the flat surfaces sitting on the outside. It is used for correcting color distortion.

Pentaprism: The pentaprism is a mirror placed at a 45-degree angle behind the camera lens. The mirror projects the light captured from the lens to the viewfinder.

Exposure Control System: The exposure control system in a DSLR camera determines the correct shutter speed and aperture to properly expose the image.

The exposure control system takes into account various factors, such as the ISO sensitivity, light metering mode, and exposure compensation, to determine the correct exposure.

There are various light metering modes, including spot metering, center-weighted metering, and evaluative

metering. The exposure compensation feature allows you to adjust the exposure up or down to suit the specific scene.

Raw vs JPEG: A DSLR camera can save images in two main formats: raw and JPEG (Joint Photographic Experts Group). Raw images are unprocessed, high-quality images that can be edited in software such as Adobe Lightroom or Photoshop. JPEG images are compressed and have had image processing applied, resulting in smaller file sizes and less editing flexibility. Some cameras also have a raw+JPEG mode, where the camera saves both a raw and JPEG version of the image.

Accessories: There are many accessories available for DSLR cameras, including lenses, flashes, tripods, and microphones. Different lenses have different focal lengths, which determine the field of view and magnification, and different aperture values, which determine how much light is allowed to enter the lens. Flashes can be used to illuminate the scene in low-light conditions or to control the lighting in a scene. Tripods are essential for stable shooting.

QR Code: Working of DSLR

By scanning the above QR code, you can watch the working of DSLR.

What happens when you press the shutter button on a DSLR camera?

When you press the shutter button on a DSLR camera, the camera's mirror flips up out of the way, allowing light to pass through the lens and hit the image sensor.

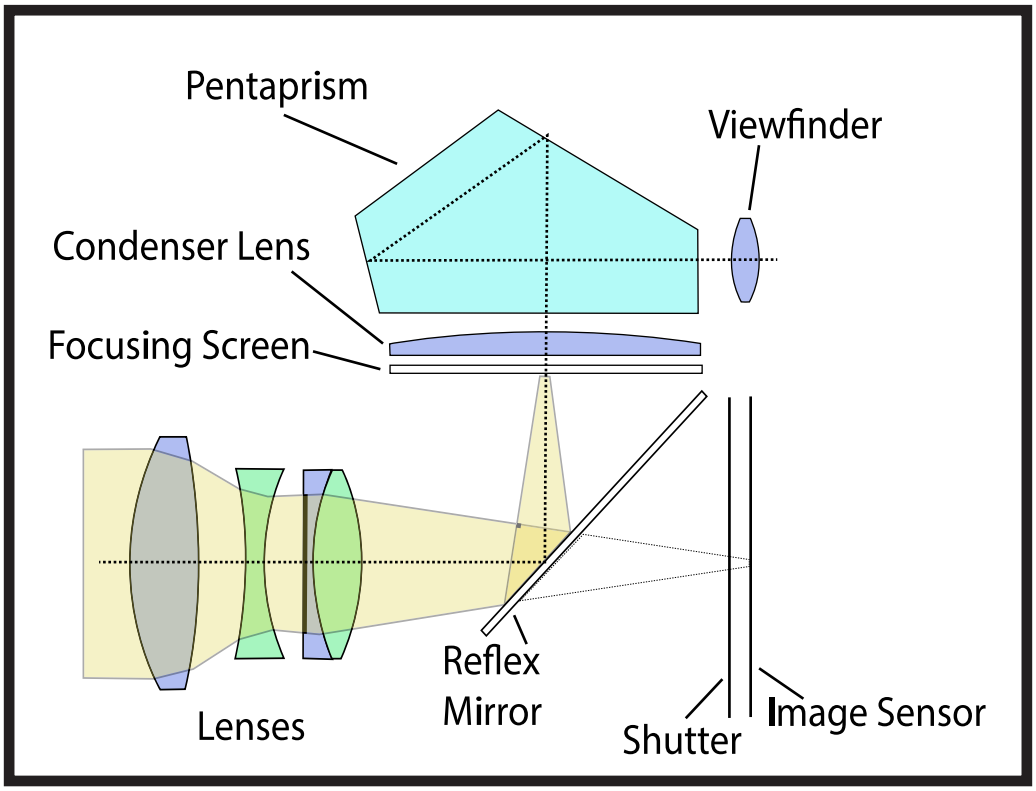
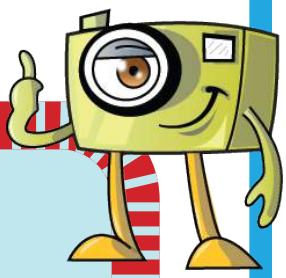


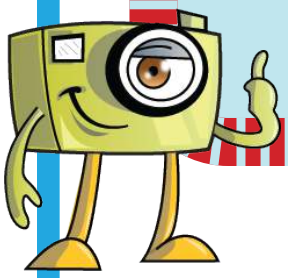
Figure 2.8: Line diagram of working of a DSLR

Once the light reaches the image sensor, it is then converted into an electronic signal. This signal is then sent to the camera's internal computer, which processes the data and turns it into a digital image. The camera's computer will also apply any adjustments or settings that you have selected, such as ISO, shutter speed, or aperture. Once the image is captured and processed, it can be saved to the camera's memory card or transferred to a computer. The image can then be edited and manipulated using photo editing software such as photoshop, adobe illustrator etc.

Fill in the blanks:



1. Photography is a perfect blend of _____ & _____
2. There are two main types of autofocus systems _____ & _____.
3. A DSLR camera can save images in two main formats _____ & _____
4. The pentaprism is a mirror placed at a ____-degree angle behind the camera lens.



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2.3 Describe the parts and controls on a DSLR

A DSLR camera is composed of various parts and controls, which work together to create high-quality images. Understanding the functions and uses of these parts and controls can greatly improve your photography skills and help you get the most out of your camera. Figure 2.9 and 2.10 shows the various parts and controls on a DSLR camera.

Figure 2.9: Parts of a DSLR camera (front-side)

Shutter Button: The shutter button is the button you press to take a photo. When you press the shutter button halfway, the camera performs an autofocus and exposure metering, and when you press it fully, the camera takes the photo.

Mode Dial: The mode dial is the dial located on top of the camera that allows you to select different shooting modes. Common modes include auto, program, aperture priority, shutter priority, manual, and creative modes such as portrait, landscape, and macro.

Main Dial: The control dial is a rotating dial that allows you to adjust camera settings, such as shutter speed, aperture, ISO, and exposure compensation. The control dial is usually located on the top of the camera or at the back of the camera.

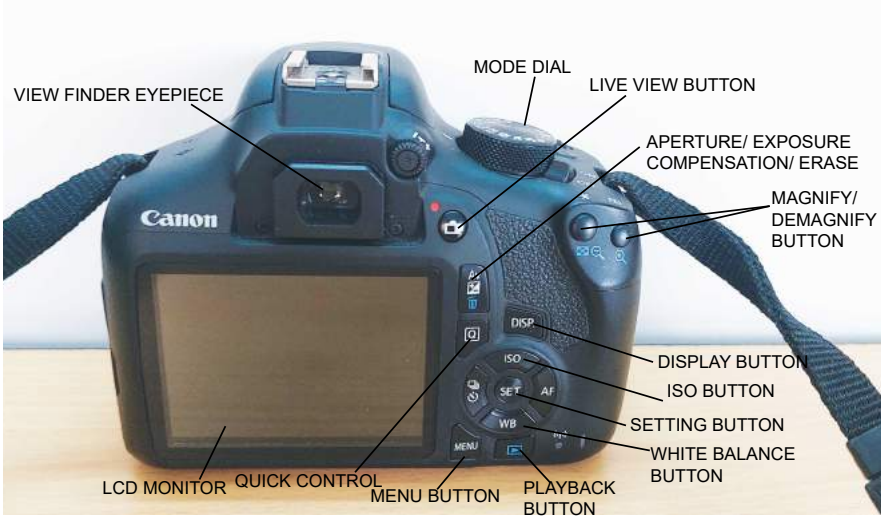


Figure 2.10: Parts of a DSLR camera (back-side)

Flash Button: It controls the camera's flash, both built-in and external.

Lens Mount: The slot that connects the interchangeable lens to the camera body and includes electrical contacts for communication.

Menu Button: The menu button allows you to access the camera's menu system, where you can adjust various camera settings, such as white balance, autofocus mode, and image quality.

Live View Button: The live view button activates the camera's live view mode, which displays the scene on the

camera's LCD screen instead of the viewfinder. Live view mode is useful for composing shots when the camera is in an awkward position or for shooting video.

Playback Button: The playback button allows you to view and review the photos that you have taken.

Magnify and Demagnify Button: It zooms in and out on the image during playback or live view mode and is helpful for checking focus and details in the image.

Autofocus Button: Some cameras have a separate autofocus button, which allows you to lock focus on a specific subject without taking the photo. This is useful for keeping the focus on a moving subject or for capturing a photo with a precise focus point.

Function Button: Some cameras have a function button that can be customized to perform a specific function, such as changing the ISO or white balance setting.

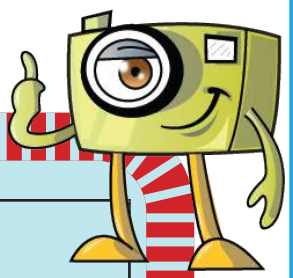
ISO Button: The ISO button allows you to adjust the camera's sensitivity to light. A higher ISO setting is useful for capturing photos in low light conditions but can result in more digital noise in the image.

Memory Card Slot: The memory card slot is where you insert a memory card to store your photos. Memory cards come in various sizes and speeds, and the type of memory card you use can affect the speed and quality of your photos.

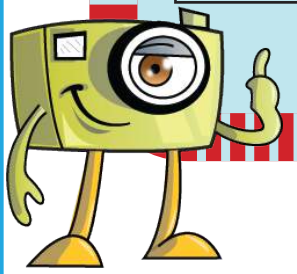
Battery Compartment: The battery compartment is where you insert the camera's battery to power the camera.

Tripod Socket: The tripod socket is a threaded hole on the bottom of the camera that allows you to mount the camera on a tripod.

Match the following:



A	B
1. The shutter button	(a) allows you to view and review the photos that you have taken.
2. The playback button	(b) allows you to adjust the camera's sensitivity to light.
3. The ISO button	(c) allows you to adjust camera settings
4. The control dial	(d) press to take a photo.



Answer: 1 : ____ 2 : ____

3 : ____ 4 : ____

2.4 Explain Exposure

In photography, exposure is the amount of light that reaches the camera sensor or film to generate an image. It refers to how bright or dark your images appear. The amount of light needed to expose a photo depends on the picture you want to capture, and the type of result you want. It depends on whether you want to capture more details i.e., more sharp or less detail in the picture. Your result may vary depending on how you expose the photo i.e., what settings are done in the camera to capture the desired picture.

There are only two camera settings that affect the exposure of an image: shutter speed and aperture. The third important setting is ISO, which affects the brightness of an image. Let us study all three settings to get a correctly exposed image.

Shutter Speed: The shutter speed in a DSLR camera determines the amount of time that the shutter is open and the light is reaching the image sensor to capture an image. This could be 1/100 of a second, 1/10 of a second, five seconds, five minutes, or an hour. When it is open for a longer time, more light enters the camera and when it is open for a shorter time, less light enters the camera.

As studied earlier, Exposure refers to the brightness and darkness of an image. One of the ways to control the brightness or darkness of an image is by adjusting the shutter speed. If the shutter speed is slow, the shutter remains open for a longer time. So, the sensor is exposed to light for a long time and this may result in a brighter or overexposed image. And if there is a faster shutter speed, the shutter opens for a small amount of time and thus less light is exposed to the sensor and this may result in a dark or underexposed image. Figure 2.11 shows, how the

brightness of the image changes on changing the shutter speed.

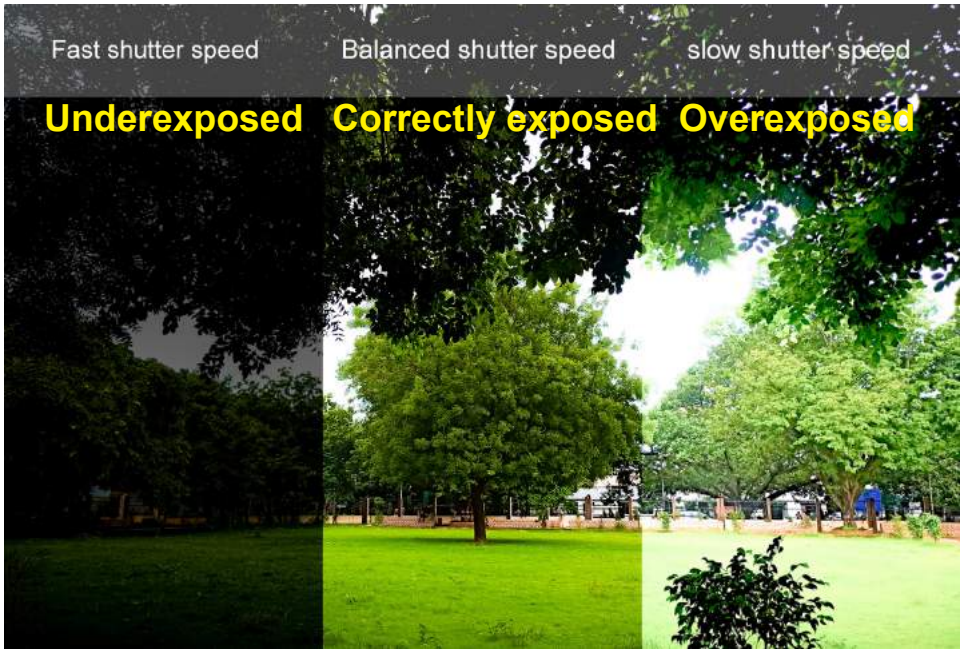


Figure 2.11: Shutter speed and exposure

Overexposed: The captured photograph is very bright and the details in the highlights are lost i.e., the whites becomes more white.

Underexposed: The captured photograph becomes very dark and the details in the shadows and the darkest areas of the image are lost i.e., the dark will become more dark.

Correctly exposed: A correctly exposed photograph is one that is neither too light nor too dark.

Aperture: The aperture in a DSLR camera determines the amount of light that enters the lens and reaches the image sensor. It is very similar to the "pupil" in our eyes. Just like the pupil, the aperture can also open or shrink to change the amount of light that passes through it. A wider aperture (lower f-number) allows more light to enter, while a narrower aperture (higher f-number) allows less light to enter. Figure 2.12 shows the different sizes of aperture in a lens.

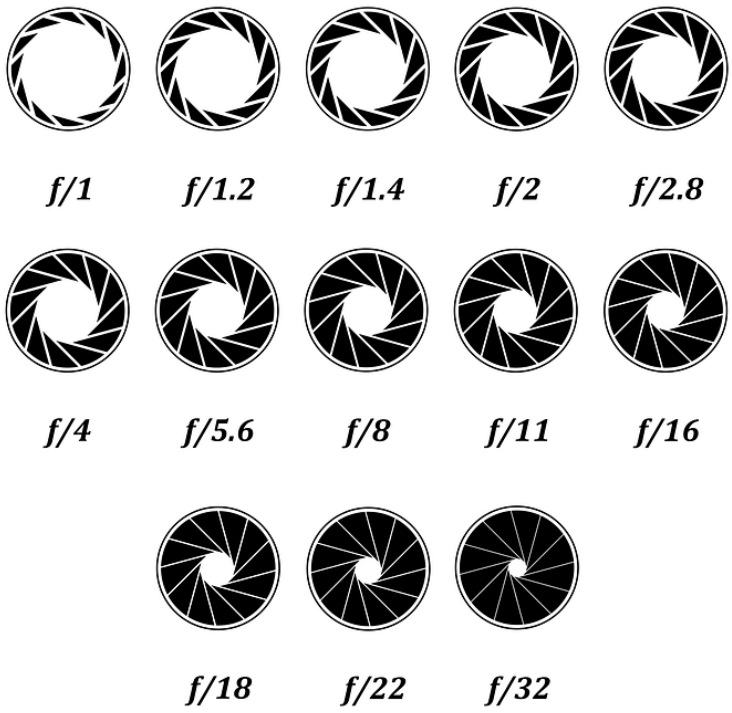


Figure 2.12: Aperture Sizes

The aperture mechanism in the lens is formed of a series of opaque "blades" called the diaphragm. These blades form a small hole, almost circular in shape by following the open and close mechanism. Opening of blades increases the size of the hole and the camera sensor will capture more light, whereas when the blades close, less light will hit the sensor. This opening and closing mechanism of the blades determines the size of the aperture. Aperture size

increases as the blades open and decreases when the blades are closing.

ISO: ISO is a camera setting which is responsible for the brightness and darkness of an image. The image appears brighter with every higher ISO value and darker with lower ISO values.

The Common ISO scale ranges from ISO 100 to ISO 6400. On doubling the ISO speed, the brightness of the photo is also doubled.

Figure 2.13: ISO and Exposure

So, a photo at ISO 400 will be twice brighter as at ISO 200, which will be twice brighter as at ISO 100. Figure 2.13 shows the difference in the image on different ISO. From the above learnings, it can be concluded that in order to get a perfectly exposed image, the values of aperture, shutter speed and ISO should be properly set. The combination of these three components forms the exposure triangle, which will be studied in chapter 2.5.

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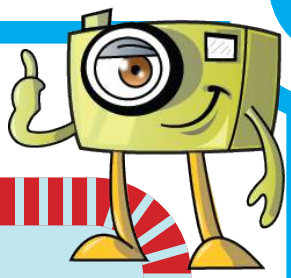
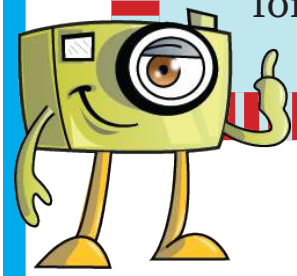


1. There are only two camera settings that affect the exposure of an image: _____ & _____.
2. _____ is the amount of light that reaches the camera sensor or film to generate an image.
3. The aperture mechanism in the lens is formed of a series of opaque "blades" called the _____.
4. _____ is a camera setting that is responsible for brightness and darkness of an image.



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2.5 Describe the Exposure Triangle

An exposure triangle consists of three elements of exposure: aperture, shutter speed and ISO on each of its sides. A correct balance of these three elements can capture a perfectly exposed image. All three elements of the exposure triangle should always be such that it balances the exposure triangle. Any changes made to the value of one of the elements must be compensated by adjusting the value of atleast one of the remaining two elements. The basic exposure triangle rule is to maintain a balance and when the three sides of the triangle are balanced, you'll have the right exposure value (EV), which is normally equal to zero.

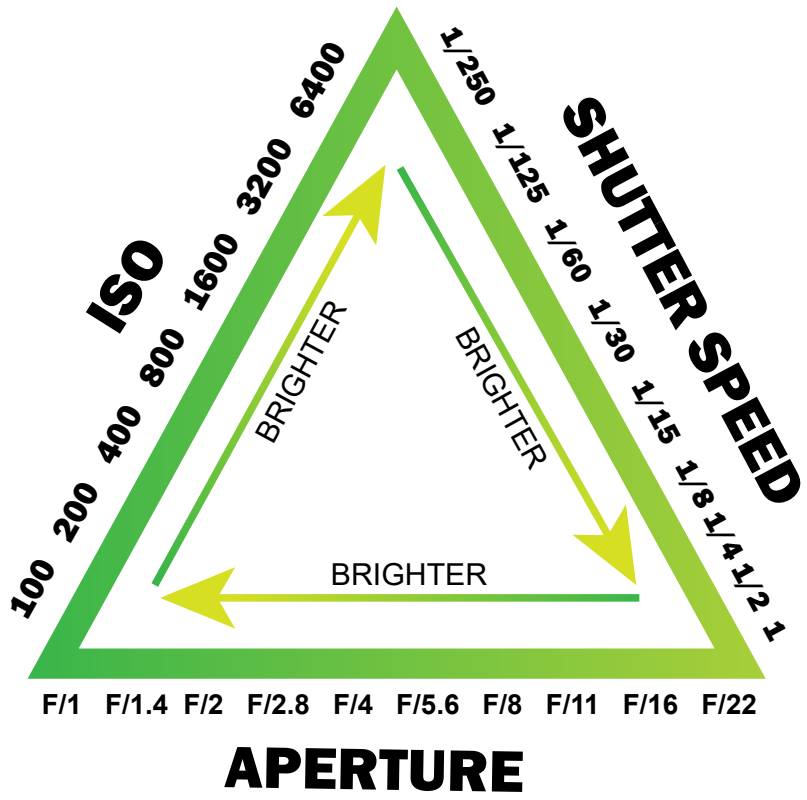

Figure 2.14: Exposure Triangle

To understand the working of the exposure triangle, you must understand the following two important concepts:

1. Stops
2. Exposure Value (EV)

Stop: Stop is the unit of measurement of exposure, whose values affects the exposure of an image i.e., the brightness and darkness of an image depends on the number of stops. The increase in stop value by one stop means the exposure is doubled and decrement by one stop means the exposure is halved. This means the image gets twice brighter on increasing one stop and on reducing the stop value by one stop, the brightness of images is halved. Figure 2.15, 2.16 and 2.17 shows the stop scale with the elements of the exposure triangle.

Stops and Shutter Speed: Shutter speed measures how long the shutter of the camera remains open when recording an image. The longer it is open, the slower is the shutter speed and more light is entered, resulting a greater exposure or can result to an overexposed image. Doubling or halving your shutter speed produces an increase or decrease of 1 stop of exposure.

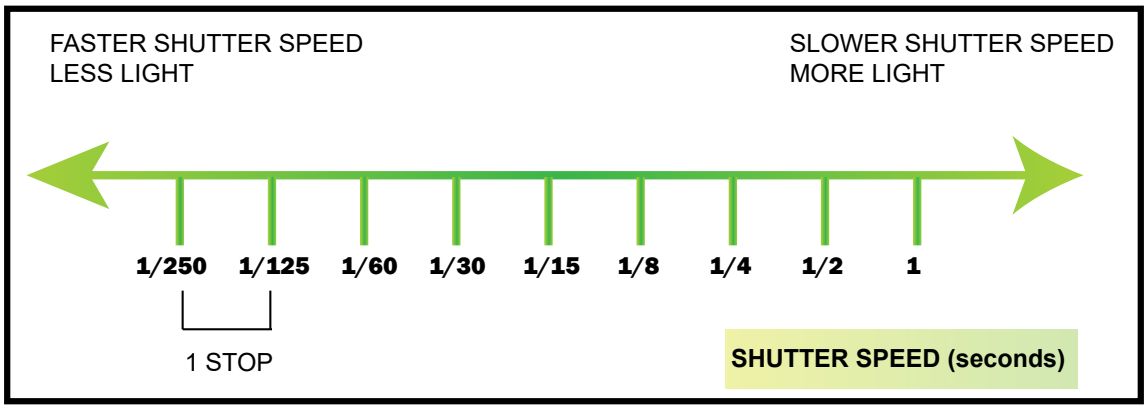

Figure 2.15: Stops and Shutter Speed

Stops and Aperture Diameter: As studied earlier, the aperture of the camera can control the amount of light that passes through the lens to the image sensor. The size of the aperture depends on the f-stop numbers. The f-stop, which is also known as the f-number, is the ratio of the focal length of the lens to the diameter of the diaphragm i.e., the hole size of the aperture. An f-stop number is expressed as a fraction, with "f" as the numerator and the f-stop number as the denominator. A lower f-number refers to a wider aperture that allows more light to enter through it, while a higher f-number means a narrower aperture which allows less light to enter through it. Figure 2.16 shows the common aperture stop scale.

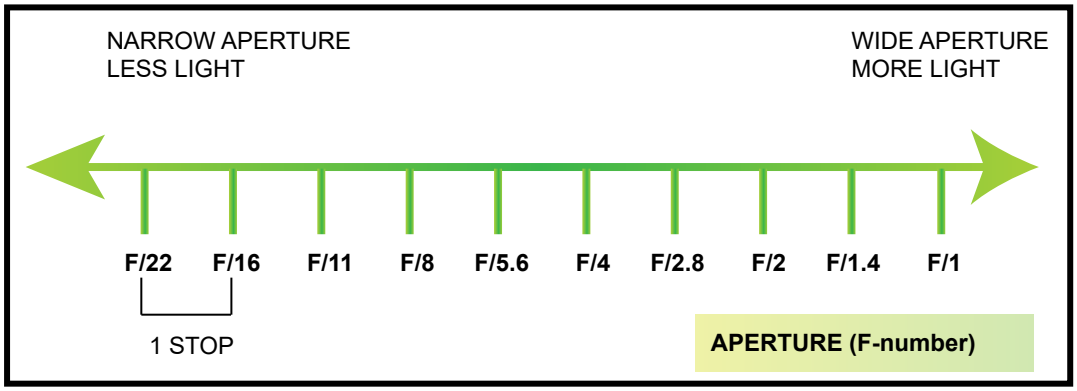

Figure 2.16: Stops and Diameter

Stops and ISO Speed: ISO refers to the brightness and darkness of an image. It is the measure of how sensitive the camera sensor is towards the light that is striking it.

On doubling the ISO, the brightness of the image is also doubled i.e., the exposure is incremented by one stop.

And on halving the ISO or decrementing it by one stop, the exposure is also decreased by one stop and the brightness of the image is halved. Figure 2.17 shows the common ISO speed stops scale.

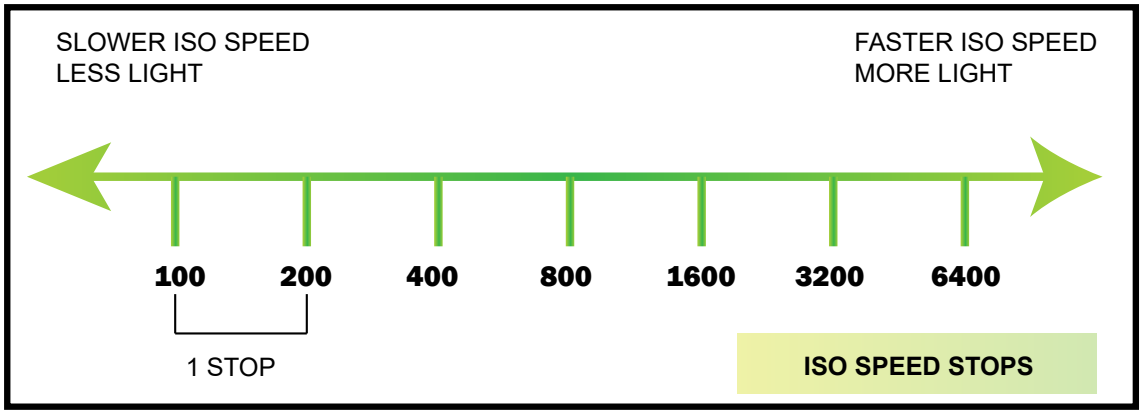

Figure 2.17: Stops and ISO Speed

Exposure value (EV): The exposure value (EV) is a number that represents all the possible combinations of aperture, shutter speed and ISO that gives the same EV value for the images that have the same exposure.

In other words, all the configurations that capture the same amount of light (produce the same exposure) have the same EV number. An increment of one step on the EV scale represents a one-stop increase in exposure, and conversely, a one-step decrease corresponds to a one-stop decrease in exposure.

Working of Exposure Triangle

Let us understand the exposure triangle with an example. Usually the image with exposure value as zero is considered as correctly exposed image. Suppose you have the balanced exposure triangle with the exposure value (EV) equal to zero, and you want to increase two aperture stops. To maintain balance so that the exposure value (EV) remains zero, you must reduce an ISO stop and a shutter speed stop. The other options would be reducing either two ISO stops or two shutter speed stops. Let us see this with another example.

Figure 2.18: Images with balanced EV.

Consider a camera setting where initially the ISO is set to 100 and shutter speed at 1/100 and the aperture is F/4.

Figure 2.18, shows three different settings of exposure elements with a balanced exposure value. The EV for all three images is the same. But they all have different camera settings. For simplicity, the aperture value is kept constant as F/4 in all the images.

In the first image, ISO is set to 100 with a shutter speed of 1/100. In the second image, the ISO value is increased and set to 200, so to balance the exposure value (EV) shutter speed is decreased and is set to 1/150. And in the third image, the ISO is again increased and therefore shutter speed is decreased. The ISO value is set to 400 and the shutter speed at 1/250.

From figure 2.18, we can conclude that on changing camera settings, the same image can be obtained. And this is only possible if all three elements of the exposure triangle are balanced.

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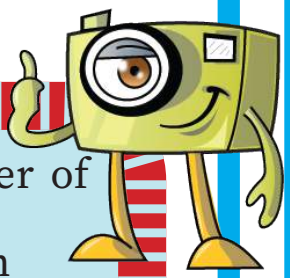
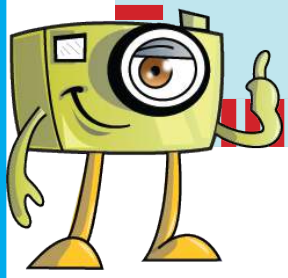


1. Shutter speed measures how long the shutter of the camera remains open when recording an image.
2. The size of the aperture depends on the _____ numbers.
3. _____ is the unit of measurement of exposure
4. All the configurations that capture the same amount of light have _____.
5. On doubling the ISO, the brightness of image is also _____.



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2.6 Things to Remember

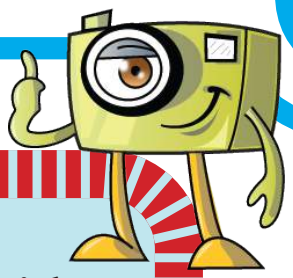
Things to Remember

1. The structure of a DSLR camera consists of a lens, image sensor, image processor, memory card, viewfinder, shutter, flash, power source and camera's body.
2. A darker image is due to underexposure and a brighter image is due to overexposure
3. A low shutter speed value (faster shutter speed), low ISO value and a small aperture allows less light and may result to an underexposed image.
4. A high shutter speed value (lower shutter speed), high ISO value and bigger aperture allows more light and may result to an overexposed image.

2.7 Practical

Activity 1: Demonstrate the process of setting up a DSLR

Tips: Insert the battery and memory card, attach lens and set the exposure.



Activity 2: Demonstrate photography with a DSLR

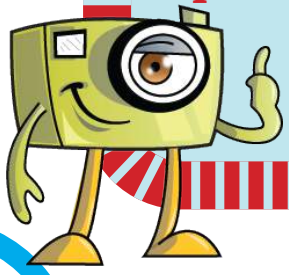
Tips: Capture pictures and analyse them.

Activity 3: Demonstrate exposure control using Shutter speed, Aperture and ISO

Tips: Capture pictures by setting correct exposure.

Activity 4: Demonstrate Low light Photography

Tips: Capture images with slow shutter speed and wide aperture and then adjust the ISO to get a clear image.



UNIT- 3
Art of Photography

Topics Covered

3.1 Describe the laws of design with examples
3.2 Describe the rules of Composition and leading lines
3.3 Explain Camera angles
3.4 Define and explain a photo essay
3.5 Things to Remember
3.6 Practical

Composition is the language of photography. When you compose your image, you have to arrange the elements of the scene in such a way that it looks pleasing and impressive to the viewers. This will also help to represent the visual message in the most harmonious and impactful way.

"Composition is a pleasing organisation of objects within your rectangle," says photographer Adam Long. In order to achieve a well-composed image, there are several laws and guidelines to be followed. However, they are not compulsory but following them will certainly not harm your composition.

3.1 Describe the Laws of Design with examples

The laws or principles of design describe how elements of art are used within an image. Basically, in photography, there are seven principles of art and design. They are balance, rhythm, pattern, emphasis, contrast, unity, and movement. To study these principles let us first understand the elements of art.

The elements of art and design are line, color, texture, shape, value and space. The elements of art and design are the tools to create visual art. The principles of art and design represent how one can use these tools to create visual art.

Elements of Design

Lines: The first and most basic element of design is the line. In design, a line is any two connected points. It is a point in motion, with only one dimension i.e., length, and the longer its length, the greater its visual importance. These lines can be straight, curved, smooth, rough, continuous, broken, thick, or thin. They can divide up the space or connect objects within an image. In figure 3.1, the building depicts the line which draws our eyes up and through the image.

Figure 3.1: A building representing Line element of design

Color: Color is a powerful element of art that can catch our eyes to create a mood or take us to a particular place or time. It can stand alone, act as a background, or highlight other elements in your design. Whether they are bright and saturated or soft and muted, they can be used in interesting ways within an image.

Figure 3.2 : A scene showing complementary colors

Shape/Form: Shape is the element that describes the basic forms of things, whether they are organic such as leaves, flowers etc, or geometric such as circles, squares, triangles etc. Shapes are two-dimensional whereas forms are three-dimensional. A variety of shapes creates interest within an art.

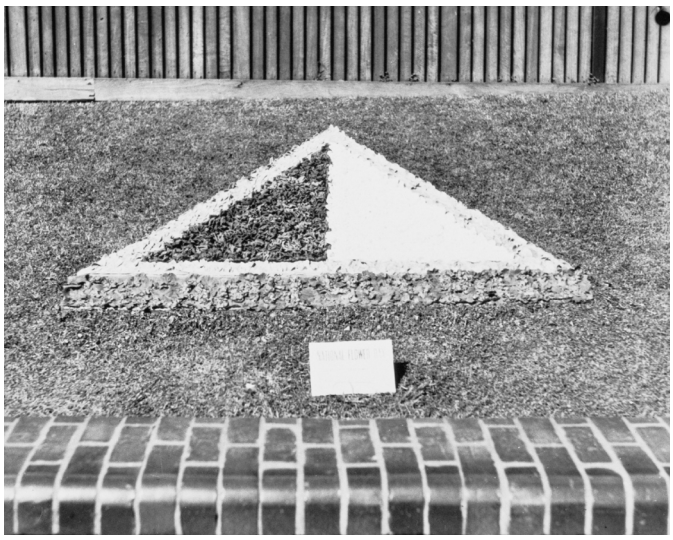


Figure 3.3 : An image showing various geometric shapes

Texture:
The element of art that lets us feel the world with our eyes. From the rough texture of a tree trunk to the glossy sheen of fresh paint, texture engages both our sight and our

sense of touch. Texture can be contrasting or curving which can show detail or suggest motion. Often texture will add interest by breaking a pattern.

Figure 3.4 : An image showing multiple textures

They are mostly seen in abstract photography. In figure 3.4 we get a variety of textures to feel visually like the texture of the fur of a cat, the bark of tree and background leaves.

Value: It refers to the relative lightness or darkness of certain areas of an image which can add drama to your photographs. In figure 3.5, the land is showing some depth by varying the value of lightness and darkness.

Figure 3.5: Land showing value of lightness and darkness

Space: Space is the element that describes a sense of depth within a photograph. The space can be flat, shallow, deep and dimensional. It refers to the area that a shape or form occupies. Space can be defined as positive and negative. The positive space of a design is the filled space in the design i.e., it is the shapes that make up the design. Whereas negative space is the background itself. There should be a balance of positive and negative space in the design.

Figure 3.6: A landscape showing positive and negative space.

Laws of Design

Design is different from art i.e.; it has a purpose while elements of design are just the tools used to fulfil the requirement of art.

In other words, the principles of design describe how the various elements of design come together to form an art and draw attention and provide visual interest to the viewer.

Let us study all seven principles of design to get the best output upon following this in our photography.

Balance: Balance is the first principle of design that describes the weight of different elements throughout the scene. It gives a feeling of stability. There are three types of balance. Symmetrical, radial balance and Asymmetrical balance.

Symmetrical balance is the simplest kind of balance where an item is symmetrically balanced from both sides. One obvious example is our body. If you draw an imaginary line from head to toe, dividing your body into half, both sides show symmetrical equality. Another example can be as shown in figure 3.7, the water path separating two symmetrical buildings.

Figure 3.7: Symmetrical Balance

Radial balance has elements that are placed equally around a center point. Some of the examples are pizza, the spokes of a bicycle etc.

Asymmetrical balance creates a feeling of equal weight on both sides, even though the sides do not look the same.

For example, a textured surface on one side of an image with a smooth one on the other.

Rhythm: Rhythm is a repetitive organized movement throughout the composition. It allows the eye to move from one part of the image to another part. This can be achieved by using repeating patterns or elements.

Pattern: Patterns are an active principle of art and design. It is the uniform repetition of any of the elements of art or a combination of any of them. Anything can be turned into a pattern through repetition. Patterns can make a 2D image look like a 3D work of art by placing the elements in a way that looks embossed.

Emphasis: Emphasis refers to the dominance of a subject in the photograph. It draws the attention of the viewer towards the main subject in the composition. Emphasis can be achieved by using elements of design such as using contrasting colors, enlarging your main subject etc. In figure

3.8, out of so many doors, our eyes catch the red-colored door first.

Figure 3.8: Emphasis

Contrast: Contrast is the difference between various elements within a design, that makes them stand out from each other. It is created when two or more opposing elements are present in a photograph. For example, light against dark and warm against cool.

Unity: Unity refers to the visual relationship between the elements of design. It shows how well they work together. It creates a sense of unity by using similar colors, tones, concepts or elements.

Movement: Movement is the direction that makes the eyes of the viewer travel over a design. The most important subject should lead the next important and so on. It can be directed by lines or by a change in color or scale. In figure 3.9, our eyes follow the path in the image.

Figure 3.9: Movement

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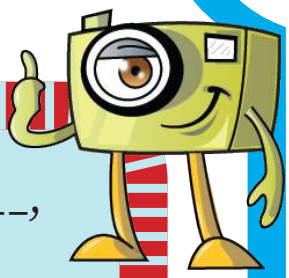
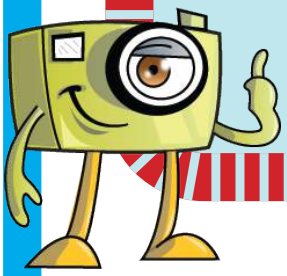


1. There are three types of balance _____, _____, _____.
2. _____ are two-dimensional whereas _____ are three-dimensional.
3. _____ is a repetitive organized movement throughout the composition.
4. Emphasis refers to the _____ of a subject in the photograph.
5. _____ refers to the visual relationship between the elements of design.



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3.2 Describe Rules of Composition and Leading Lines

Composition is an arrangement of the elements of the image to make them attractive to the viewer. This helps to represent the visual message of the artist in the most harmonious and impactful way. Composing a photograph means placing the elements of an image in a way that the image is able to convey a story to the viewer.
Horace said, "A picture is a poem without words."
Here are a few guidelines for composition, following them your composition can be expressed in a more appealing and pleasing way.

Rule of Thirds: It is the most simple and effective way to frame the composition. As per the rule of thirds, we need to divide our composition by two vertical lines and two horizontal lines in such a way that there are nine equal parts and four intersection points. We need to place our main subject into one of these intersecting points or towards the left or right side of the center of the frame. This results in a dynamic and better-looking image than placing the subject in the middle of the composition. Refer to module-1 of Introduction to Photography for a detailed explanation of this rule.

Center Composition: As per the rule of thirds, placing the subjects in center may lead to a boring composition. But there is an exception, sometimes keeping your main subject in the depth center gives an outstanding composition. In center composition, there should be a balance of left and right or the top or bottom part of the main subject in the image. It works well when there is some symmetry in the composition or there is some reflection. Figure 3.10, shows an example of center composition.

Figure 3.10: Center Composition

The Golden Triangle: In the golden triangle guideline, a line is drawn from one of the pair of opposite corners forming a diagonal and two perpendiculars are drawn from the other two corners on the diagonal line. This results in four triangles of two different sizes. Now we can place the main subject in one of the triangles and also can place the leading lines on the diagonal lines.

Golden Ratio: This rule of composition follows a golden number, which is simply a ratio of 1 to 1.618. By using this number, we can arrange the elements in an aesthetically pleasing way. The golden ratio rule can be of two types: Golden rectangle and Golden spiral.

Golden Ratio Grid: This is also called as ***phi grid*** or *golden rectangle*. It looks similar to the rule of thirds with two horizontal and two vertical lines with four intersecting points dividing the frame into nine parts. But here all parts are not of equal sizes and it creates a bit of tension in the image. The tension here is in a positive sense which means there is a dynamic element that holds the viewer's eyes for a few moments while watching the image captured. Figure 3.11 shows the image following the phi grid rule. It visually attracts the viewer towards the main subject.

Figure 3.11: Golden Grid

Golden Ratio Spiral: This guideline can be used when majorly one subject is in the composition. Simply place the subject where the golden spiral's curl would be. It is said that the famous painting "Monalisa" is made using the golden spiral rule. This guideline aims to draw the viewer's

attention from the bigger curve towards the spiral.

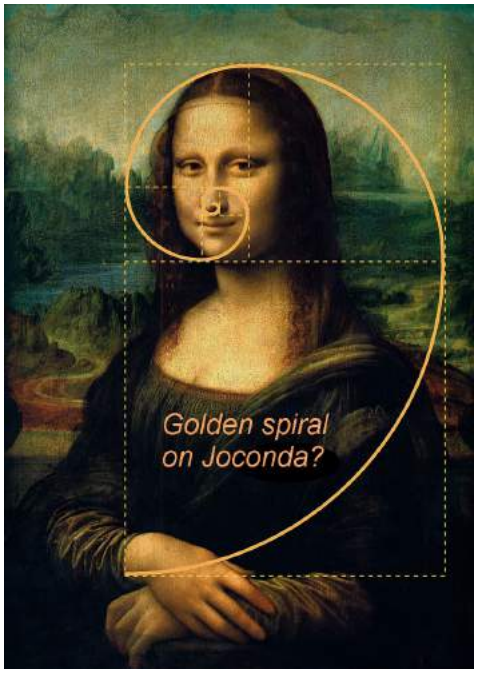
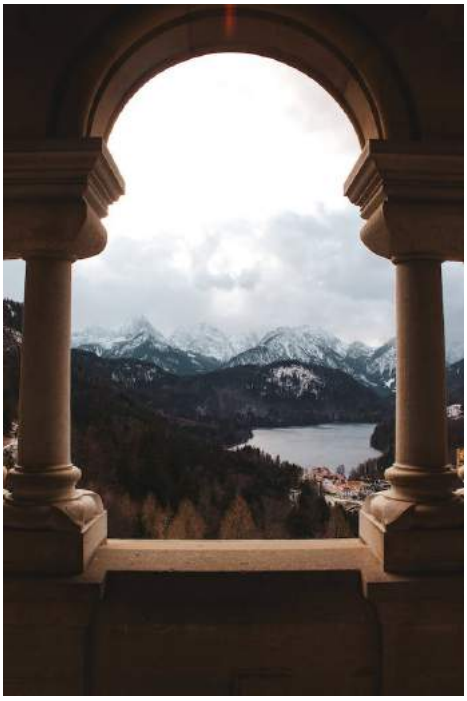


Figure 3.12: Monalisa painting with spiral curve

Rule of odds: According to this compositional guideline capturing an odd number of subjects to create more visually attractive images, including 3 or 5 elements instead of 2 or 4.

Frame within a frame: Framing a frame within a camera frame is a popular technique of composition that enhances the main subject in the composition. Adding a frame within a frame means to keep the main subject inside the other subject that acts as a frame. This framing creates depth in the composition. The natural frame can be doors, windows,

arches etc. The below figure shows how a frame within a frame guideline works.



Leading Lines

Leading lines lead or converge to a single point or the main subject in the composition. Leading lines are very strong composition techniques that are used to make the composition dynamic and beautiful.

Leading lines can be of many types such as: horizontal, vertical, diagonal, converging and curved. Let's discuss each of them.

Horizontal Lines: These lines are usually used in landscape photography. They convey a sense of stability. But sometimes they can direct the viewers outside the image as shown in figure 3.13.

Figure 3.13: A composition with horizontal leading lines.

Vertical Lines: Vertical lines leads the viewer's eye to the top or bottom of the image. These lines can be used in fashion photography, street photography etc. In figure 3.14, the vertical leading lines are drawn naturally by trees.


Figure 3.14: A composition with vertical leading lines.

Diagonal Lines: Diagonal lines often emphasize distance from the foreground to the background. Figure 3.15 shows diagonal leading lines that points our eyes to the main subject.

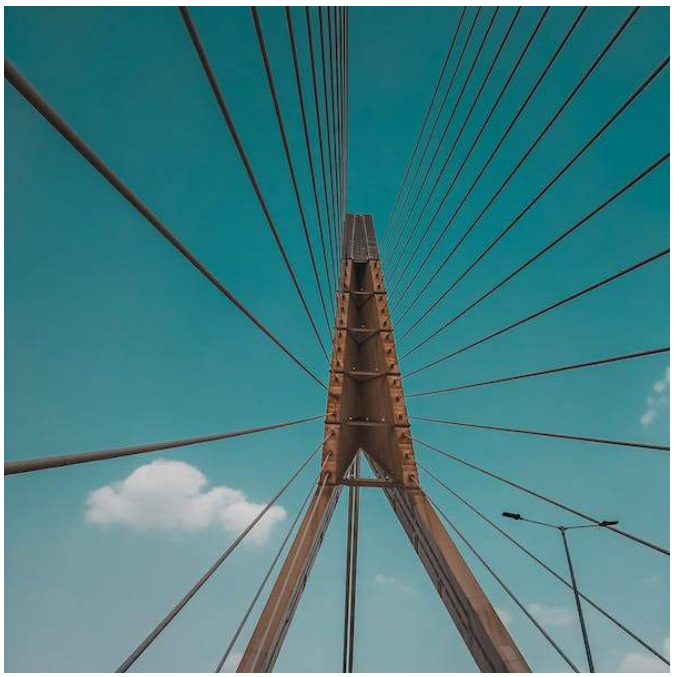


Figure 3.15: A composition with diagonal leading lines.

Converging Lines: When two lines or curves intersect, they can halt the viewer's eye. They can also be used to redirect the focus of the image.

When lines from the foreground and background meet, they create a sense of depth or distance. Figure 3.16 shows almost all types of leading lines. There are converging lines that take the viewer's eyes from the foreground towards the main object, vertical lines as vertical pillars, horizontal lines as slabs at the top, and diagonal lines from the left-top corner of the front pillar towards the last pillar that is near to the main object.

So, we can also conclude that there can be more than one leading line in a composition that is focusing on a single subject.

Figure 3.16: A composition with converging leading lines.

Figure 3.17: A composition with curved leading lines.

Curved Lines: ***"I think the best type of leading lines are ones that curve because they can bring the viewer's eye through the entire image"***, says *Kosslow.*

In figure 3.17 the bars at the top shows curve lines that directs the viewer towards the end of the road.

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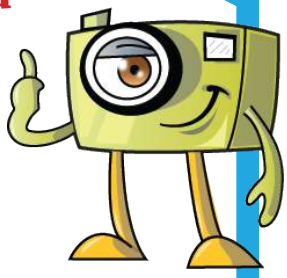
Activity: Observe the images given below and write down the rule it is following:



TIP: **There can be more than one composition rule/guidelines.**

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3.3 Explain Camera Angles

Camera positions, angles, and the degree of those angles can totally change the meaning of the composition. There are several types of shots and angles to shoot a particular image or a scene and all these shots can result in different emotions in the same image. A basic explanation of camera positions and angles is done in module-1 of Introduction to Photography. Now let us first study the various camera shots and then we will study more about camera angles.

Shots

Camera shots are an essential aspect of storytelling in photography. By capturing a scene from different-different shots and angles, different emotions can be generated. There are various types of shots that can be used from these angles.

Extreme long shot: Extreme long shots are also called establishing shots. This shot is taken to give an introduction to the surroundings and environment of the scene. The character in this shot may not necessarily be in focus. The images are captured from a distance and are usually landscapes.

Long shot: This shot focuses on the character as well as its surroundings. This shot is also called as wide shot. It enables the viewer to see the full length of the character from head to toe.

Medium Long shot:

The medium-long shot generally shows the character from slightly above the knees to the top of the head. It enables the viewer to see facial expressions in combination with body language, to show emotion.

Medium shot:

The medium shot also called as waist shot generally shows the character from the waist to the top of the head. It shows important actions and costumes.

Close-up shot:

In close-up shot the character is shot from the top of the shoulders to the top of the head. It's used for capturing the emotion and expression of the character.

Extreme Close-up shot:
Extreme close-up shots are taken to show the deep details of a character or object in the frame. For example, if a person is to be captured by an extreme close-up shot, a particular part of the body is shown.

Angles

A camera angle refers to the angle at which a camera is positioned to capture the image. Here are the various camera angles and each angle has its own significance.

High Angle: A high-angle shot is done by taking the photograph from a height and tilting the camera downwards. The subject is placed at a height lower than the camera. It shows the subject within the frame as small, isolated, vulnerable and weak.

Low Angle: In this type of shot the position of the camera is down and the angle is tilted upward towards the subject. Here the subject is placed at a higher height than the camera. The resultant images look imposing, dominating and powerful.

Eye-level: The position and angle of the camera are along the direction of the eye. This shot is used to capture the scene that is aligned with our eyes. No need to look up or down for photography. The resultant image leaves neutral and natural expressions of the character or scene.

Dutch Angle or Dutch Tilt Shot: The camera is slanted to one side. The horizon lines are tilted in a way that creates a sense of disorientation.

Bird's Eye View Shot or Overhead Shot: An overhead shot is taken at an angle of 90 degree with the camera facing the head of the subject. The shot is taken from a height above the top of the subject covering a good amount of the surroundings. It creates a great sense of scale and movement.

Aerial Shot: This shot is taken from a helicopter or a drone. It is shot from a huge height. It establishes a large expanse of scenery.

Figure 3.18: High Angle shot

Figure 3.20: Eye level shot

Figure 3.19: Low Angle shot

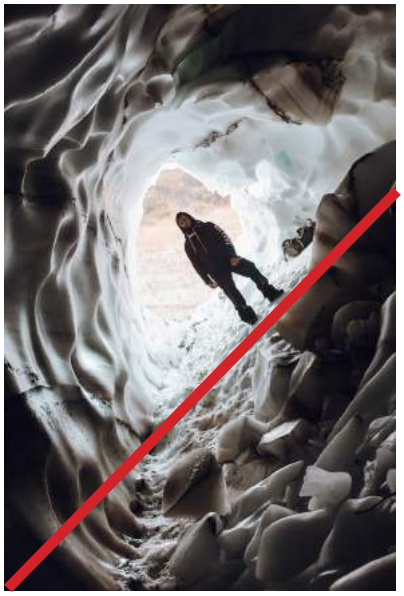

Figure 3.21: Dutch Angle

Figure 3.22: Over head shot

Figure 3.23: Aerial shot

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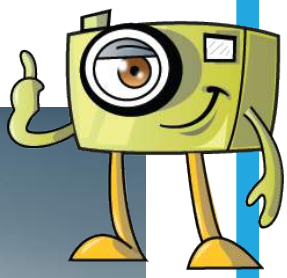
Activity: Observe the images given below and write down the angle/shot:

TIP: There can be more than one angle/shot.



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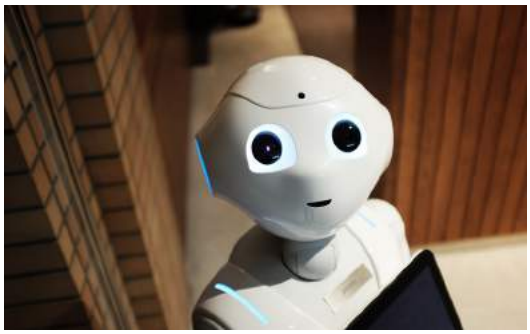

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3.4 Define and explain a photo essay

Everyone likes to hear stories but to see them sounds more exciting and interesting. Stories can be seen without any words with the help of photographs. Here a series of photographs are placed in a sequence which can actually describe the events. They are arranged in a way that conveys a message. This is called a photo essay.

A photo essay is the visual representation of a story by displaying the images in a sequence with reference to the happened event.

It is as powerful and understandable as written words, apart from this it actually takes our mind to the location displayed in the story. This makes it more powerful and engaging.

How to Create a Photo Essay

- Tell a diverse, confident story that can convey a message.
- Shoot the scene from different shots and make sure you have enough images to create a story.
- Make a Storyboard, this will create a layout of your story i.e., telling the sequence of images to put in your essay.
- Choose only the relevant images to form the story.
- Get an outsider/expert advice, who has knowledge of creating photo essays and make him/her select the best images as per the story.
- Now make your final selections keeping in mind the advice of the expert.
- You can write small captions also, although this is optional.

Types of Photo Essays

Photography is a medium that allows you to explore narratives and tell stories about the world around you. There are mainly two types of photo essays: ***Narrative*** and ***Thematic***. A narrative photo essay is a story that is told by you to the audience for example your one-day routine or your travel trip but stick with one story from beginning to end. On the other hand, a thematic essay can be created around a subject, idea or theme. For example, a collection of people who visit a museum is a type of thematic photo essay, street photography etc.

There are numerous ideas to create a photo essay and you can have your own also. Here are a few of them for your reference.

People growing: You can capture or collect photographs of people as they grow over time. This type of photo essay works well for photographing a child. The journey of a child from newborn to a year old looks amazing and dramatic.

Place over time: Capturing pictures of one particular place over a period of time and analyzing its development. It can include the streets, houses, parks etc.

Technology: A possible idea for a photo essay is to take pictures of different types of technology. The best example can be the development of the mobile phone from decades to the present. You can show different models of mobile phones of a particular company for example Samsung, Apple etc.

Photo walk: It is a fun activity that excites a photographer to capture images of the locations of his interest. This can

be done in streets, markets, parks etc.

Behind the scenes: It is very exciting to see the shots behind the scene of a particular event or play. The photos captured can be from an actor's makeup room, the set of a film etc.

A day in life: This is an easy and quick photo essay that requires only a day to capture images. The images can be of a particular person or group of people. For example, a sequence of activities can be captured on a person's birthday from morning to night.

Educational: Some photo essays can serve as educational aids. For example, you can show the life cycle of a plant, from seed to plant like coriander seeds, tomato seeds etc. The process will take around 15-20 days.

Religious traditions: A photo essay can capture pictures of religious ceremonies or traditions from different cultures.

Toys: To create a photo essay about toys can grow your interest in research. You can research on toys used from the times of your grandparents, parents and yours and compare the developments. For example, your grandparents might have played with manual toys, your parents had used light and sound toys and you had used artificial intelligent toys like cars that automatically decide their route.

3.5 Things to Remember

Things to Remember

1. There are seven principles of design. They are balance, rhythm, pattern, emphasis, contrast, unity, and movement.
2. There are three types of balance. Symmetrical, radial balance and Asymmetrical balance.
3. The Golden rectangle is also called as phi-grid.
4. A Phi-grid rule is similar to the rule of thirds with a few different-sized rectangles.
5. Leading lines are of many types such as: horizontal, vertical, diagonal, converging and curved.
6. In a dutch angle shot the horizon is tilted.
7. There are two types of photo essays: Narrative and Thematic.

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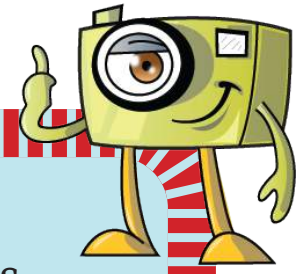
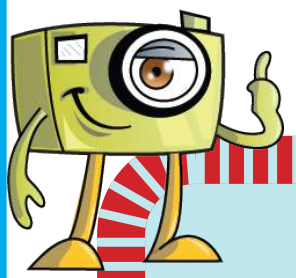
3.6 Practical



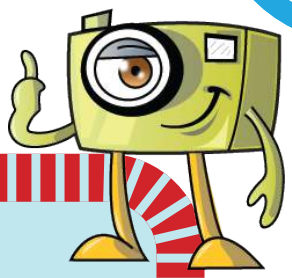
Activity 1: Identify images using laws of design

Tips: Collect or capture images that is following the laws of design



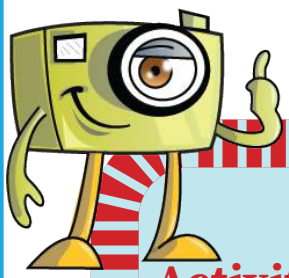
Activity 2: Identify the rules of composition used in the Masters works

Tips: Search for a photograph that is captured by any well-known photographer and analyse it.



Activity 3: Demonstrate the effectiveness of camera angles

Tips: Capture pictures by different camera angles.



Activity 4: Create a photo essay

Tips: Capture images related to any of the above studied photo essay type and make a story out of it.

Summary

In this module, you have learned about different types and genres of photography and understood their importance. A basic understanding of the DSLR camera's components and its working is achieved. You have learned the basic guidelines to compose an image. A good knowledge of leading lines, camera angles and shots is gained. Also, you are now able to write your own photo essay and tell your visual stories to your friends and family.

NOTES: _____

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UNIT- 4
Practical Photography: Projects and Assignments

Topic Covered

4.1 Explain Composition and Perspective
4.2 Explain the importance of controlling Exposure
4.3 Assignment and Projects

4.1 Explain Composition and Perspective

Perspective: Perspective is a technique used to create three-dimensional imagery on two-dimensional surfaces to give them the illusion of depth. It is used to make an object appear to have dimensions. When it comes to compositions, there are two kinds of perspective - linear perspective and atmospheric (aerial) perspective.

Linear Perspective: Linear perspective is achieved by using lines and vanishing points. As the object goes nearer to the vanishing point, the smaller and less detailed it will be.

Leading lines are one of the most popular visual techniques artists use to compose scenes. These are parallel lines that, when viewed at a distance, appear to converge and lead to a vanishing point.

Figure 4.1: Linear Perspective

Definition:

Vanishing Point: A point at which receding parallel lines seem to meet when represented in linear perspective.

Atmospheric Perspective: Atmospheric perspective, which is also known as 'aerial perspective', refers to how colors fade in the distance. It is most noticeable when you are photographing landscapes. It is also a technique that artists have always used to create a sense of depth in their paintings.

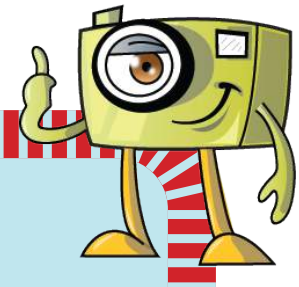
Figure 4.2: Atmospheric Perspective

4.2 Explain the importance of controlling Exposure

It is very important to control exposure while photographing an image or a scene. The main elements that control exposure are shutter speed, aperture and ISO. These three elements form the exposure triangle and it is extremely important to get a balanced exposure triangle. The values of these elements should be adjusted in a way which gives a perfectly exposed image i.e., neither too dark nor too bright. An imbalance in the exposure triangle leads to an underexposed(dark) or overexposed(bright) image. Imbalance in the exposure triangle is caused due to incorrect adjustments of these elements.

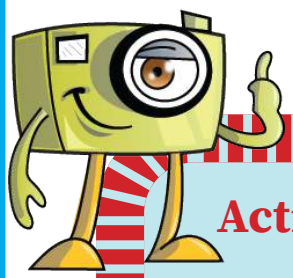
Thus, to achieve a perfectly exposed image, a knowledge of these elements and how to control them is necessary.

4.3 Assignments and Projects



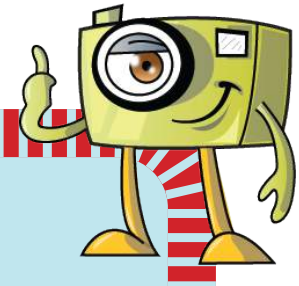
Activity 1: Rules of composition

1. Participant should take 5 photographs
2. Each of the photographs should focus on one rule of composition
3. Every photograph must use a different rule



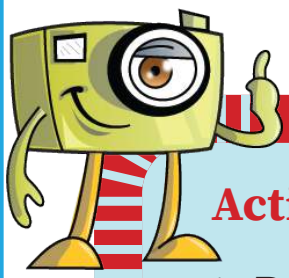
Activity 2: Leading lines

1. Participant should take 5 photographs
2. Each of the photographs should focus on importance of leading lines
3. Participants can utilize architecture like buildings and staircases to achieve the goal



Activity 3: Portraits Project

1. Participant should take 5 photographs
2. Each of the photographs should focus on different subjects showing variation in age, location, social and professional identity etc.



Activity 4: Photo Story

1. Participant should take 5 photographs
2. These photographs must collectively tell a story
3. The story can be a process, act or an experience

References and Books

References:

1. Photopils
2. Capturetheatlas.com
3. Photography life
4. freepik

Books:

1. Understanding Exposure by Bryan Peterson
2. Collins Complete Photography Course by John Garrett
3. The Art of Photography: An Approach to Personal Expression by Bruce Barnbaum

PDF's:

1. An introduction to photography by Karl Taylor
2. Mastering the Photography Basics by Dan Zafra - Capture the Atlas