COMPUTER GRAPHICS - MOTION

TRAINER GUIDE

National Vocational Certificate Level 4

Version 1 - July 2013

COMPUTER GRAPHICS - MOTION

Foreword

The National Vocational & Technical Training Commission (NAVTTC) developed a National Skills Strategy (NSS) after extensive research and consultation with experts and stakeholders including policy makers and representatives from Industry, Academia and the Provincial Government departments dealing with technical and vocational training. The strategy aims at establishing a regime that facilitates competency-based and demand-driven training and assessment.

NAVTTC has developed competency-based training programs with the technical support of TVET Reform Support Programme (TVET-RSP), which is funded by the European Union, the Kingdom of the Netherlands, the Federal Republic of Germany and the Royal Norwegian Embassy. The Programme has been commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ) and is being implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in close collaboration with NAVTTC. These vocational training programs have been approved by the National Curriculum Review Committee (having representation from all over the country from TEVTAs and industry) for implementation in Public and Private Training institutions.

The purpose of developing competency-based training programs is to equip the learners with modern skills and knowledge for each of the trades to meet the requirements of local as well as international markets. These training programs include competency standards, qualification, curriculum, assessment material and teaching & learning material that will aid in implementation of competency-based and demand driven training in the country.

This Teaching and Learning Material is part of the competency based training program exclusively developed to support the implementation of CBT curricula. This Material is intended for the use of learners undertaking training in *National Vocational Certificate Level-4 in Information Technology (Computer Graphics - Motion)* under the guidance of experts and appropriate trainers. This Teaching and Learning Material has been designed in consultation with industry, academia and researchers to ensure that the material is relevant and current.

On behalf of the Federal Government/NAVTTC, I wish to express my sincere appreciation and gratitude to all subject matter experts, industry representatives and TVET-RSP experts who have diligently contributed in producing this valuable Teaching and Learning Material.

Executive Director
National Vocational & Technical Training Commission
(NAVTTC)

Introduction

Computer Graphics Motion is an area in information technology that helps in producing colorful videos, animations, and illustrations. A Computer Graphics Motion Designer can be employed in variety of government and private organizations dealing with electronic media.

The National Vocational & Technical Training Commission (NAVTTC) has developed a national qualification entitled, *"National Vocational Certificate Level-4 in Information Technology (Computer Graphics - Motion)"*. Relevant industry and employers were consulted in the design and validation processes in order to come up with a national qualification that fulfills the requirements of the sector in general and the occupation in particular.

This Teaching and Learning Material (TLM) is developed based on competency standards and curriculum of the Computer Graphics (Motion) national qualification. It carries a learning volume of 80 credits and includes nine learning modules which are as under:

> Module 1: Familiarization with Terminologies and Tools
> Module 2: Develop Design Concept
> Module 3: Analyse Cost Effective Solution
> Module 4: Photo editing and graphics development
> Module 5: Video Editing and Motion Development
> Module 6: Prepare for rendering
> Module 7: Perform Software/ Hardware Maintenance
> Module 8: Communicate with Others
> Module 9: Duties and rights at the workplace

This TLM provides support for more effective training and productive learning. Each of the learning modules contains learning outcomes and information regarding learning elements in the form of knowledge, skills and attitudes. At the end of every learning module are Frequently Asked Questions (FAQs) and Test Yourself which will help learners in self-assessment before proceeding to modular or final assessment.

Table of Contents

Module 1: Terminologies and Tools

Learning Outcomes

After completion of this learning module, you will be able to:

- Understand the elements of design and their application in different designs

- Select respective elements of designs, all designs will contain most if not all the elements

- Produce designs concept for any given product/ service, appropriately

- Know colour theory and composition, how to select colours based on requirements or branding guidelines

- Understand applications of design principles and the difference in a good or bad design

- Use design principles (most of them if not all) to help make visual layout pleasing and interesting for a product or service

- Understand how perspective is used to introduce the illusion of depth in an image

- Use perspective in a design to make the design appear real by altering of size, location of objects on a canvas

- Use perspective to draw attention to certain objects of interest or concept

- Understand how colour in a design is very subjective

- Know how something as simple as changing the exact hue or saturation of a colour can evoke a completely different feeling

- Interpret importance of certain colours with respect to culture and mood depiction

- Use appropriate colour combination

- Select and apply relevant colour scheme and theme

- Understand and know in terms of colour job for printing

- Choose appropriate fonts relating or reflecting the design concept

- Understand the anatomy of Typeface

- Study and make use of graphics development software

- Study and make use of sound editing software

- Study and make use of video editing and development software

Teaching and Learning Material: Information Technology (Computer Graphics - Motion)

Learning Unit 1: Elements of Design

Overview

In this leaning unit, you will learn the use of basic elements of design. Design elements are the building blocks used to create work art. After the completion of this learning unit, you will be able to describe the significance of dot, line, colour, texture, shape, size, value of tone, positive and negative spaces etc.

1. Dot / Point

Dot/Point is the smallest and the most basic element of design. These can be used in different sizes, values, colours, alone or in groups making lines or shapes in the design. Dots can be used to develop a pattern as if these are placed close, it gives a darker look and if placed apart, it gives lighter look. Many painters use patches and dots in there artwork.

COLOUR

RGB Colour Model

Media that transmit light (such as television) use additive colour mixing with primary colours of red, green, and blue, each of which stimulates one of the three types of the eye's colour receptors with as little stimulation as possible of the other two. This is called "RGB" colour Model.
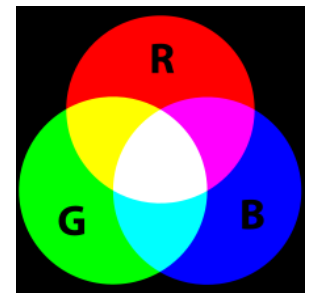
CMYK Colour Model

The **CMYK colour model** is a subtractive colour model, used in colour printing, and is also used to describe the printing process itself. **CMYK** refers to the four inks used in some colour printing: **c**yan, **m**agenta, **y**ellow, and **k**ey (black). Though it varies by print house, press operator, press manufacturer, and press run, ink is typically applied in the order of the abbreviation
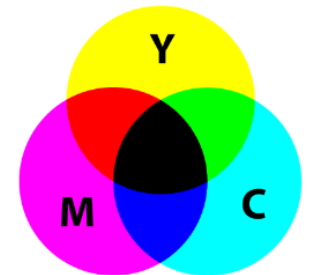
SIZE

Size of graphic design matters as well as the size of dot, lines and other shapes makes different designs.

RESOLUTION

Resolution refers to the number of pixels in an image. Resolution is sometimes identified by the width and height of the image as well as the total number of pixels in the image. For example, an image that is **2048 pixels wide** and **1536 pixels** high (**2048X1536**) contains (multiply) 3,145,728 pixels (or 3.1 Megapixels).

Resolution
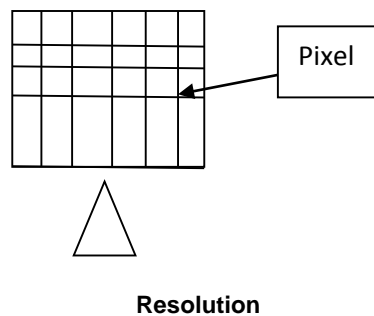
PIXEL DOTPITCH

Dot pitch is a specification for a computer display, computer printer, image scanner, or other pixel-based device that describes the distance, for example, between dots (sub-pixels) on a display screen. It is measured in millimeters.

Pixel

The **pixel** (a word invented from "picture element") is the basic unit of programmable color on a computer display or in a computer image

Pixel DotPitch
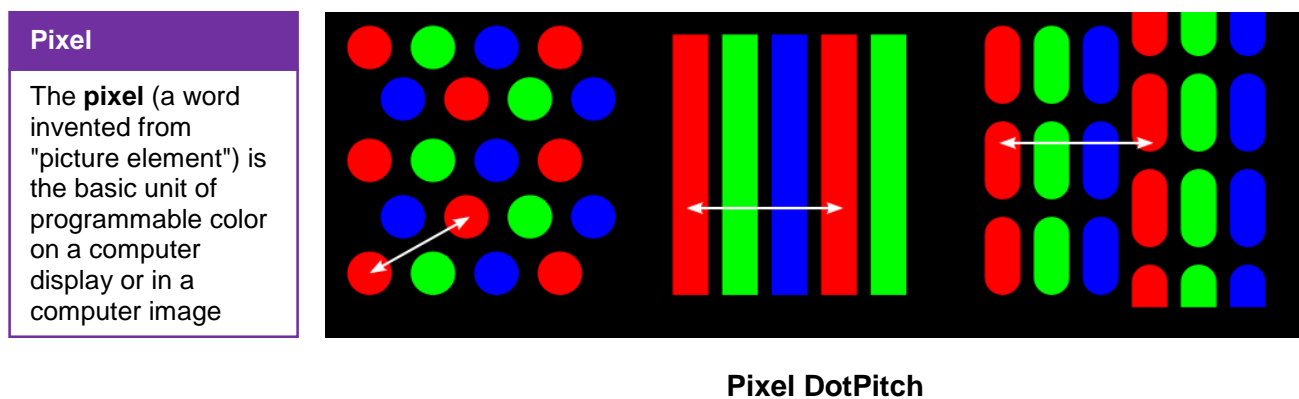
Lines

A line is a series of dots adjacent to each other. Where a dot has no dimension, a line has one dimension with length.

Lines

Relationship Between Line and Lines

When two lines are joined they create an angle between them. This joint or point of connection becomes the starting point to move in two different directions along two different lines. Multiple joints create a sense of altered direction. When the angle between lines is acute (less than 90 degrees) the movement and change in direction is perceived to be rapid.

Teaching and Learning Material: Information Technology (Computer Graphics - Motion)
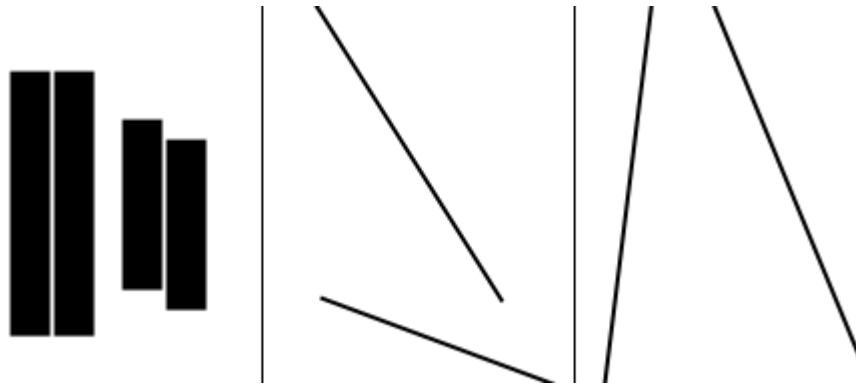
Relation between Line and Line

2. Characteristics of Lines

The characteristics of lines are many, lines may be short or long, think or thick, straight or curved, direct or meandering, zigzag or serpentine, distinct or blurred. These characteristics have certain built in associations that the learner may make use of.

Measure

Measure refers to the length and width of line, its measurable properties. A line may be of any length and breadth. An infinite number of combinations of long, short, thick, or thin lines can, according to their application, unify, divide, balance or unbalance a pictorial area. Thick lines tend to communicate more of a sense of stability than thinner lines. Thin lines are generally more elegant, or delicate.

Type

There are many different types of line. If the line continues in only one direction, it is straight; if changes of direction gradually occur; it is curved; if these changes are sudden and abrupt, an angular line is created. There are some basic types of line are:

1. Implied Line

A series of points or figures that the eye automatically connects and forms an imaginary line, some examples are:

- A trail of crumbs

- A group of cars behind one another

- Group of people in line at a concert

Example of Implied Line

2. Psychic Line

A psychic line has no existence at all except as an imaginary ray of light joining, for example, a person's eyes to the object they are looking at, or the line that extends into space from the tip of a pointing finger. Artists and designers use psychic lines to guide the viewer around a picture and direct their viewing experience.

Psychic Line

TVET RSP does not secure copyright of these pictures

An invisible line from one element to another followed by our eyes and created in our minds. Some examples are:

- A sign pointing in a certain direction

- Someone's eyes staring in a certain direction

3. Contour Lines

Used to make up forms and figures in a drawing. Describe the outlines in a drawing.
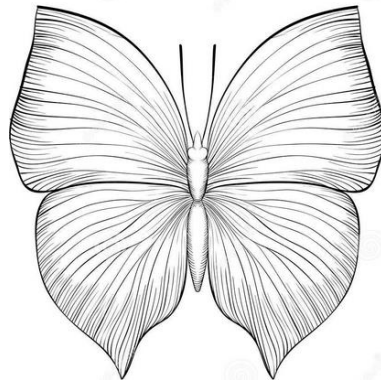
Contour Lines *TVET RSP does not secure copyright of these pictures*

4. Horizontal lines

Lines that go from left to right convey a feeling of stillness and lack of motion or rest. Horizontal lines are normally associated with sleep because normally a sleeping figure is parallel to the earth

5. Vertical Lines

Convey a sense of height and alertness, can be associated with a person standing up.

Horizontal line   Vertical Line   Diagonal Line
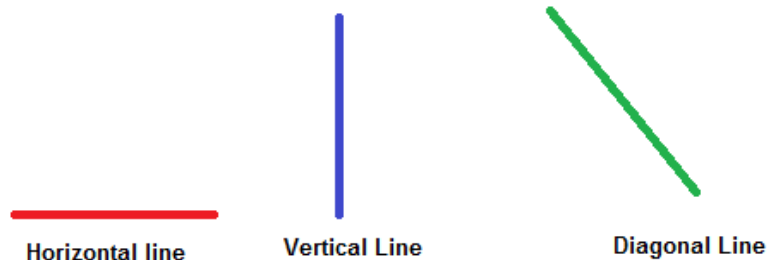
6. Diagonal Lines

Associated with movement or lack of stability, can also indicate depth when using perspective. Think of a tree that has just been axed.

A line is a mark between two points. Artists use lines to create edges, the outlines of objects. A line is created by the movement of the artist's pen. Line can be considered in two ways.

The linear strokes made with a pen or brush or the edge created when two shapes meet.

Remember
Shapes also communicate ideas. For example, an international company may use a circle in their logo that could suggest the earth.
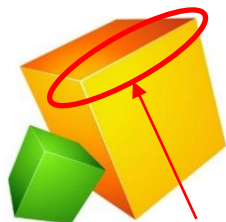
Lines as Edge   **Lines as Linear Strokes**

Step 1   Step 2   Step 3
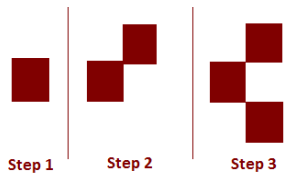
Lines act as borders between ideas, concepts and steps in sequence.

By using basic structure the concepts or ideas depicted through line drawing are easy to understand thus they are effective in learning.

3. Categories of Shapes

A shape is a self-contained defined area of geometric or organic form. A shape is created when a lines is enclosed. Shapes have two dimensions, length and width, and can be geometric or free-form. In painting the design basically a planned arrangement of shapes in a work of art. All the shapes are divided into two categories which are described below:

Geometric Shapes

Geometric shapes or regular shapes are easy to recognize. Math can be used to find information about these shapes and these shapes generally have a specific name associated with them. Examples include: circle, triangle, square, and trapezoid.

Organic Shapes

Organic or freeform shapes are shapes that seem to follow no rules. Organic shapes generally do not have a name associated with them and are typically not man-made.

Positive and Negative Shapes

A negative shape is an empty shape or space, and is the background or surround of the subject. In a picture the shapes that an artist places are called positive space and the spaces around the positive space are called negative space. A positive shape in a painting automatically creates a negative shape.
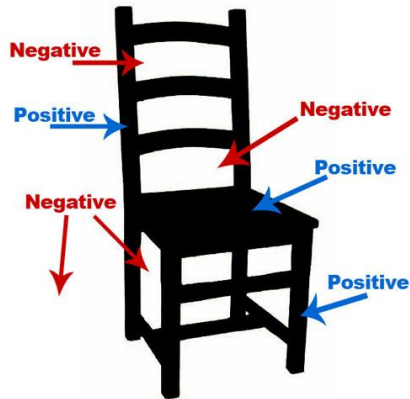
Negative and Positive Space

4. Direction of Lines in Concept of Graphics

The direction of a line can convey mood or emotion. The different directions of lines used in design work are Horizontal, Vertical and oblique. Each of them develops different effect.

Horizontal lines

Horizontal suggests calmness, stability and Tranquility. They symbolize rest and relaxation.

Vertical Lines

Vertical gives a feeling of balance, formality and alertness. They also equate to power and strength.

Oblique Lines

Oblique give a feeling of movement and action. Diagonal lines are dynamic and action-oriented.

5. Size

Size means how big or how small should an element be in the design. When designing a piece, size plays an important role to make design functional, attractive and organized.

The first factor is should be the size of paper to be printed like for a brochure, what size should be appropriate.

Second factor is to attract, you can use elements of different size in your design to attract your audience.

Third factor is organization: the most important element should be largest and the element of the least importance should be smallest. Headings are the largest element in a text document and sub-headings and normal text are smallest elements.

6. Texture

Texture gives your design piece a specific look and feel. They help to develop a mood in the layout and help to add liveliness and activity to the design. There are two types of textures which are as under:

1.   Tactile Texture

Texture

The textures that can be felt for example think about the different type of paper you handled.

2. Visual Texture

Visual texture is used to create the illusion of texture on a printed piece of design. For example, wallpapers etc. Pattern is a type of visual texture which is created by repeating a particular design element, shape or line. More dimensions can be added to the surface using light and dark elements.

7. Value / Tone

Value means the darkness or the lightness of something. It also refers to the colour of a design element. Every element of the design has a value. When laying out pages, an element's value will be affected by its background and other elements that are around it. For example, if you use a lot of text in a small area, it will make the paper look like it has turned gray.

Value is also an important tool for expressing the theme or mood of your design. If you use values of black, white and gray in a design, you add power or change the mood of the design.

Value also helps to develop contrast by subtly blending shades of colour.

8. Positive and Negative Space

Shapes defined by objects are positive shapes (space). Shapes defined around objects are negative shapes (space).The relationships between the positive and negative shapes help the brain of our viewers understand what they are seeing.
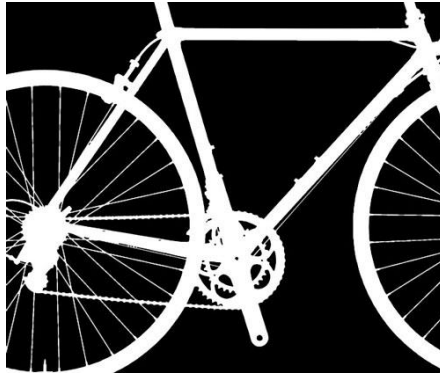
Negative and Positive Space

The negative space is defined by the edges of the positive space and the frame or border. So, part of our negative space is by the positive space. Sometimes the negative space is completely bounded by the positive space. You can understand the positive and negative space with the help of following shape. Take a look at the image below. Do you see faces or a vase?
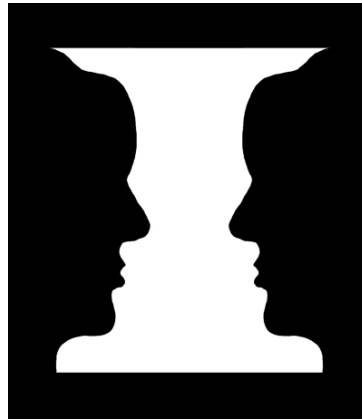
If you are seeing a vase, then you are seeing the white area as the positive space. The black areas become the negative space. If you are seeing faces, then you are seeing the black areas as the positive space and the white area as the negative space.

Negative and Positive Space

Learning Activity

Develop the following by using Positive and negative spaces concepts

Description:	This activity requires all the students to project their design ideas using basic elements of the design like dots, lines, shapes, etc.
Time Guideline:	90 Minutes
Purpose:	To highlight the importance of design elements and their usage.
Presentation:	1. Ask the learners to select a design and project their ideas on white paper. 2. Encourage the learners to make maximum use of design elements.

Learning Unit 2: Principles of Design

Overview

In this learning unit, you will learn principles of design and its implementation. After completion of this learning unit you will be able to define balance, recognize symmetric and Asymmetric balance, apply gradation, explain the importance of repetition, contrast harmony, and describe the use of dominance and unity.

1. Balance

Balance in design acts just like balance in Physics. If there is a large shape near the center than it can be balanced by a small shape near the edge. Balance means the weight distributed in your design by the design elements. Balance provides structure and support to the design.

You can have balance in your design by adjusting the graphical weight of your design elements in terms of colour, size, contrast etc.

Balance
Balance is a psychological sense of equilibrium.
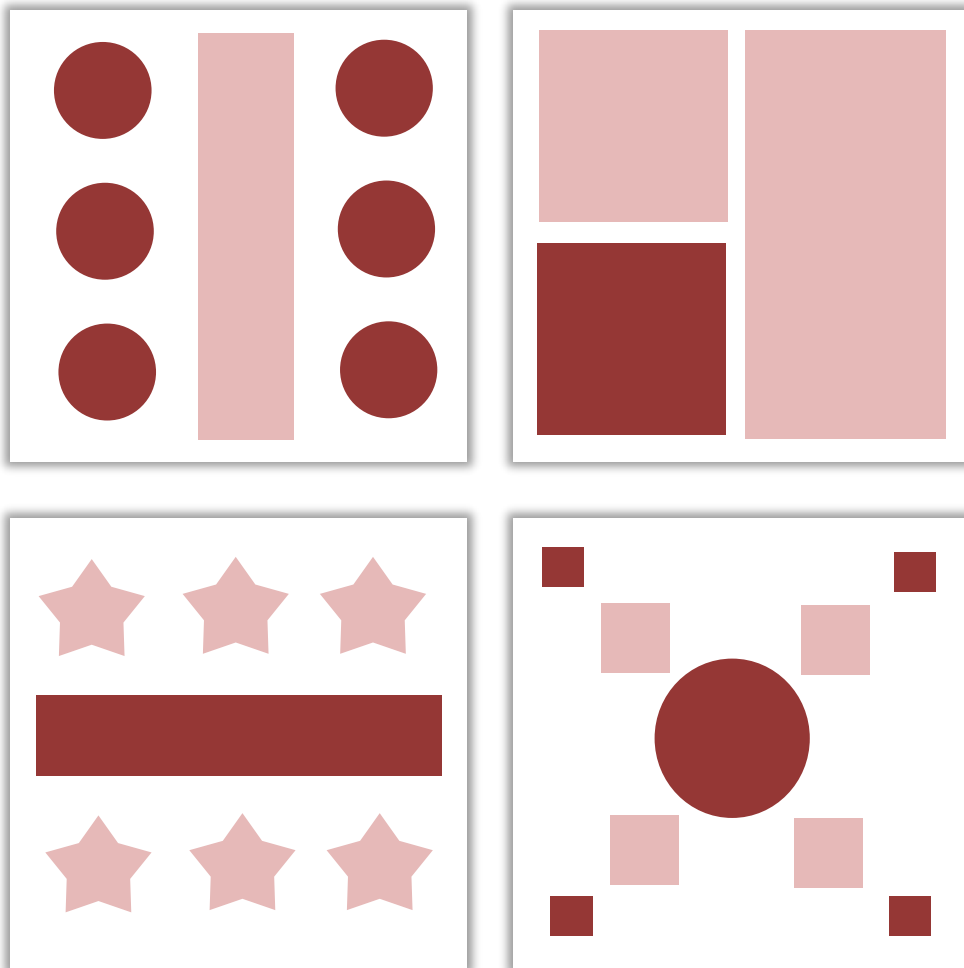
Balance in a Design

There can be two types of balance in your design which are:

1. Symmetric
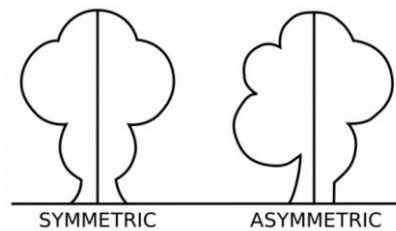
2. Asymmetric

Symmetric Balance

Symmetric balance occurs when visual weight of the design element in your design is equally divided either horizontally, vertically or radially. This sort of balance acts as same design element on both sides of the central point of design.
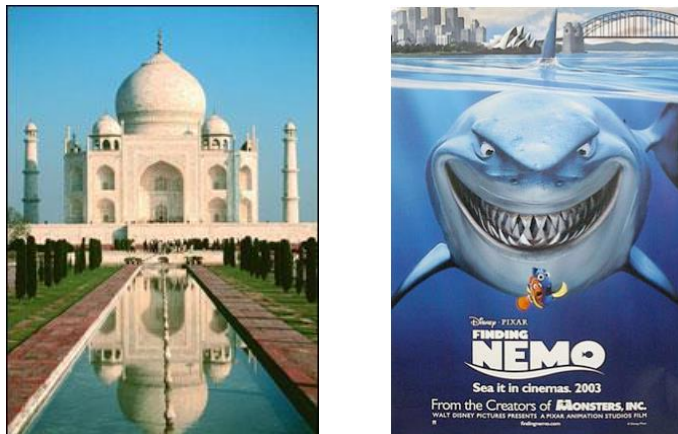
Examples of Symmetric Balance

Asymmetric Balance

Asymmetric balance occurs when the visual weight of the design elements are not equally divided for the central axis of the design. This style depends upon visual weight for example it uses scale, contrast and colour to achieve balance in the design. In our daily life we observe many design containing big images offset (out of the line) with small text not at balanced locations but balanced because of visual games.

Do you know!

Informal balance is more dynamic than formal balance and normally keeps the viewer's attention focused on the visual message.

Examples of Asymmetric Balance

Balance by Value

Balance by value is achieved through small dark colour element is balanced with wide bright area.

In this example the prominent fire balloon on the top right corner is balance by wide sky blue area surrounding it.

Balance by Shape

Balance by shape is achieved by complex and detailed area balanced with flat and simple area on the opposite side.

In this example, one corner of the poster is tough with complex shapes and colours but it is balanced by the flat area around it.

Balance by Texture

Small area with texture looks beautiful and balanced with wide area without texture.

In this example, water ripple texture appears balanced with the wide area without texture.

2. Gradation

Gradation gives different perspectives to objects in your design. Gradation in size means a gradual change from small to large. Gradation in direction means a gradual change from vertical to horizontal. A gradation of size and direction at the same time produces linear perspective.

For example when we apply gradation to the size and direction, it gives an illusion of increase in distance.
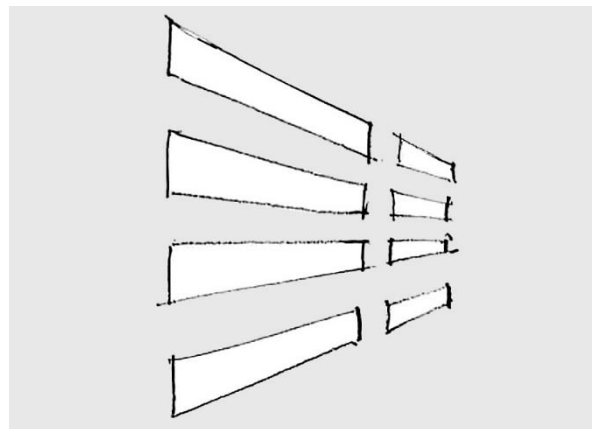
Remember

Gradation of color from warm to cool and tone from dark to light will produce aerial perspective.

Gradation of Size and Direction Produce Linear Perspective

Gradation can add interest and movement to a shape in your design. A gradation from dark to light will cause the eye to move along a shape. Gradation is one of the most useful principles of design and the one that can be applied most easily.

Arial Perspective

Gradation of colour and tone, from warm to cool and dark to light produce aerial perspective. As tone becomes lighter and colours become cooler, apparent distance increases.

3. Repetition

Repetition is a common concept in natural scenes from veins on a leaf to trees in the forest. The most important factor to be considered is variations in repetition.

In the examples below, you can notice the variations in the nature's repetition designs.

Repetition
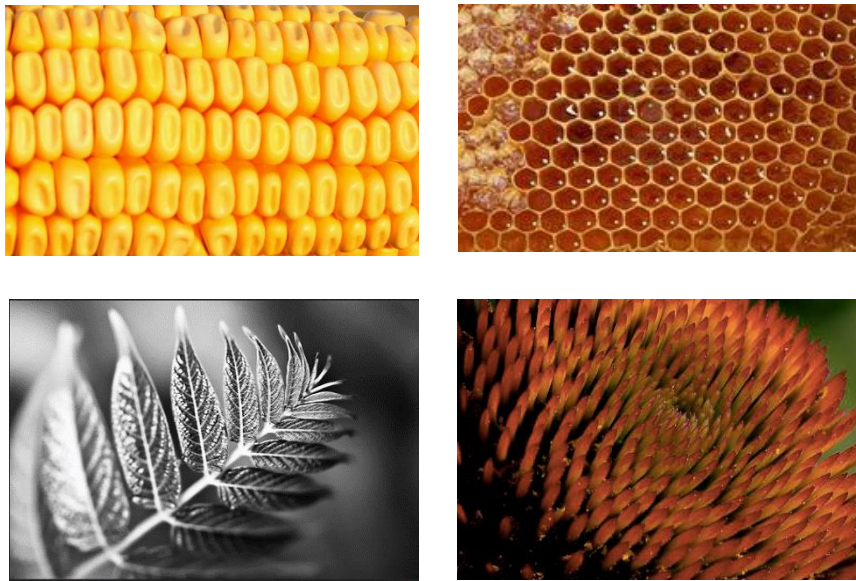
Repetition

If there is no variation in a design with repetition, our brain will have just one look at the design and will understand that rest of the shapes are identical. That will add a monotone (unchanging) effect to the design.

When variation is introduced, mental activity is required to absorb the repeating elements. This removes monotony and adds interest even when the variation is minor. It causes the viewer to subconsciously engage with the art work.
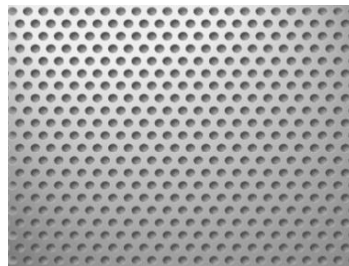
Repetition without Variation   **Repetition with Variation**
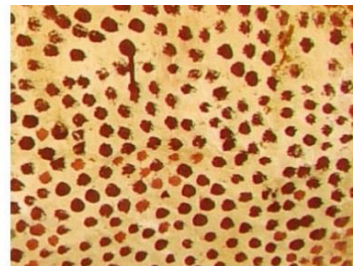
Do you know!

Juxtaposition is the fact of things being seen or placed close to other with contrasting effect.

If you are using repeating elements as an area of relief in a design, variation is not necessary. If the repeating elements are to add to the interest of a design or painting, variation is important.

4. Contrast

Contrast is the juxtaposition of opposing elements. It can be a contrast in:

- colour (opposite colours on the colour wheel),
- value (dark vs light),
- texture (smooth vs rough) or
- direction (horizontal vs vertical).

The major contrast should be at the center of interest in the design. Too much contrast scattered around in the design destroys unity, creates confusion in the design and makes it difficult to look at.

Contrast simply tells us where to look first. Without contrast the design appears to be uninteresting, and hard to access because its not clear for the viewer where to look first.

<table>
<tr><td>Do you know!</td><td rowspan="2"></td></tr>
<tr><td>Camouflage is the use of specific combination of coloration or contrast for hiding something or preventing it from being known.</td></tr>
</table>

Contrast in Size

While using contrast in size, small image makes large image to appear large and large image makes small image to appear small.

Contrast helps objects in the design to stand out. Lack of proper contrast is the reason of simple camouflage.

Improper use of Contrast created camouflage making Frog almost invisible

5. Harmony

Harmony in visual design means all parts of the visual image relate to and complement each other. Harmony keeps the pieces of visual elements in your design together. Repetition and rhythm develop harmony in your design. Repetition reemphasizes visual units,

connecting parts and creating an area of attention. Rhythm is the flow shown in a visual. Rhythm helps direct eye movement.

Harmony
The shape of one part should "fit" the shape of its adjoining elements.

Good Harmony   Lack of Harmony

Patterns or shapes can help achieve harmony. By repeating patterns in an interesting arrangement, the overall visual image comes together.

If your composition was using wavy lines and organic shapes you would stay with those types of lines and not put in just one geometric shape.

6. Dominance

The principle of dominance occurs where you need to emphasize on some design element. No dominence between design element creates a comparison between them.

For example if there are two red circles of equal size in your design, which should I look at first?. Every design should have a central and primary point that acts as the way into the design. From central point, design flow can be achieved by using elements with secondary or tertiary dominence.

For example a dominent element at the center of the design develops symmetry and formal look. On the other hand a dominent design element close to the edge develops an out of balance design.

Dominance in Size

In the above example, without dominence, the picture is not that interesting, our brain tries to follow confused paths around the photograph.

By adding some dominence through a large size boat this picture is now able to direct our attention to the large size boat.

By adding warm colours to the boat instead of dominent cool colour, the visual impact of the design is increased with balanced symmetry.

You can add more visual weight to elements through:

- **Size** – As you would expect larger elements carry more weight

- **Colour** – It's not fully understood why, but some colours are perceived as weighing more than others. Red seems to be heaviest while yellow seems to be lightest.

- **Density** – Packing more elements into a given space, gives more weight to that space.

- **Value** – A darker object will have more weight than a lighter object.

- **Whitespace** – Positive space weighs more than negative space or whitespace.

7. Unity

Unity means that all the components and design elements in your design support each other and all work together towards a common goal.

All the elements should look like they belong to one another not that they are temporarily placed in the design.

> **Remember**
>
> In design working toward the same unified goal is the idea of unity.

You can think of unity in two ways:

1. **Visual Unity** where all the shapes or elements are aligned along the same axis and the colour and style of elements work together to create a meaning.

2. **Conceptual Unity** where all the images in the design follow the same concept. For example diamond, a mansion and a pile of money together give a concept of wealth.

These block forms and text are unified

The blocks are aligned around a horizontal and vertical axis

The combined shapes would not be unified had they been randomly placed

Notice how the text is aligned to the edge of each block

Unit develops completeness and a single idea in the design. Too much unity in the design can develop dullness and lifeless effect in the design so variety must be added to create interest and energy to the design. Too much variety can lead towards distortion and difficulty to read. There should be a balance between unity and variety in the design.

We can use the basic concepts of design to achieve unity:

- **Contrast:** Helps to add variety to unity.

- **Repetition:** Things that look alike are more related to one another.

- **Alignment:** Elements that appear to be on the same axis apear more related to each other.

- **Proximity:** object closer to each other appear to be more related.

Similarly our selection of colours, images, style and contrast all should conceptualy be related to the central idea of design.

Learning Activity

Understanding the importance of principle of design

Description: This activity consists of an assignment for each student to review the design developed in the previous activity keeping design principles of design in mind.

Time Guideline: 30 min

Purpose: To highlight the importance of design principles.

Presentation: Ask each student to review his previous design and make improvements according to the design principles.

Learning Unit 3: Understanding the Concept of Perspective

Overview

In this learning unit, you will learn the use of perspective to arrange elements in the design so that they look realistic, perspective as a learned meaning of relationship between objects, use of perspective to draw attention of audience towards a visual so you can achieve perspective in your design.

1. Perspective

The concept of perspective means use of techniques to draw a three dimensional scene on two dimensional surface as close to the real world as possible. It helps to control the illusion of depth in the image from a few inches to many miles.
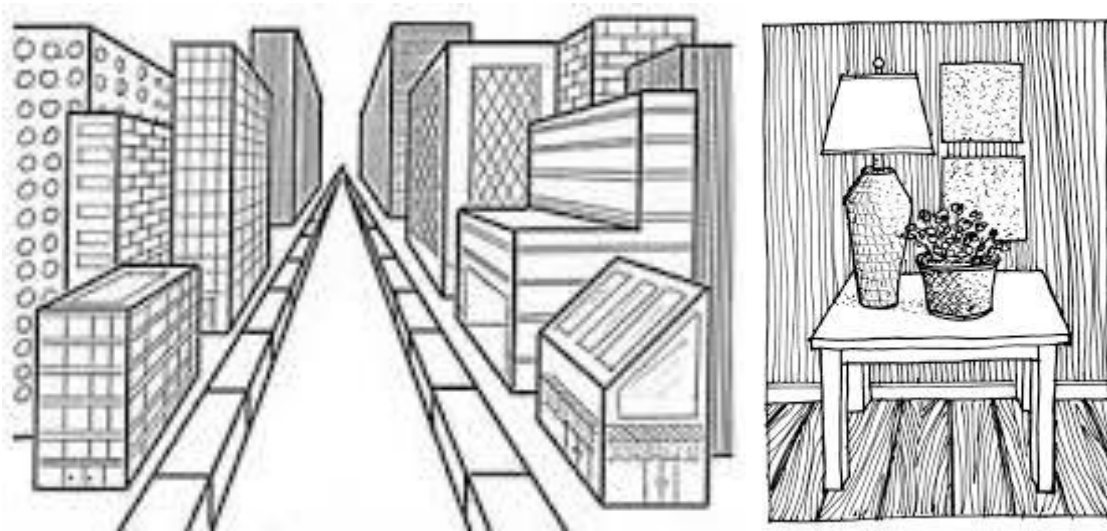
The Concept of Perspective

Perspective is a great way to create realistic or measured designs.

Perspective can be linear or atmospheric

Linear Perspective

Linear perspective is achieved by drawing line that converge toward and look like to meet at some vanishing point in the horizon.

Horizon is also known as eye level if the person is looking straight ahead. For example a person sitting on a chair looking straight will not have the same view of the room as the person standing and looking straight.

The objects that are parallel to each other have same vanishing point.

Horizon
Horizon is an imaginary line across the scene at your eye level.

Vanishing Point as Seen from Different Horizons

Atmospheric Perspective

Atmospheric perspective gives a view of scene or image from top.

Atmospheric Perspective

Atmospheric perspective deals with how the appearance of an object is affected by looking at it through a layer of air. Moisture, dust and pollutants in the atmosphere act to filter the visual information.

The changes follow the following simple rules:

Contrast

The contrast of the close objects is high and that of far object is low.

Colour

Colours are also more visible on the close objects. Warm colours also appear clearer on close objects. As we get farther away colours fade and eventually turn to blue and grey tone.

Focus

Close objects have sharper focus than the far objects as our mind sees objects with soft edges as farther away than the sharp edged objects.

Details

Because of the above reason the details are visible for the closer object. As the distance increases scene become fade making details invisible.

2. Objects Relationship Perspective

Perspective is a learned meaning of the relationship between different objects seen in space. For example look at the picture below.
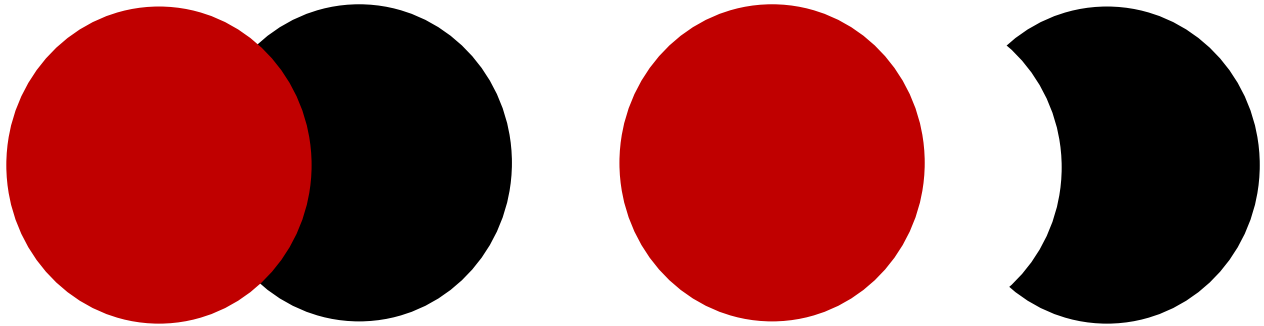
Visual and Perceptive Reality

We can look at this picture as a black circle partially hidden by the red circle (a natural way). But in actual may be it is a half black circle placed with a red circle as shown on the right.

In perception drawing, the concept is very much affected by what we experience in our daily lives that makes the design as much related to the real life as possible.

3. Use of Perception to Draw Audience to a Visual

Perspective allows the designer to use third dimension to place objects and draw the audience into a visual. It adds realism to the design and makes it less abstract to the audience.
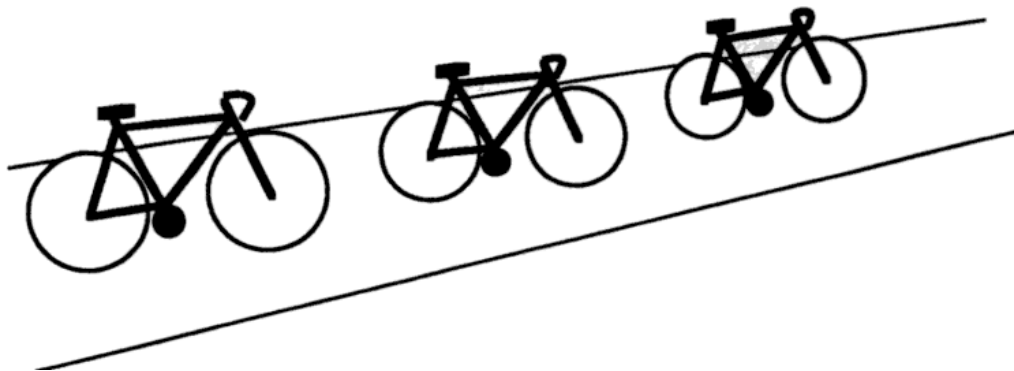
Converging Lines Indicate Distance

This is a very useful tool when introducing a new idea or concept to the audience. The more concrete and less abstract a design is, easier it is to relate and understand.

We can use converging lines to draw the audience vision to the vanishing point representing the main idea or concept.

Drawing Audience's Attention to a Vision

4. Achieving Perception in the Design

Perception can be achieved in your document in many ways.

Through Relative Size Objects

Perception can be achieved by using objects of relatively different sizes. Large size object make the smaller objects to look even smaller and give an effect of being far away. Similarly small object make the large objects look larger and give closer effect.

Perception through Relative Sized Objects

Through Overlapping Objects

Overlapped objects indicate the relative positions of the objects. For example from audience's point of view, objects that appear on top are nearer and close while objects beneath the top object appear to be at a position after the top objects and are farther.

Perception through Overlapping Objects

Blurring or Sharpening Objects

As seen from horizon whether in linear or atmospheric perspective, the objects or element that needs to appear far, are blurred in terms of contrast, colour, sharpness and details. They turn to be dull with blue or grey colour. The closer objects can be sharper to draw audience visual to them

Perception through Sharpening Objects

Learning Unit 4: Colour Theory

Overview

In this unit, you will learn about the colour theory, warm colours, cold colours, and neutral colours. After completion of this learning unit, you will be able to define different terminologies of colour like hue, saturation, tones, shades and tints.

1. Human Eye

Power of Red

Color Physics

Although we see colours in our brain, it is the eye that has the receptors that tell your brain what you are looking at. There are two sets of receptors in the retina in the back of the eye: rods and cones.

There are about 125 million **rods** (named for their shape). They are very sensitive to light but are mostly colour blind. We use them in dim light and so the saying: "all cats are gray in the dark."

The colour detectors in the eye are the **cones**. There are about 7 million of these in three forms concentrated in the center of vision. Individual cones can only sense one of three narrowly defined frequencies of light: **Red**, **Green** and **Blue**.

Colour Physics

Colour is a property of light. Our eyes see only a small part of the electromagnetic spectrum. Visible light is made up of the wavelengths of light between infrared and ultraviolet radiation (between 400 and 700 nanometers). These frequencies, taken together, make up white (sun) light.

In the seventeenth century, Sir Isaac Newton was the first to discover phenomenon of "Light is separated by wavelength and a spectrum of colour formed".

Colour Physics

If the ends of the spectrum are bent around and joined a colour circle (colour wheel) is formed with purple at the meeting place.
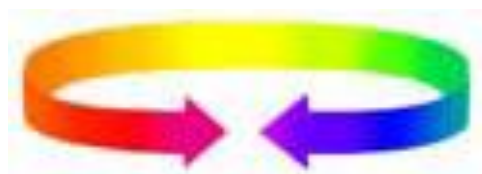
Colour

Colour has three distinct properties: **hue**, **value** and **saturation**. To understand colour you must understand how these three properties relate to each other. You will do a project exploring each in this part of the course.

Hue

The traditional colour name of a specific wavelength of light is a hue. Another description is: **spectral colour**. All of the colours of the spectrum are hues. There are only limited hue names: red, orange, yellow, green, blue and violet. Magenta and cyan are also hues.

Value

Value is concerned with the light and dark properties of colour. All colours exhibit these properties. The hues have a natural value where they look the purest. Some colours, like yellow, are naturally light. Some, like violet, are darker.

Saturation

Saturation is concerned with the **intensity**, or the brightness and dullness of colour. A saturated colour is high in intensity -- it is bright. A colour that is dull is **unsaturated** or low in intensity. Another term for saturation is **Chroma**. A colour without any brightness (no hue) is **achromatic** (black, white and/or gray.

The colour wheel diagrams the relationship between **hues** (around the outside) and **saturation** (center to outside). It is the territory in the center of the colour wheel that must be understood in order to be able to control the brightness of colours.
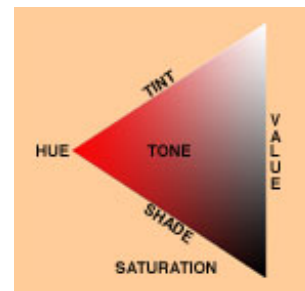
Saturation

The triangle diagrams the relationship between **value** (vertically) and **saturation** (horizontally).

Colour Theories

There are two theories that explain how colours work and interact.

Light Theory

Light theory starts with black -- the absence of light. When all of the frequencies of visible light are radiated together the result is white (sun) light. The colour interaction is diagramed using a colour wheel with **Red**, **Green** and **Blue** as primary colours. Primary here means starting

colours. These are the three colours that the cones in the eye sense. This is an **RGB** colour system (**R**ed, **G**reen and **B**lue).

Pigment Theory

Pigments behave almost the opposite of light. With pigments a black surface absorbs most of the light, making it look black. A white surface reflects most of the (white) light making it look white. A coloured pigment, green for instance, absorbs most of the frequencies of light that are not green, reflecting only the green light frequency. Because all colours other than the pigment colours are absorbed, this is also called the **subtractive** colour theory.

The primary colours in the pigment theory have varied throughout the centuries but now **Cyan**, **Magenta** and **Yellow** are increasingly being used. These are the primary colours of ink, along with black, that are used in the printing industry. This is a **CMYK** colour system (**C**yan, **M**agenta, **Y**ellow and (**K**) black). These are the

Secondary Colours of the Light Theory

Colour Interaction

Much has been said about how colours interact. You rarely see only one colour. When you see two or more colours together they have a profound effect on one another. There are a lot of different possibilities but these three examples will suffice:

In this example the center bar experiences a hue shift.

In this example the center bar seems to changes in value.

In this example the center bar appears to change in saturation

Colour Temperature

The colour wheel is useful in that it shows the relationship between warm and cool colours. This is called **colour temperature** and relates to the sense of temperature each colour imparts.

The colours on the red side of the wheel are said to be **warm** because they are associated with warm phenomena. The green side implies **cool** phenomena. These colour temperature designations are absolute.

2. Warm Colours

Warm colour makes you think of sunlight and warmth. Warm colours include red, orange, yellow and the variations of these three colours. Red and yellow are both primary colours, and the orange colour comes in the middle, which means warm colours are all truly warm and aren't created by combining a warm colour with a cool colour. Warm colours are used to reflect happiness, passion, enthusiasm, and energy in your design.

Red (Primary Colour)

Red is a very hot colour. It is associated with fire, violence and warfare. It is also associated with importance.

Red colour has physical impact on human; it raises blood pressure and respiratory rate. Red colour can also be associated with anger and danger as well.

Red colour acts very powerful in a design. It can have an overpowering effect if it's used too much in designs. It's a great colour to use when power or passion want to be shown in the design.

Orange (Secondary Colour)

Orange is a vibrant and energetic colour. It is associated with earth and autumn. As orange describes change of season, it can be thought of to be a sign of change and movement. As orange is also a name of a fruit so it can be associated with health and energy. Orange colour takes attention without being overpowering like red.

Yellow (Primary Colour)

Yellow is considered to be the brightest and most energizing of the warm colours. Yellow colour can be associated with hope and to some extent for danger.

In your designs, bright yellow can develop a feeling of happiness and cheerfulness. Softer yellows are commonly used as a gender-neutral colour for babies and young children. Dark yellows and gold-hued yellows can sometimes look antique so we can use these colours in the designs where we want to give an effect of long life and stability.

3. Cool Colours

Cool colours are the colour which are related to night, water, nature. Cool colours are calming, relaxing and closer to nature.

Cool colour include green, blue and purple. Among the cool colours, blue is the only primary colour. Other colours are created by combining blue colour with some warm colour. For example blue with yellow for green and with red for purple colour.

Cool colour develop a feeling of relaxation and clamness in your design.

Green (Secondary Colour)

Green colour is the sign of growth, renewal and beginning. Green colour can also represent lack of experience. Green colour is calm like blue but it also have energizing effect of yellow. It has a balancing and harmonizing effect. It can used in the designs representing wealth, stability, renewal and nature.

Blue (Primary Colour)

Blue is used to represent calmness and responsibility. Light blues can be refreshing and friendly. Dark blues are more strong and reliable. Blue is also associated with peace.

The meaning of blue is affected depending on the shade and hue. In design, the exact shade of blue you select will have a huge impact on how your designs are perceived. Light blues are often relaxed and calming. Bright blues can be energizing and refreshing. Dark blues are excellent for corporate sites or designs where strength and reliability are important.

Purple (Secondary Colour)

Purple is associated with royalty. It's a combination of red and blue, and has the attributes of both. It's associated with creativity and imagination.

In Thailand, purple is the colour of mourning for widows. Dark purples are traditionally associated with wealth and royalty, while lighter purples are considered more romantic.

In design, dark purples can give a sense wealth and luxury. Light purples are softer and are associated with spring.

4. Neutral Colours

Neutral colours often serve as the backup colours in design. They're commonly combined with brighter colours. But they can also be used on their own in designs, and can create very sophisticated layouts. The meanings and impressions of neutral colours are very much affected by the colours that surround them in the design.

Black

Black is the strongest neutral colour. On the positive side, it's commonly associated with power, elegance, and formality. On the negative side, it is associated with evil, death, and mystery. Black is the traditional colour of mourning in many countries.

Black is commonly used in edgier designs, as well as in elegant designs. It can be conservative or modern, traditional or unconventional, depending on the colours it's combined with. In design, black is commonly used for typography and other functional parts, because of its neutrality. Black can also be used to add a sense of sophistication and mystery in your design.

White

White is at the opposite of black, but like black, it can be used successfully with any other colour. White is associated with purity, cleanliness, and virtue. In the West, white is commonly worn by brides on their wedding day. It is also associated with the health care industry, especially with doctors, nurses and dentists. White colour is associated with goodness, and angels are also portrayed in white.

When white is used with other colours in design, it increases their effect. It gives a feeling of cleanliness and simplicity. White can represent winter or summer depending upon the colour it is used with.

Gray

Gray is a neutral colour, gives a cool effect. Light grays can be used in place of white in some designs, and dark grays can be used in place of black.

Gray adds a formal effect to design, but can also be modern. It's commonly used in corporate designs, where formality and professionalism are important. It can be a very sophisticated colour. Pure grays are shades of black, gray shades may also have brown or blue effect in them. In design, gray backgrounds and gray typography are very common.

Brown

Brown is the colour of the earth, wood, and stone. It is a completely natural colour and a warm neutral. Brown can be associated with dependability and reliability. It can also be considered dull.

In design, brown is commonly used as a background colour. Sometimes used in wood textures and sometimes in stone textures. It helps bring a feeling of warmth to designs.

Beige and Tan

Beige is a unique colour, as it can take on cool or warm tones depending on the colours around it. It has both the warmth of brown and the coolness of white. It is mostly used for backgrounds and is commonly seen in backgrounds with a paper texture. It will take on the characteristics of colours around it, has little effect in itself on the final impression a design gives when used with other colours.

Cream and Ivory

Ivory and cream are sophisticated colours. They have a little warmth of brown and a lot of the coolness of white. These colours are normally quiet, and give a sense of history.

In design, ivory can add a sense of elegance and calmness. It can also be used to lighten darker colours.

5. Concepts and Terminologies of Colour

The properties of colour help us to define a colour. The better you understand these terminologies the better you will be able to adjust the colours according to your needs. Following colour terminologies are important.
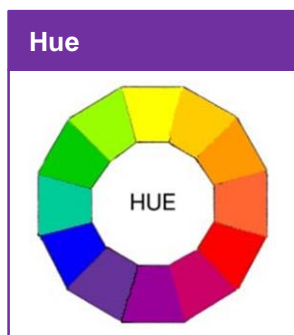
Hue

Hues are the family of twelve purest and brightest colours.

- Three Primary Colours
- Three Secondary Colours
- Six Tertiary Colours

These colour make the full spectrum of primary colour wheel. From these twelve colours you can make infinite number of colour schemes by mixing these hues with other colours.

They can also be used in their purest form too, making a multicolour exciting and cheerful theme. For example children rooms or corners in your advertisement to gain attention

Tones

All the colours we see around us in the world are toned a little or more. This makes them even more pleasing. Tone is created by adding grey to a colour. Any colour that is "greyed down" is said to be toned. Tones are more interesting because they are complex and sophisticated. Painters add a little grey to each colour to adjust the value and intensity.

Saturation

Saturation can also be called intensity of a colour. It is a measurement of difference from a pure colour to pure grey colour. Saturation is not exactly about light and dark, but it means how pale or strong the colour is. The saturation of a colour is not the same, but it changes depending on the surroundings and what light the colour is seen in.

Shades

Shades are created by adding black to a colour. You can mix hue colour together and add a little black to it making the shade on the mixture. Shades vary from the darkest even black to pure hue colour.

Artists don't use shades often because black can destroy the main colour quickly. Shades are deep, powerful and mysterious. Too much use of black can add overpowering.

Chroma

Chroma is the perceived strength of a colour, the degree of visual difference from a neutral grey of the same lightness. Chroma is defined as "colourfulness" of an object relative to the brightness of a white object similarly illuminated.

Tints

Tints are created by adding white to a colour. For a complex tint, mix the desired colours from hues and then add a little white to it.

Tints can vary from pure hue colours to extremely pale or nearly white colour. Artists use tints to give a little body to the colours.
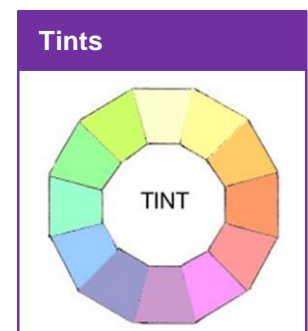
Value

Value refers to the lightness or darkness of a colour. It indicates the light reflected.

Learning Unit 5: Typography

Overview

In this module, you will learn about concept of typography, the expressions of different fonts, their families and the use of typography in design. After completion of this learning unit, you will be able to choose a typeface, make it work with layout, colour scheme and grid design theme.

1. Typography Anatomy, Expression of Different Fonts, their Families and its Use in Graphics Design

Typography

Typography is, quite simply, the art and technique of arranging type in your design. Typeface anatomy describes the graphic elements that make up printed letters in a typeface. In order to become skilled in typography, you need to learn the basic rules.

Anatomy of Typography

Counter

Fully or partially enclosed space within a letter.

Aperture

Opening at the end of an open counter.

Arm

A horizontal stroke not connected on one or both ends.

Ascender

An upward vertical stroke found on lowercase letters that extends above the typeface's x-height.

Baseline

The invisible line where letters sit.

Bowl

A curved stroke that encloses a letter's counter.

Teaching and Learning Material: Information Technology (Computer Graphics - Motion)

Crossbar

A horizontal stroke.

Descender

A downward vertical stroke found on lowercase letters that extends below the baseline.

Diagonal Stroke

An angled stroke.

Ear

A small stroke projecting from the upper right bowl of some lowercase g's.

Finial

A tapered or curved end.

Ligature

Two or more letters are joined together to form one glyph.

Link

A stroke that connects the top and bottom bowls of lowercase double-story g's.

Loop

The enclosed or partially enclosed counter below the baseline of a double-story g.

Lowercase

The smaller form of letters in a typeface.

Pin

hop

Hн

Sale

Get

Fall

Rat

fox

Bat

Serif

"Feet" or non-structural details at the ends of some strokes.

Shoulder

A curved stroke originating from a stem.

Small Caps

Uppercase characters that appear as a smaller size than the capital height of a typeface. Short for "small capitals".

Spine

The main curved stroke for a capital and lowercase.

Spur

A small projection from a curved stroke.

Stem

Primary vertical stroke.

Tail

A descending stroke, often decorative.

Terminal

The end of a stroke that lacks a serif.

Uppercase

A letter or group of letters of the size and form generally used to begin sentences and proper nouns. Also known as "capital letters".

x-height

The height of the main body of a lowercase letter.

Font Families Expressions and their Use in Design

Below are the most used families in design works.

Helvetica
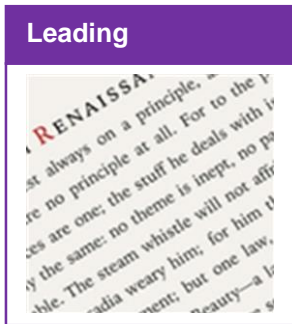**Helvetica**
Helvetica

TRAJAN
TRAJAN
TRAJAN

Futura
Futura
Futura

Garamond
Garamond
Garamond

Bodoni
Bodoni
Bodoni

Bickham Script Pro
Bickham Script Pro
Bickham Script Pro

Leading

Frutiger
Frutiger
Frutiger

2. Colour Scheme and Design Theme (Typeface, Layout, Grid)

Following are the most important typographic considerations that a designer should keep in mind while choosing an appropriate font for the design.

Readability

The type is to read so try hard not to make is difficult to read by using tiny font sizes, crowded line-height or simple plain ugly looking font.

Size

All the typefaces are not equally created. Some are fat and wide others are thin and narrow. Different typefaces occupy different space in the design. So it is important to choose the right type size that fits perfectly in the design.

The most common method to measure the size is point. One point is equal to 1/72 inches. Type size may also be measured in inches, pixels and millimeter.

Leading

Leading is the vertical distance between the lines of type. If there is rich text in your design, in order to make it comfortable to read, use leading greater than the font size used. Normally it is 1.25 to 1.5 times of the font size.

Tracking and Kerning

Kerning means adjusting the space between characters to develop a harmonious effect. For example when an uppercase A meets uppercase V. Their diagonal strokes are kerned so that the top left of V sits at the bottom right of A.

Tracking deals with the spacing of all the character and is applied evenly.

Measure

Measure means the width of the text block. It is important for a good reading experience.

Hierarchy and Scale

If all the text is of same size then reader will not be able to know which of the text was most important so to guide the reader, headings are a bit larger in size, then sub headings are a bit smaller and the regular type is even smaller.

Colour Scheme

While adding type to your design colour scheme is very important part. It is not only about the overall look of the design but also about the readability of text. For example black text on white background is known to be the most readable format. Whatever colour scheme you use, make sure the type is readable.

Grid

Using grid helps you a lot in formulating the layout of your design. If you use the best font, spacing and colours but the layout is not good then your design will be distorted and hard to understand.

Fonts

When choosing a font for your website, your font should be unique. Not only unique but the font should also work well with the design theme and the real feeling of the design.

Learning Unit 6: Tools and Software for Graphics and Artwork Creation
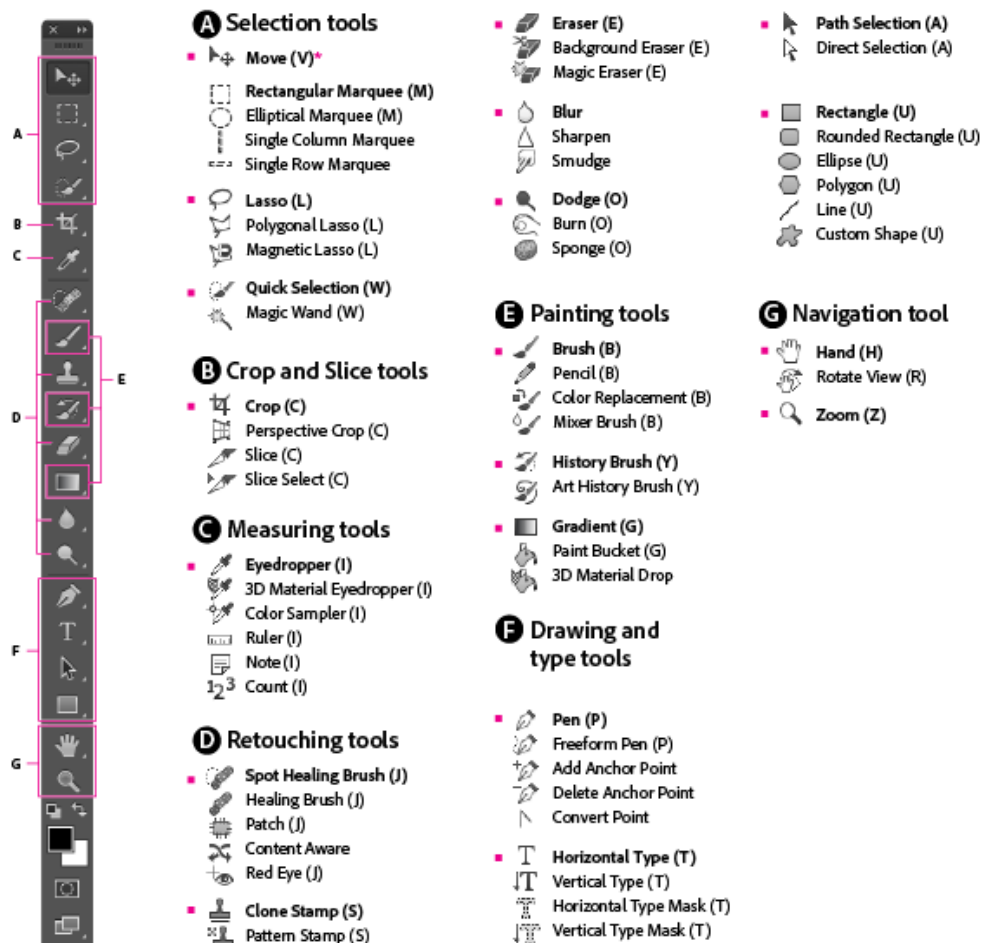
Overview

In this unit, you will learn about and use tools in different graphic software like, Tools in Adobe Photoshop for creating and editing images, graphics, pictures, etc. Tools in Adobe Illustrator for creating and editing type, and text/shapes, tools in Corel Draw. Tools in Adobe Premiere used for collecting, arranging and editing videos.

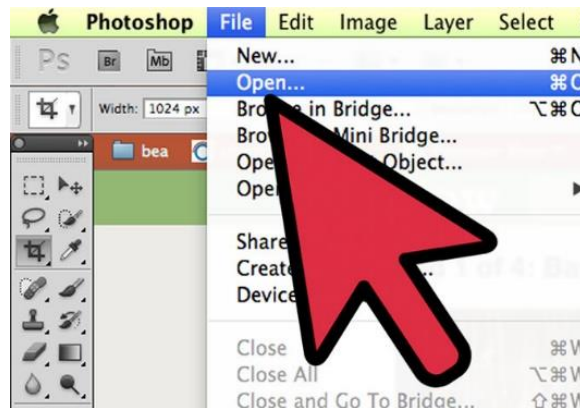## 1. Procedures of Using Tools in Adobe Photoshop

Adobe Photoshop

Adobe Photoshop is a raster graphics editor developed and published by Adobe Systems for Macs and Windows PCs.

Adobe Photoshop is the most commonly used photo editing software used in the world. When you start Photoshop, the Tools panel appears at the left of the screen. You can expand some tools to show hidden tools beneath them. A small triangle at the lower right of the tool icon signals the presence of hidden tools.

Ⓐ Selection tools
- Move (V)*
- Rectangular Marquee (M)
- Elliptical Marquee (M)
- Single Column Marquee
- Single Row Marquee
- Lasso (L)
- Polygonal Lasso (L)
- Magnetic Lasso (L)
- Quick Selection (W)
- Magic Wand (W)

Ⓑ Crop and Slice tools
- Crop (C)
- Perspective Crop (C)
- Slice (C)
- Slice Select (C)

Ⓒ Measuring tools
- Eyedropper (I)
- 3D Material Eyedropper (I)
- Color Sampler (I)
- Ruler (I)
- Note (I)
- Count (I)

Ⓓ Retouching tools
- Spot Healing Brush (J)
- Healing Brush (J)
- Patch (J)
- Content Aware
- Red Eye (J)
- Clone Stamp (S)
- Pattern Stamp (S)

- Eraser (E)
- Background Eraser (E)
- Magic Eraser (E)
- Blur
- Sharpen
- Smudge
- Dodge (O)
- Burn (O)
- Sponge (O)

Ⓔ Painting tools
- Brush (B)
- Pencil (B)
- Color Replacement (B)
- Mixer Brush (B)
- History Brush (Y)
- Art History Brush (Y)
- Gradient (G)
- Paint Bucket (G)
- 3D Material Drop

Ⓕ Drawing and type tools
- Pen (P)
- Freeform Pen (P)
- Add Anchor Point
- Delete Anchor Point
- Convert Point
- Horizontal Type (T)
- Vertical Type (T)
- Horizontal Type Mask (T)
- Vertical Type Mask (T)

- Path Selection (A)
- Direct Selection (A)
- Rectangle (U)
- Rounded Rectangle (U)
- Ellipse (U)
- Polygon (U)
- Line (U)
- Custom Shape (U)

Ⓖ Navigation tool
- Hand (H)
- Rotate View (R)
- Zoom (Z)

Open an image in Adobe Photoshop as

1- Open Adobe Photoshop and click at File->Open
2- Select the image file to be opened and click at open. The file will be opened in Adobe Photoshop and now you can use different tools on it.

Using Selection Tools

Marquee Tool (*make rectangular, elliptical, single row, and single column selections.)*

1- Select the marquee tool by clicking at the icon in the toolbox.
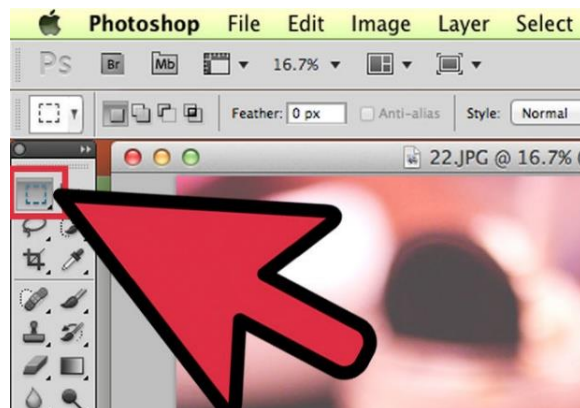
2- Clicking and holding on the Marquee icon will give you a small popup menu where you can select the variations: Rectangular marquee, Elliptical marquee, for selecting circles and ovals and a single-pixel marquee for both horizontal and vertical.

3- For now, select the Rectangular marquee, place your cursor somewhere in the upper left of the image, then click and drag the mouse. You will see the selection expands with the pixel values to the right of the selection.

4- From here, you can copy the selection, move it, and apply filters to it. Almost everything you do in Photoshop starts with a selection.

**Lasso Tool** *(make freehand, polygonal (straight-edged), and magnetic (snap-to) selections.)*

1- Select lasso tool from toolbox. Its variants include the Polygonal Lasso tool, and the Magnetic Lasso tool.
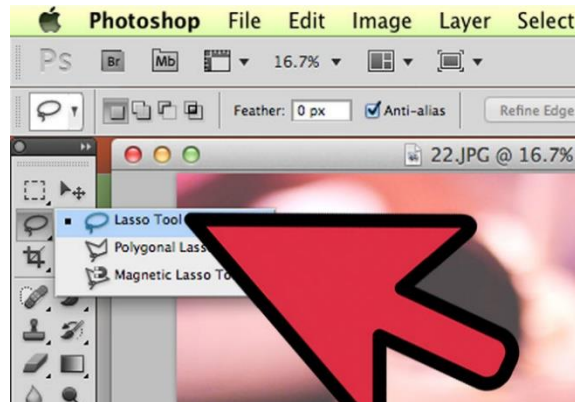
2- Click and hold the mouse button and then draw around some object on the image. As you reach the last point, release the mouse button and the selection will auto-complete.


3- Polygon Lasso Tool works in the same way. Click at some point after selecting polygon lasso tool. As you move your mouse you will notice that the starting point is pinned and a dashed line extends towards cursor. Click again, and that next point becomes pinned. You can continue clicking until your selection is complete. At the end double click and the selection will auto complete.

4- Press the Escape key at any time to cancel the selection in progress.

Using the Crop Tool (*The Crop tool trims images*)
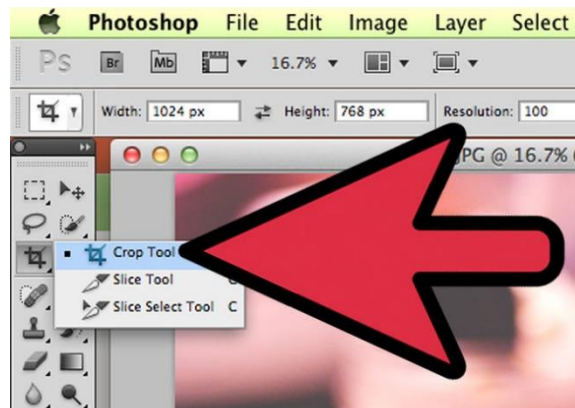
1- Select the crop tool from toolbox as
2- To crop an image, either drag the handles to surround the part of the image you wish to keep, or click and drag inside the image to draw the area to crop.
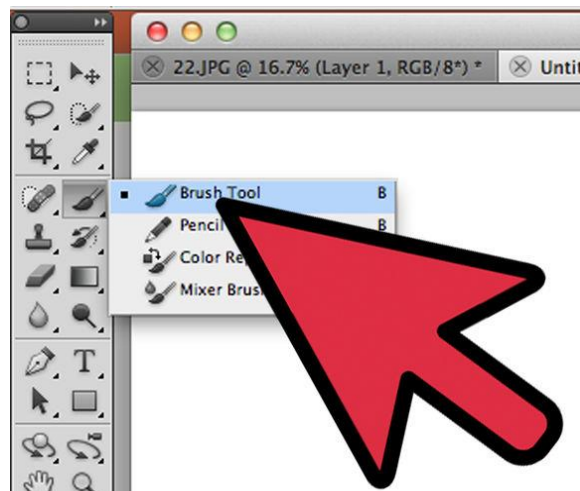

3- Then press Enter
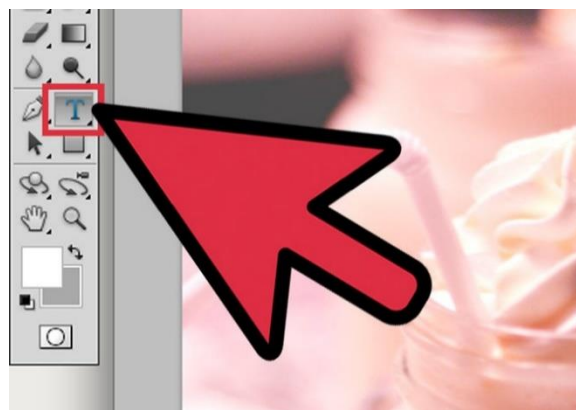
Using the Text Tool   Select the text tool from toolbox

1- Click anywhere in the image, a box with a blinking cursor will appear.
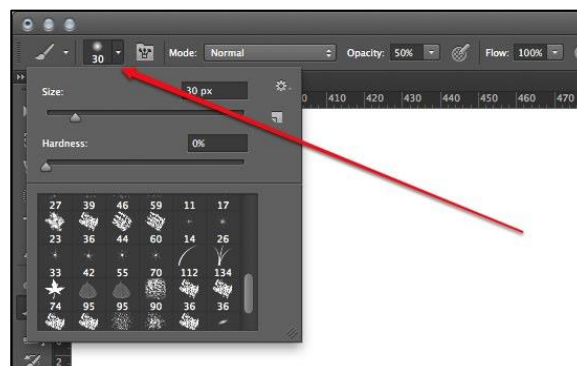2- Adjust the font setting at the top. Containing, font size, family, color, wrap, justification etc.

Using the Brush Tool *(Paints the brush strokes)*
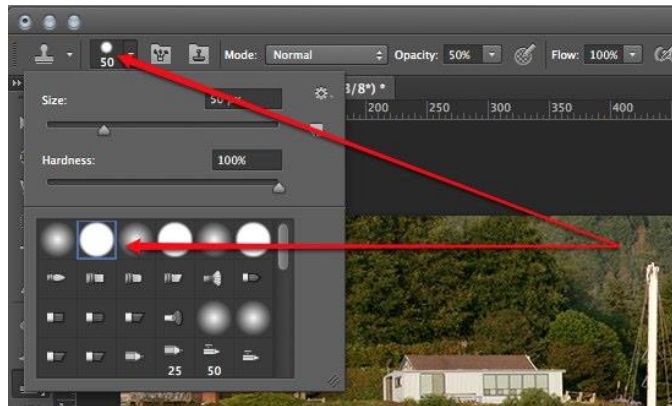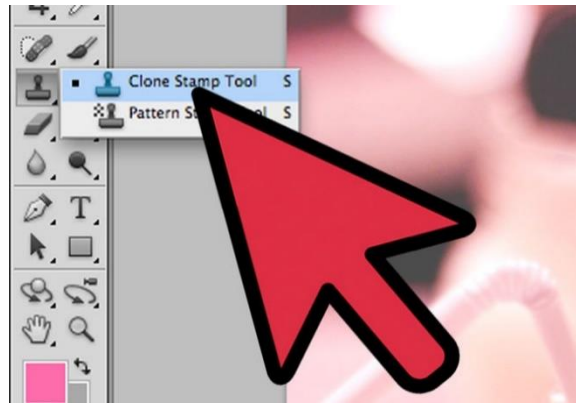
    1- Select the brush tool from toolbox as

    2- Pick a color for the brush by clicking at the foreground color chip a color picker window will appear. Select a color.

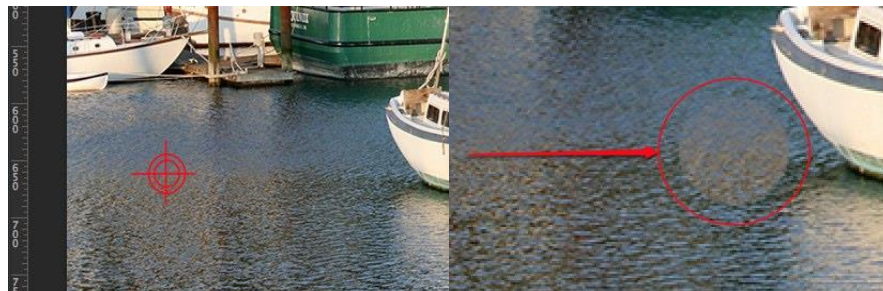   3- Select the size and softness of brush from top left corner

    4- Draw the strokes on the canvas.

Using the Clone Stamp Tool *(paints with a sample of an image.)*

    1- Select the clone stamp tool from toolbox.

2- Select the brush type from the top left corner.

3- Before you can clone the image, you need to select what you're actually copying. Holding down the Option (Alt) key, and click on the image about where you want to set the source as shown by the red target.
4- Click and hold the mouse button and paint on the other side of image as shown in the about right image.

Using Spot Healing Brush *(paints with a sample or pattern to repair imperfections in an image.)*

1- From the toolbar, select the spot healing brush.
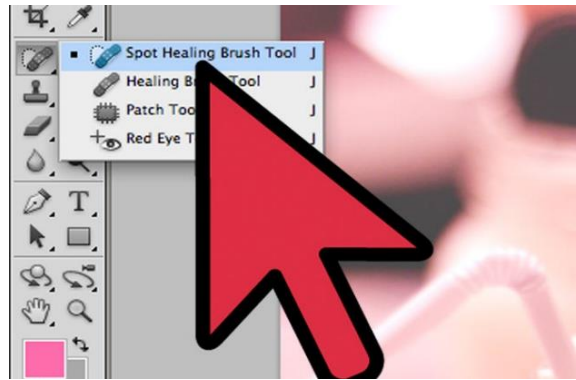
2- Alt-click (click holding down [Alt] key) somewhere on your image to define a sampling point.
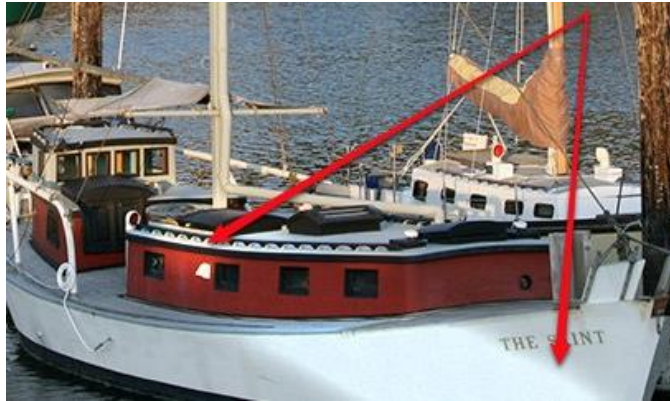3- Paint with the Healing Brush Tool on the damaged area.

Using Dodge Tool *(lightens areas in an image.)*
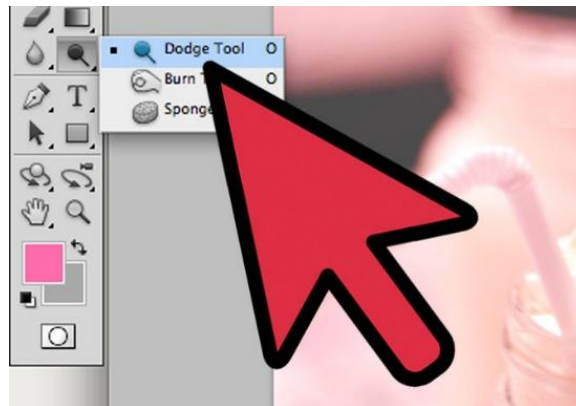
1. Select the Dodge tool from toolbox.

2. Adjust the size, hardness and exposure in the brush palette.
3. Drag the dodge tool on the image and it will lighting effect on the image as in the below image a lighting effect is added at the white boat.

2. Using Tools in Adobe Illustrator for Creating & Editing

Type on a Path

1- Open Adobe Illustrator.
2- Open your image as File->Open->Click at the image->Open.
3- Draw a straight line using pen tool from the Tools Panel.
4- Select convert anchor point tool, and drag the handles of one anchor point to a 45 degree angle. This will create a small arc.
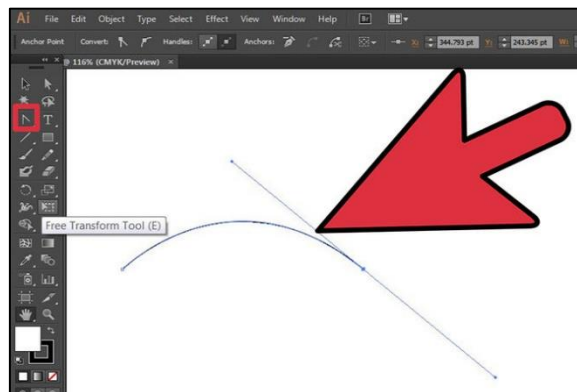
5- Hold the mouse on the Type Tool (T) in the Tools Panel to view the fly out menu. Select the Type on a Path Tool and click on the top of the arc in the image.
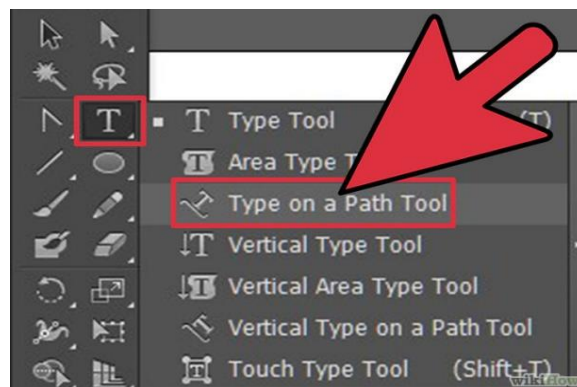
6- From the top menu, choose Window > Type > Paragraph. In the Paragraph Menu, select Align Left. Type a phrase and the text will begin on the left side of the arc and follow the path.
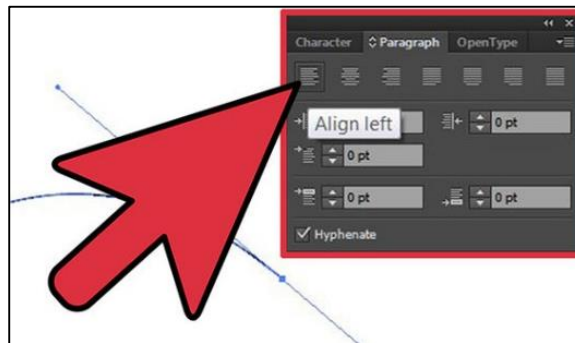
7- To move the text on the path, select the Direct Selection Tool (A) from the Tools Panel and click on the left bracket (near the anchor point). A small perpendicular icon will appear.
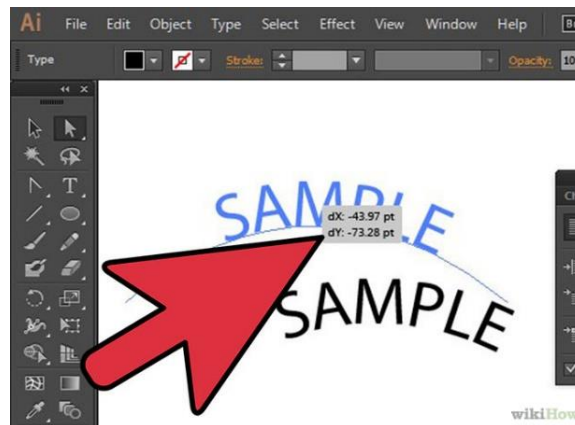
Text on a shape

1- Draw a circle using the Ellipse Tool from the Tools Panel. Select the Type on a Path Tool as before in above method.
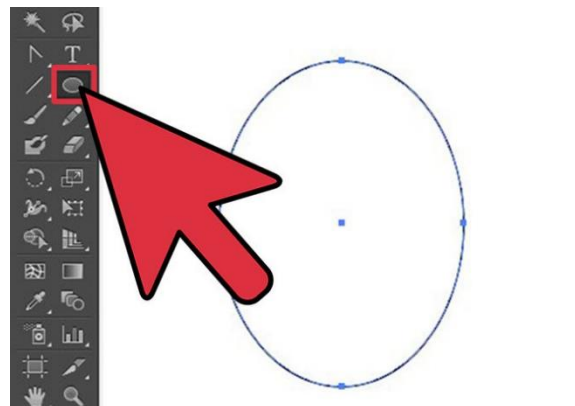
2- Click on the top center of the circle and begin typing. Again, use the brackets and perpendicular icon to drag the text along the circle.
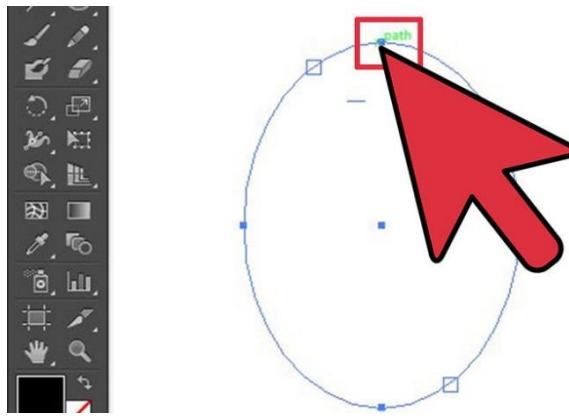
3- Repeat the same steps for text on polygon, square etc.

Create a Text Box
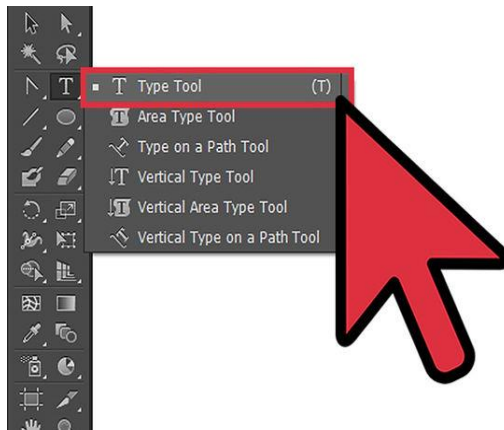
1- Select type tool Icon from Toolbar
2- Drag mouse to create the size of your text area.
3- Type the text in text box.
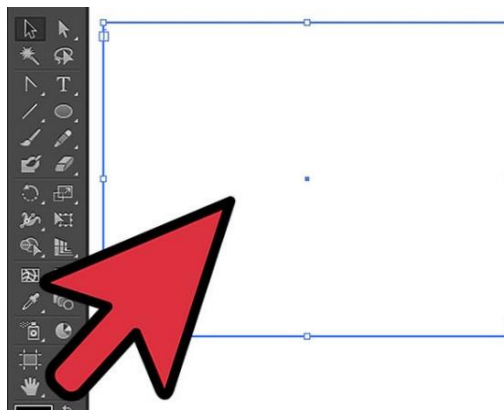
Changing Font Color

1- To change your font color, look at the color icon, you will see a fill and stroke. Click at the part you want to change color, for example, if you want to change a fill color, click at fill icon before choose a color. Below picture shows a font with fill color and stroke set to none.
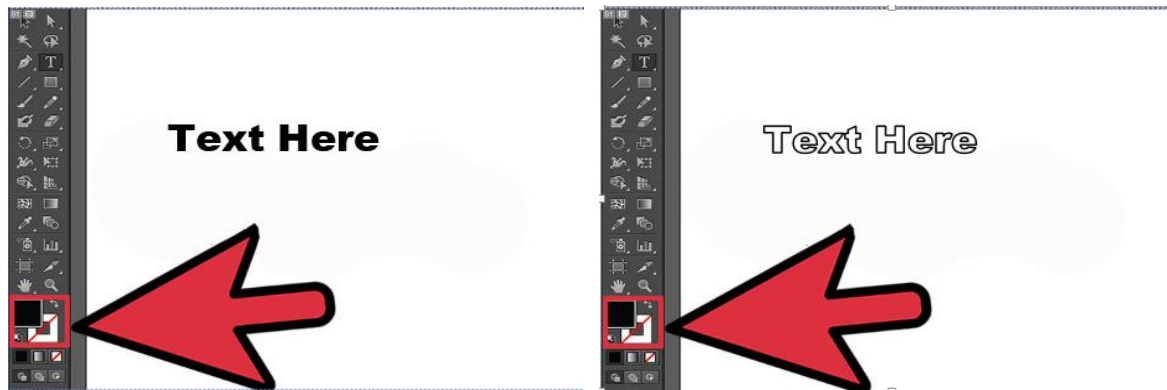
2- The below picture shows text with stroke only.
3- To change the font color, click on your font and then select which part you want to change (fill or stroke). Select the color from Color panel.
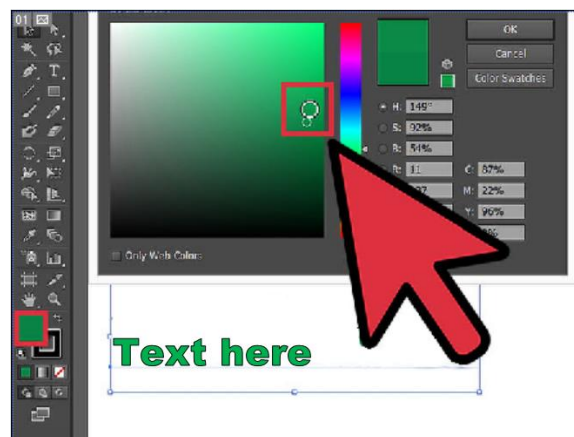
Character Panel

This is a panel in Adobe Illustrator where you can alter the appearance of your type character by character.
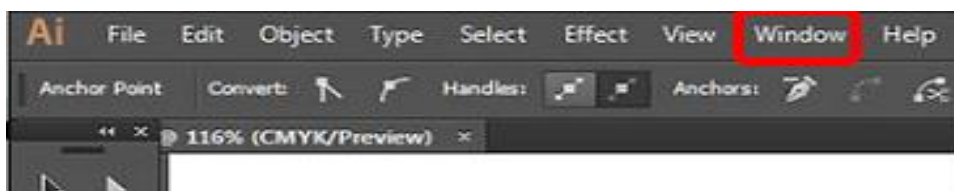
1- Open character panel as window->type->character

2- In the character panel, you can make following changes
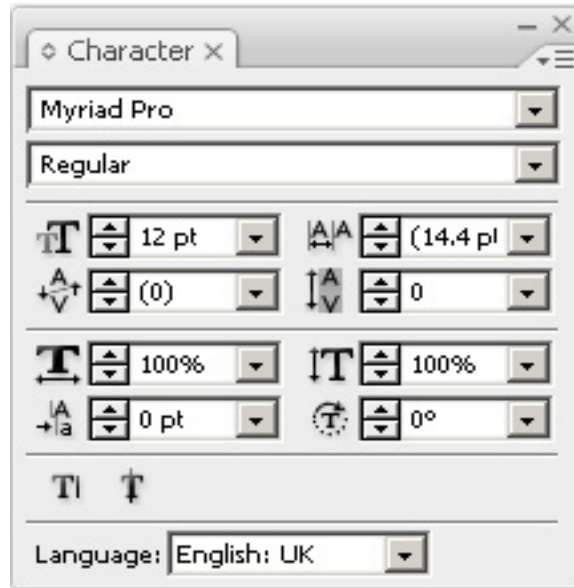
- Font family (in this case Myriad Pro)
- Font style (version of the font such as Regular, Bold, Light, Condensed etc.)
- Leading (line-height)
- Kerning (spacing between two characters)
- Tracking (character spacing across a selection)
- Horizontal scale (character width)
- Vertical scale (character height)
- Baseline shift (height of baseline upon which text sits)
- Character rotation (rotation in degrees of specified characters)

Paragraph Panel
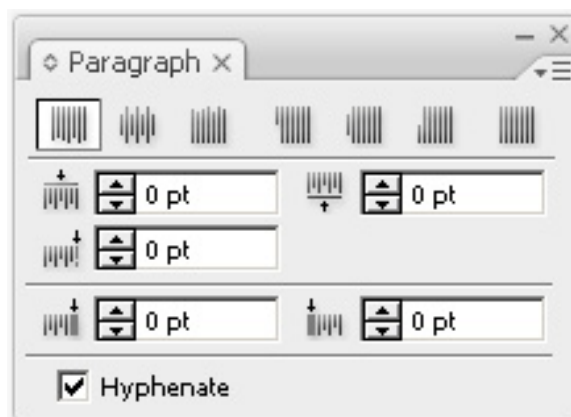
1- Open paragraph panel as window->type->paragraph
2- You can make following changes to paragraph in this panel
3- You can change here indentation, alignment, and spacing above and below paragraphs.
4- You can also put hyphenation On or Off.

3. Using Tools in Corel Draw

A view of Tool Box Bar
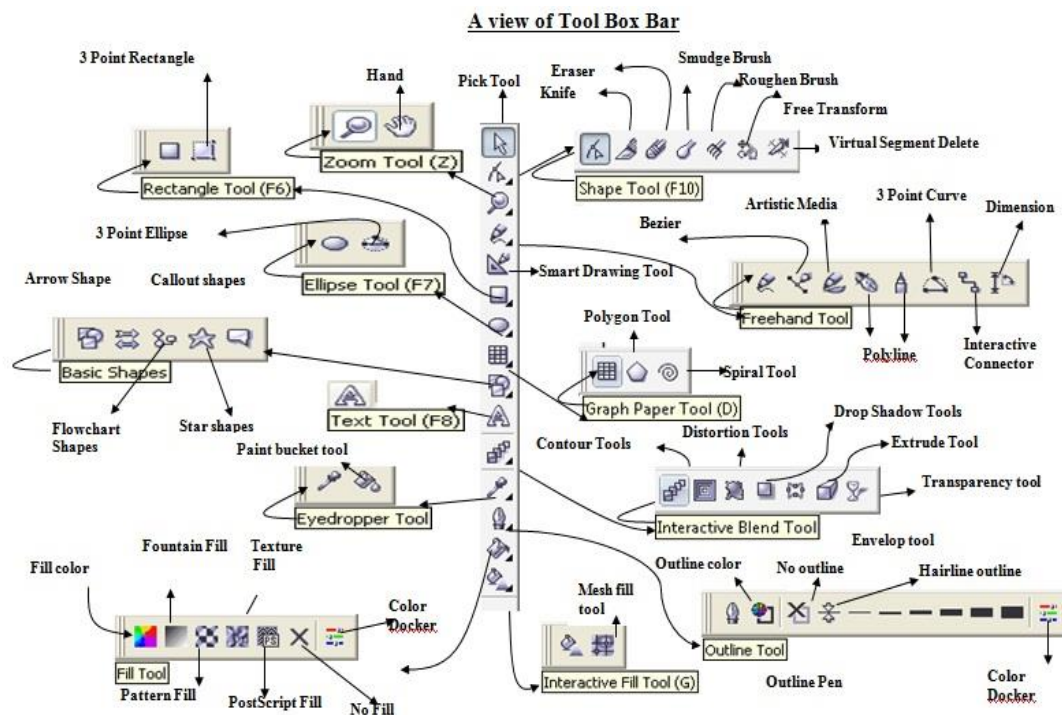
Snap to Grid

To force an object that is being drawn or moved to align automatically to a point on the grid, a guideline, or another object.

1. Click **View→ Snap to objects setup**.

Snapping Mode	Description	Snap Indicator
Node	Snap to an object's node	□
Intersection	Snap to a geometric intersection of objects	◇
Midpoint	Snap to a line segment midpoint	△
Quadrant	Snap to points that are at 0°, 90°, 130°, and 270° on a circle, ellipse, or arc	◇
Tangent	Snap to a point on the outside edge of an arc, circle, or ellipse where a line will touch but not intersect the object	σ
Perpendicular	Snap to a point on the outside edge of a segment where a line will be perpendicular to the object	⌐
Edge	Snap to a point that touches the edge of an object	✛
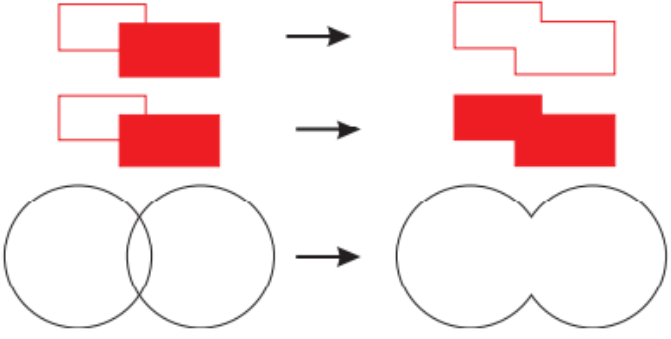
Center	Snap to the center of the closest object (arc, regular polygon, or curve centroid)	⊕
Text baseline	Snap to a point in the baseline of artistic or paragraph text	◇
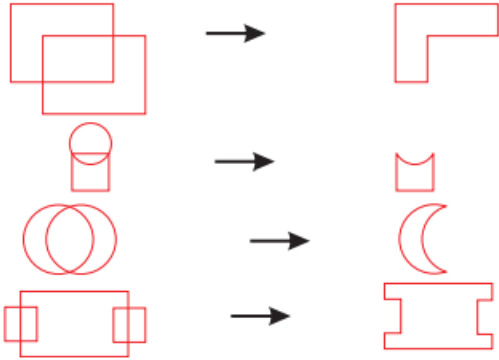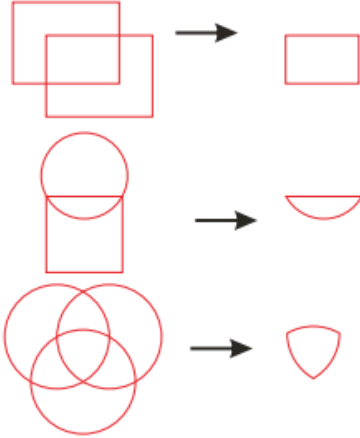
Working with Basic Shapes

There are four basic shapes in Corel Draw which are:

1. Freehand Tool
2. Rectangle Tool
3. Ellipse Tool
4. Polygon Tool

Control Points
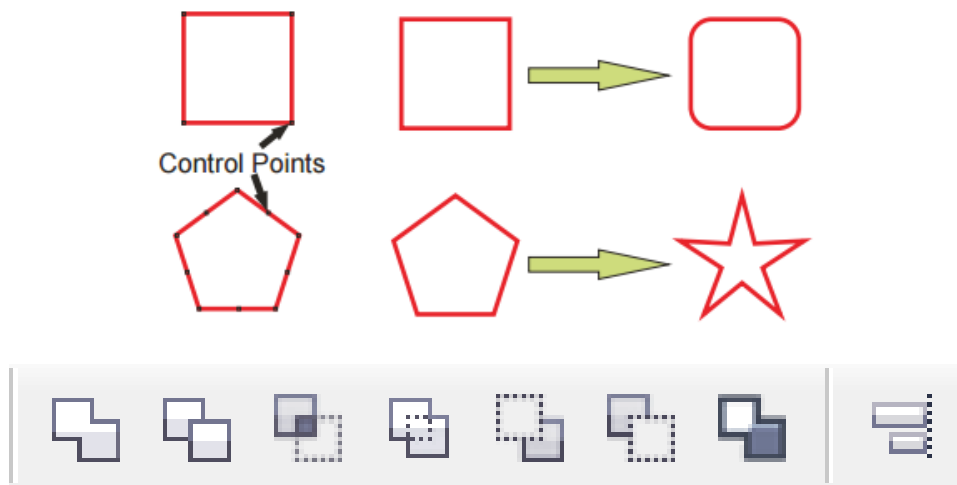
Command	Effect
The Weld Command	

The Trim Command	
The Intersect Command	
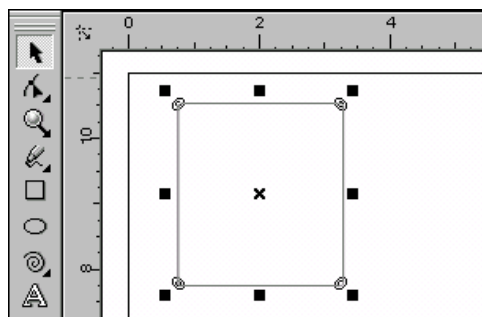
Pick Tool Selection

1. Click at the pick tool from the toolbox.
2. Click at the object.
3. Now you can resize the object by dragging the handles.
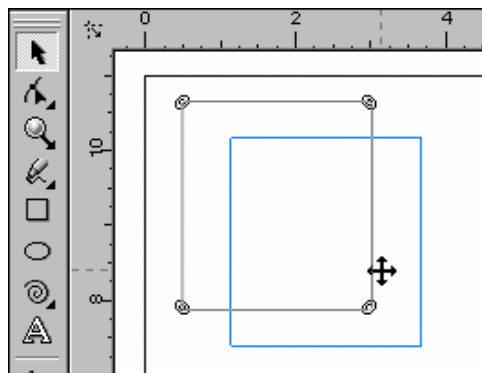
Move Object

1. Click at the object.
2. Click and drag the object to desired location.
3. Leave the mouse.

Rotate Object

1. Double click the Object.
2. The handles will change into double headed arrows.
3. Click and drag any arrow to rotate from that corner.
4. Hold Ctrl key to rotate with 15 degree angle increments.
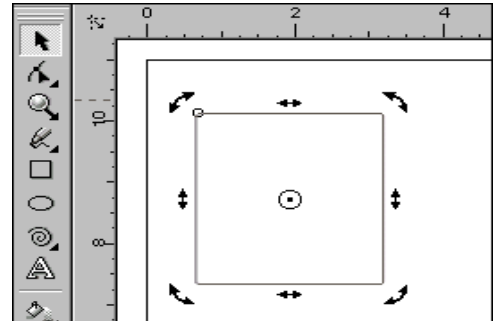
Skew Object

1. Double click the rectangle.
2. Double-ended selection arrows will appear.
3. Click and drag on one of the side handles to skew the rectangle.
4. Release mouse button when desired effect is created.
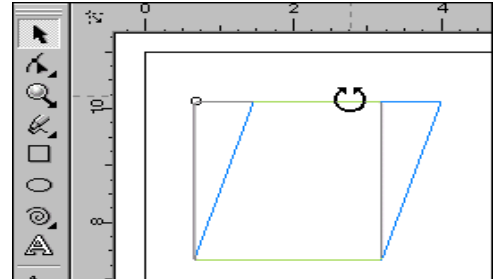
Shape Tool Selection

1. Draw a rectangle.
2. Choose the Shape Tool from the Toolbox and click on the rectangle.
3. Note the selection now appears as four corner handles and dotted lines. This indicates that the object is active with the Shape Tool.
4. Click and drag on one of the corner handles. Note how the corners become round.
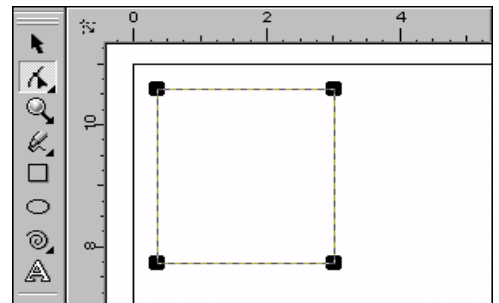
Create Rectangle

1. Choose Rectangle Tool.
2. Click and drag to create rectangle of the shape and size you desire.
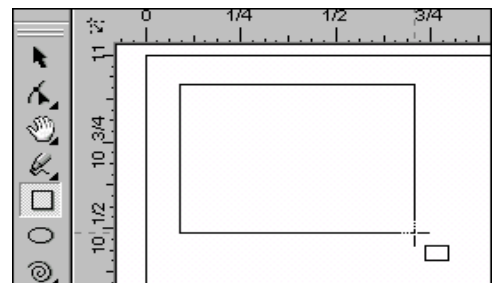
Create and Ellipse or Circle

1. Click at ellipse tool from toolbox.
2. Draw an ellipse or hold down ctrl button and draw a circle.
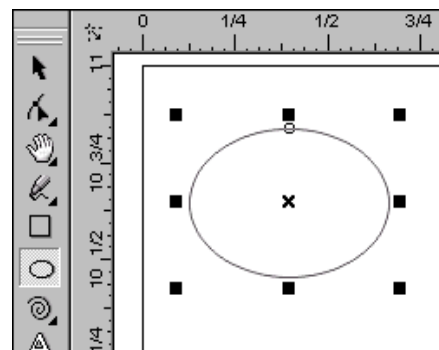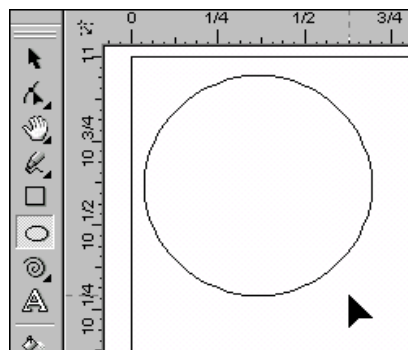
Create a Spiral Object

1. Choose Spiral tool from toolbox.
2. Draw a spiral by holding and dragging mouse.
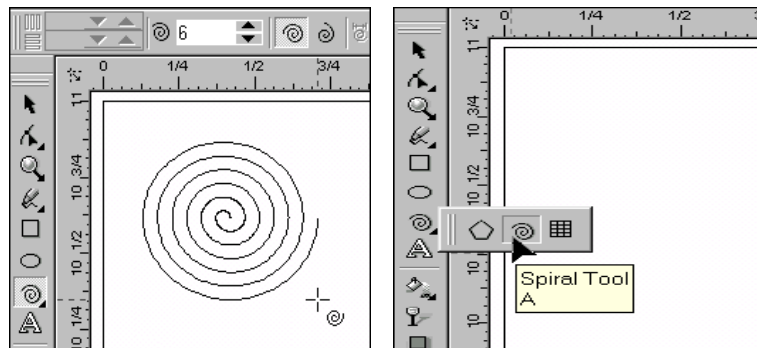
Smudge Brush
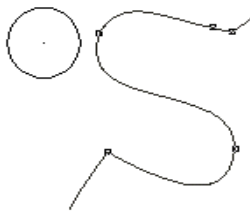
Change the shape of an object by dragging along its outline.

1. Click at the smudge brush in toolbox.
2. Click at the inner side of shape to move it inwards
3. Click at the outside of shape to move it outwards

Roughen Brush Tool
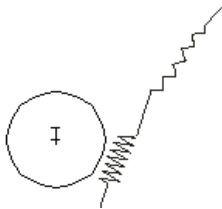
Distort the edge of an object by dragging along its outline.

1. Click at roughen brush tool in toolbox.
2. Point the brush along the outline of object to rough its outline.

Twirl Tool

Add swirl effects by dragging along the outline of an object.

1. Click at twirl button in toolbox.
2. Click at the object's outline and hold until twirl is of desired size.

Knife Tool

Slice an object to split it into two separate objects.

1. Click at knife tool.
2. Point the knife at the outline of the object where to want to start cutting.
3. Click and drag the knife along the path towards the target point.
4. Release the mouse.
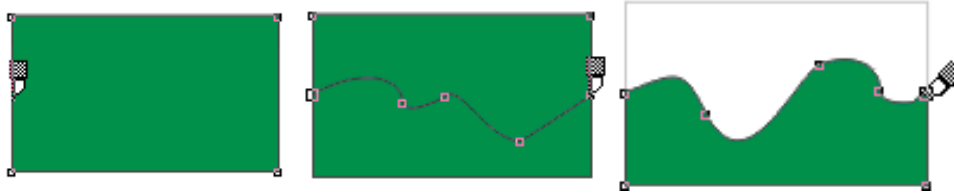
Eraser Tool

Remove unwanted areas in a drawing.

1. Click at the erase tool.
2. Drag over the part of object where you want to erase.
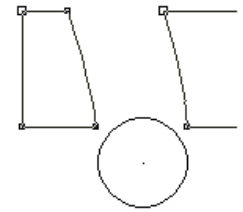
Bezier tool

Draw curves one segment at a time.

1. Select the Bezier tool.
2. Start drawing by clicking at drawing area.
3. To draw a straight line point to the end point and click.
4. To draw a curve, drag to define it.
5. Use shape tool to redefine the shape later.
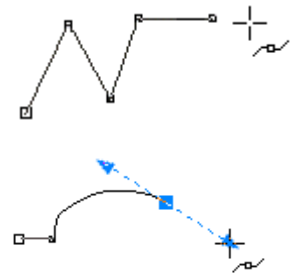
Blend Tool

Blend objects by creating a progression of intermediate objects and colours.

1. Draw to objects in the drawing.
2. Select the blend tool.
3. Click at the first object and then drag towards the second object.
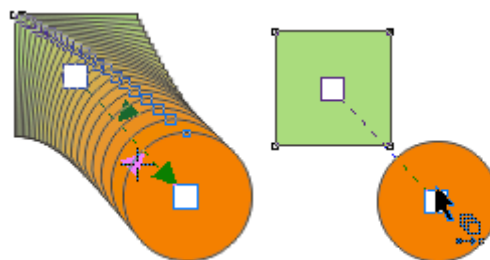
4. A series of blended objects will be created from starting point to ending point.

4. Adobe Premiere - Work Interface

Interface of Adobe Premiere

Each workspace item appears in its own panel, and multiple panels can be combined into a single frame. Some items with common industry terms stand alone, such as Timeline, Audio Mixer, and Program Monitor. The main user interface elements are as follows:

1. **Timeline Panel:**

   This is where you'll do most of your actual editing. You view and work on *sequences* (the term for edited video segments or entire projects) in the Timeline panel.

2. **Tracks:**

   You can layer or composite video clips, images, graphics, and titles on an unlimited number of tracks. Video clips on upper video tracks cover whatever is directly below them on the Timeline. Therefore, you need to give clips on higher tracks some kind of transparency or reduce their size if you want clips on lower tracks to show through.

3. **Monitor Panels:**

   You use the Source Monitor (on the left) to view and trim raw clips (your original footage). To view a clip in the Source Monitor, double-click it in the Project panel. The Program Monitor (on the right) is for viewing your sequence.

4. **Project Panel:**

   This is where you place links to your project's media files: video clips, audio files, graphics, still images, and sequences.

5. **Media Browser:**

   This panel helps you browse your hard drive to find footage. It's especially useful for file-based camera media.

6. Effects Panel:

This panel contains all the clip effects, you will use in your sequences, including video filters, audio effects, and transitions (docked, by default, with the Project panel). Effects are grouped by type to make them easier to find.

Effect Panel

7. Audio Mixer:

This panel (docked, by default, with the Source and Effect Controls panels) is based on audio production studio hardware, with volume sliders and panning knobs. There is one set of controls for each audio track on the Timeline, plus a master track.

Audio Mixer

8. Effect Controls Panel:

This panel (docked, by default, with the Source and Audio Mixer panels, or accessible via the Window menu) displays the controls for any effects applied to a clip you select in a sequence. Motion, Opacity, and Time Remapping controls are always available for visual clips. Most effect parameters are adjustable over time, allowing you to animate effects.

9. **Tools Panel:**

   Each icon in this panel represents a tool that performs a specific function, typically a type of edit in a sequence.

10. **Info Panel:**

    The Info panel presents information about any asset you select in the Project panel or any clip or transition selected in a sequence.

11. **History Panel:**

    This panel tracks the steps you take and lets you back up easily. It is a kind of visual Undo list. When you select a previous step, all steps that came after it are also undone.

5. Sound Forge Pro for Audio – Work Interface

Sound Forge Pro is the application of choice for a generation of creative and prolific artists, producers, and editors. Record audio quickly on a rock-solid platform, address sophisticated audio processing tasks with surgical precision, and render top-notch master files with ease.

Work Environment of Sound Forge Pro

1. **Menu Bar**

   Displays the menu headings for the available functions.

2. **Standard Toolbar**

   Provides quick access to some of the most common tasks in the application.

3. **Transport Bar**

   Provides quick access to basic audio transport functions.

4. **Status Bar**

   Help and processing information is displayed on the left side. The boxes on the right side display the playback sample rate, bit de path, channel configuration, length of the active data window, CD time remaining, and total free storage space.

5. **Workspace**

   This is the area located behind the data windows. Audio selections dragged to the workspace automatically become new data windows. Windows such as the Regions List and Playlist can be docked along the edges of the workspace or in floating window docks.

6. **Channel Meters**

   Displays the level of the output audio signal. These meters can be toggled on/off by choosing Channel Meters from the View menu. Right-clicking the channel meters displays a shortcut menu that allows you to precisely configure the appearance of the meter.

Summary of Module

- Dot/ Point is the smallest and the most basic element of design which catch the attention. A line is a series of points. A shape is a self-contained defined area of geometric or organic form.

- Horizontal suggests calmness; Vertical gives a feeling of balance, formality and alertness. Oblique give a feeling of movement and action.

- Size means how big or how small should an element be in the design. Texture gives your design piece a specific look and feel. Value means the darkness or the lightness of something. It also refers to the colour of a design element.

- You can have balance in your design by adjusting the graphical weight of your design elements in terms of colour, size, contrast etc. Gradation applies to the incremental change in the state of a design element.

- Contrast simply tells us where to look first. Harmony in visual design means all parts of the visual image relate to and complement each other. The principle of dominance occurs where you need to emphasize on some design element.

- Perspective means use of techniques to draw a 3 dimensional scene on 2 dimensional surfaces.

- Warm colour make you think of sunlight and warmth. Cool colours are calming, relaxing and closer to nature. Neutral colours often serve as the backup colours in design.

- Hues are the family of twelve purest and brightest colours. Tone is created by adding grey to a colour. Saturation can also be called intensity of a colour. Shades are created by adding black to a colour. Tints are created by adding white to a colour. Value refers to the lightness or darkness of a colour.

- Typography is, quite simply, the art and technique of arranging type in your design. While choosing a type for your design. you need to keep in mind the readability, size, leading, measure, hierarchy, colour scheme, grid and font etc.

Frequently Asked Questions (FAQs)

FAQ 1:	What is straight line?
Answer:	The notion of line or straight line was introduced by ancient mathematicians to represent straight objects having no curvature with negligible width and depth.

FAQ 2:	What is a Mechanical shape?
Answer:	Mechanical shapes are those made with straight lines, circles and/or parts of circles -- the shapes you can make with a ruler and a compass. These are man-made shapes sometimes called geometric shapes.

FAQ 3:	Identify positive and negative spaces in the following shape?
Answer:	Positive and negative spaces are Label as below.
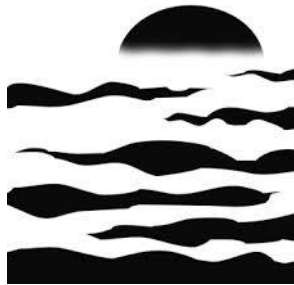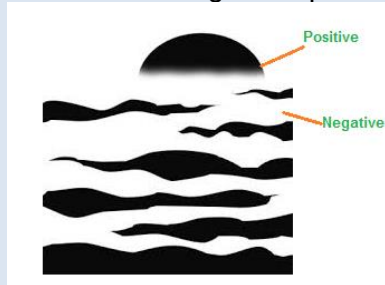
FAQ 4:	What feelings do the directions of lines convey?
Answer:	Horizontal lines convey the feeling of relaxation and calmness. Vertical lines give a feeling of balance and formality. Oblique lines give a feeling of movement and action.

FAQ 5:	What are the types of texture?
Answer:	There are two types of texture. Tactile texture is a texture that can be felt. Visual texture is the illusion of texture printed on paper.

FAQ 6:	How can we achieve balance in the design?
Answer:	Balance can be achieved in design by adjusting the graphical weight of the design elements in terms of colour, size and contrast.

FAQ 7:	What are the types of balance?
Answer:	Symmetric Balance and Asymmetric Balance.

FAQ 8:	Identify dark to light perspective concept in the following shapes?
Answer:	The label shows the dark to light perspective concepts
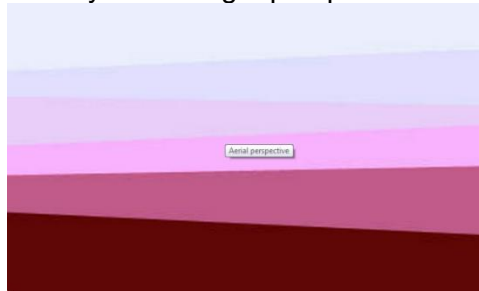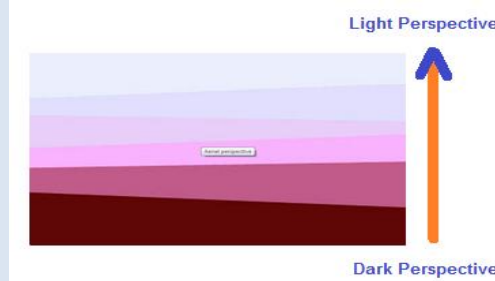
FAQ 9:	What is gradation and what happens when we apply gradation by size and direction?
Answer:	Gradation means the gradual change. When we apply gradation to the size and direction, it gives an illusion of increase in distance.

FAQ 10:	Why is variation important in repetition?
Answer:	If there is no variation in a design with repetition, our brain will have just one look at the design and will understand that rest of the shapes are identical. That will add a monotone effect to the design.

FAQ 11:	Where can we apply contrast in design?
Answer:	Contrast can be used in colour (opposite colours on the colour wheel), in value (dark vs light), in texture (smooth vs rough) or in direction (horizontal vs vertical).

FAQ 12:	Define Harmony?
Answer:	Harmony in visual design means all parts of the visual image relate to and complement each other.

FAQ 13:	What are the types of unity?
Answer:	Visual Unity where all the shapes or elements are aligned along the same axis and the colour and style of elements work together to create a meaning. Conceptual Unity where all the images in the design follow the same concept.
FAQ 14:	How to achieve perception in design?
Answer:	Perception can be achieved through the use of relative size objects, overlapping objects, blurring or sharpening objects.
FAQ 15:	What is the effect of different colours in design?
Answer:	Warm colours make you think of sunlight and warmth. Cool colour. Cool colours are calming, relaxing and closer to nature. Neutral colours often serve as the backup colours in design
FAQ 16:	What is typography?
Answer:	Typography is the art and technique of arranging text in your design.

Test Yourself!

Please mark the correct one from the given options. You can check your answer with the Answer Key at the end of this module.

1. Which of the following is NOT a design element?

a. Line   b. Balance

c. Point   d. Shape

2. Which of the following is an organic shape?

a. Square   b. Triangle

c. Tree   d. Circle

3. How is the negative space added to the design.

a. Artist adds negative space himself   b. Positive space automatically creates negative space

c. Developed by the colour around the shape   d. Present inside the positive shape

4. Tactile texture is _____.

a. The texture that is of bright colours   b. The texture that can be seen

c. The Texture that can be felt   d. The texture that can be used at many places

5. _____ is the illusion of texture printed on paper.

a. Tactile Texture.   b. Natural Texture

c. Artificial Texture   d. Visual Texture

6. In _____ visual weight of the design element in your design is equally divided.

a. Symmetric Balance   b. Asymmetric Balance

c. Balance by value   d. Balance by shape

7.   Gradation means.

a.   Decrease in size of object

b.   Increase in size of object.

c.   Gradual Increase in distance

d.   Gradual change in the state of objects

8.   Using variations, we can avoid _____ in repetition.

a.   Distortion

b.   Monotone effect

c.   Ambiguity

d.   Balance

9.   Lack of _____ is the reason of camouflage.

a.   Repetition

b.   Balance

c.   Unity

d.   Contrast

10.   Conceptual unity means _____.

a.   All the images in design following the same concept

b.   All the images in design are at the same location

c.   All the images have the same colour

d.   All the images have the same contrast

11.   Unity is important in design to _____.

a.   Make design Unique

b.   Change the overall look

c.   Convey a single idea

d.   Dominate and element

12.   _____ are on the horizon line where receding lines converge.

a.   Convergence

b.   Atmospheric Perspective

c.   Linear Perspective

d.   Vanishing Points

13   Find the INCORRECT option, Perspective can be achieved through.

a.   Relative size objects

b.   Introducing vanishing points

c.   Overlapping Objects

d.   Blurring and sharpening Objects

14. _____ **is created by adding a little black to a colour.**

a. Tint

b. Hue

c. Shade

d. Tone

15. **An upward vertical stroke found on lowercase letters that extends above the typeface's x-height.**

a. Ascender

b. Descender

c. Crossbar

d. Baseline

16. _____ **means adjusting the space between characters.**

a. Leading

b. Tracking

c. Measure

d. Kerning

Answer Key

MCQ No.	Correct Answer
1	b
2	c
3	b
4	c
5	d
6	a
7	d
8	b
9	d
10	a
11	c
12	d
13	b
14	c
15	a
16	d

Module 2: Develop Design Concept

Learning Outcomes

After completion of this learning module, you will be able to:

- Have an understanding of requirements and needs of target market/ audience

- Identify the unique selling point of product or service

- Express implement the idea in visual form as design and/or video depending on client's requirement

- Design effective brand guidelines

- Develop colour themes based on brand guidelines

- Use of brand guidelines in their design creation

- Create story board showing individual scenes to compose video

- Draw thumbnails to show composition of scenes

- Allocate time duration in seconds to each scene

Learning Unit 1: Identify Unique Selling Point (USP) of Product / Service

Overview

In this learning unit, you will learn different concepts involved in understanding the needs of client to identify the unique selling point of product. After the completion of this learning unit, you will be able to demonstrate the analysis of need of the market and client's emotional needs to be met. You will be able to understand client's buying decision and design your unique product or service.

1. Extraction of USP

Unique Selling Point

When we look around us, very few businesses are found to be unique. For example there is a plenty of clothing retailers, hardware stores, air conditioning installers and electricians. When your service or product is similar to those around you, you need to find out unique factor about your product of service that makes it stand out in competition.

Unique selling point is the key to effective selling. Unless you point out what makes your product unique in a world of homogenous products, you cannot target your sales efforts effectively.

Extraction of USP

Identifying USP requires a lot of searching and creativity. One way is to start analyzing how other companies use their USP for their benefit. You can understand what other companies say they sell. In this way you can learn what makes these companies different from their competitions.

> **USP**
>
> The factor presented by a seller as the reason that one product or service is different from and better than that of the competition is called Unique Selling Point.

USP can be based upon the following:

- Product characteristics,

- Price structure,

- Placement strategy or

- Promotional strategy.

These are also called the "4 Ps" of Marketing. They are used to give your product a market place.

For example, Blue Band is a daily source of essential fats and vitamins that help children to grow, develop and thrive. So they based their USP at product characteristics. Some airlines sell friendly, while others sell on-time service. "Metro Cash & Carry" & "Hyperstar" use "4 Ps" for selling products at its stores.

Find Unique Selling Point for your Product
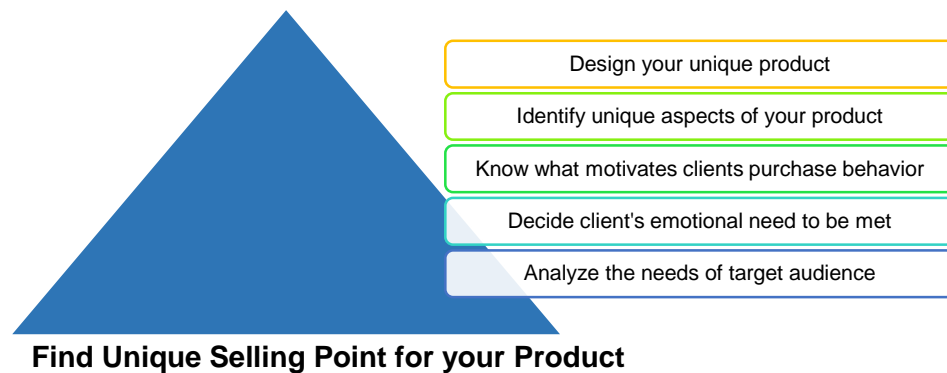
2. Analyze Needs of Target Market / Audience

Remember
Demand is the economic principle that describes a consumer's desire, willingness and ability to pay a price for a specific good or service.

In order to make your product successful, you need to satisfy the needs of your target market. For this purpose, step back from your daily operations and carefully inspect what your customers really want. Suppose customers purchase your product but you should know, is the product only thing they want? What can make your customers to come again and again to you? You can improve the quality of product, convenience, friendliness, cleanliness, and courtesy or customer service.

Price is never the only reason people buy. If your competition are ahead of you in pricing because they are larger, you have to find another sales feature that addresses the customer's needs and then build your sales and promotional efforts around that feature.

3. Decide What Emotional Need is Being Specifically Met by your Product or Service

In order to not get lost in the crowd of competitors, you need to think from client's perspective and decide what emotional need is specifically met by your product. Thinks about your offer. What kind of need does it satisfy? Focus on your existing and potential customers and think about what they are searching for.

A need is all about benefits a customer wishes to be in the product or services, it can be functional or emotional. The emotional benefit can always be a stronger driver for customer because functional benefits can easily be copied by competitors.

On the other hand, a customer desire is what he wants to be there in the product which is not necessary but he wishes it in the product. For example, food is considered as a need. However, a dessert is considered as consumer's desire, as these things are not necessary in order to live.

If you can better assess the emotional need of customer and add it to your product or service it can set you apart from competitors.

4. Motivate Customer towards Product

For effective marketing you need to act like a psychologist. You need to know what drives and motivates customers. You need to look at their motives for buying your product/services, is it the quality or convenience.

Cosmetics and liquor companies are great examples of industries that know the value of psychologically oriented promotion. People buy these products based on their desires (for pretty women, luxury, glamour and so on), not on their needs.

Factors affecting Clients buying behavior:

There are four basic factors that affect the customers purchasing behavior:

1. **Cultural Factors**

   Cultural factors come from the different cultures or cultural environments the consumer belongs to. For a brand, it is important to understand the cultural factors fundamental to each market in order to adapt its product and its marketing strategy. As these will play a role in understanding the habits, behavior or expectations of consumers. Sometimes customers purchase to follow a new trend in the market or society to be a part of innovation.

Do you know!
Brands target the influence such as some celebrity, actor or musician to spread the use and purchase of their product in different social groups.

2. **Social Factors**

   Family is the most influential factor for an individual which develops an environment where his behavior and personality grows. For example if during your childhood, your parents described coke as not good for health, there is a little chance that you will develop a habit of drinking coke as adult. So a brand needs to seem as a family brand to become consumer's habit. The social role and status influences the consumer behavior and his purchasing decisions.

3. **Personal Factors**

   The lifestyle, values, environment, activities, hobbies and consumer habits change throughout his life. A consumer does not buy the same products or services at 20 or 70 years. The purchasing power of an individual will have, of course, a great influence on his behavior and purchasing decisions based on his income. The lifestyle of a consumer will influence on his behavior and purchasing decisions.

4. **Psychological Factors**

   To increase sales and encourage consumers to purchase, brands should try to create, make conscious or introduce a need in the consumer's mind so that he develops a purchase motivation. Through the experience the customer had, his learning and his external influences (family, friends, etc.), he will develop beliefs that will influence his buying behavior.

5. Identify Unique Aspects of Product

Remember

Design development shouldn't only be focused on your existing customers - it can also be used to help you target new customers and move into new markets.

Differentiating the product or service in a competitive environment develops an element in your business that your competitors cannot imitate.

For this purpose, list the features and benefit that are unique about your product or service. There is a difference between feature and benefit. For example having bakery in your store is a feature not a benefit but if you see it as having a bakery that can deliver sandwiches and other stuff in 2 minutes can definitely be a benefit.

Identify aspects of your product or service that your competitors cannot imitate. It can be the location of your business that is idea to the customers, it can be the quality of product that is matchless or it can be the customer service with unique and creative ideas. Whatever it may be, list them. Highlight anything that cannot be copied, reproduced or duplicated by your competitor.

6. Unique Design for the Product

Design opens up valuable opportunities for businesses. Its importance is often underestimated, but good design can bring some significant business benefits.

Development of a design for your product can create new product ideas and allow you to understand your customer's needs and preferences. A unique design can be a powerful way of retaining customers and positioning your business for a move into new markets.

Design Process

The development of design should be managed like any other business process. The key is to co-ordinate those people who are involved like designers, managers and employees to have their suggestion about design requirements. It will also ensure that your design delivers the outcomes you require at the cost you have budgeted.

Key tips for managing the design process:

- First of all you should be clear about the goal of the design, such as raising brand awareness or improving a product or service offering.
- Carry out research about market needs and trends both before and during the designing process. Keep focused on what your customers want.
- Set a budget and a timetable with measurable milestones.
- Create design about your unique product or service that is clear, and concise. Use the ideas from unique selling point. Be sure that your design can communicate the exact idea that you want to share with the customers.
- Choose your designer and prepare an outline about the project's aims, budget, schedule and any legal, technical or other constraints on developing the design.
- Make sure that your production, marketing and sales departments are prepared for any new product, service or branding you develop.
- Monitor the process as it develops - if the project deviates from the brief, investigate and make sure it's for a good reason.
- Remember that your designs will be the unique identification and representation of your USP and Product/ Service so it needs to be protected.

When the process is finished make sure you gather as much feedback as possible from those involved and some of your customers so that you know if your design is developed properly.

Measuring the Success of Your Design

You should set clear targets to measure the success of your design.

In many instances customer response will be a crucial factor for that purpose. For example, if you design a new product or a new website interface, the key point to know its success will be its performance in the market.

If problems arise, deal with them as quickly as possible. Revise the design brief if important new information or priorities emerge – try hard not to develop a design that delivers the wrong message instead of your unique selling point.

Learning Unit 2: Brand Guidelines and Themes

Overview

In this learning unit you will learn about the importance of techniques used to define the branding guidelines. After the completion of this unit, you will be able to find out the idea that describes the brands and integrate the guidelines into the look and feel of the design. (Perspective, Typography and Color theory).

1. Permeates the Brand

Big Idea

An attempt to communicate a brand, product, or concept to the general public, by creating a strong message that pushes brand boundaries and resonates with the consumers.

Define your brand and set it apart in the market. A big idea is the powerful, merging force behind marketing efforts of the brand. While picking up big idea of your brand, keep these characteristics in mind that should be followed by your brand.

Transformation

Can the idea change attitudes, beliefs and behaviors? Open up new ways of thinking? Change the course of customers, markets and companies and be a "game changer" on a grand scale? If yes, then it's a big idea and it can affect the market (customers, competitors, influencers) through its transformations and also alter your company and its people.

Ownability / Uniqueness

Do you know!

Big ideas grab you to the point where you can't forget. Infectious ideas stick in our consciousness and never leave.

The idea should be tightly bound to your product / Service. The idea behind ownability is unique in the market and only belongs to you. For instance, you can't own the idea: "We have the best people." Every competitor probably says the same thing. But an idea like, "Our aerospace company was founded by the first two human beings to land on the moon," is hard to copy.

Simplicity

Big idea should be simple and easy to understand. A lack of simplicity is against human nature. Customers always have many options so you can't take risk to confuse them. Idea should be truly creative because truly creative ideas don't confuse.

Originality

Human are hard wired to focus on new, unique and original. We are programed to unconsciously ignore the familiar, direct thought to new and unique idea. So your brands big idea should use this universal truth for its benefit.

Likeability

In advertising communication, the factor of likeability contributes to the effectiveness more than any other factor.

2. Guidelines to Live the Brand

Live the Brand

A lot of planning and management is required in marketing a new brand. The first step a new brand should take when developing their marketing strategy is making sure that they have a strong understanding of their target customer. If you are not aware or the target, there are a great chanches that your message will not be conveyed to the actual customers.

The design of your office, reception area says something about your brand, similarly your voicemail announcement and the way you answer the phone. The way you and your employees dress makes a brand statement; the music you play and sometimes even scent can contribute to branding. Your brand succeeds when your work matches the promises you make with the customers.

> **Do you know!**
>
> When you launch a brand, you are introducing an image, presenting a value proposition and communicating how your products are different.

Why to Design Guidelines

Guidelines are necessary because
- In the form of guidelines, you will have an easy guide to refer to when handing over the project.
- Makes you look professional. It shows that you did everything for a reason.
- You maintain control of the design. When someone does something awful, you can refer them to the document.
- Forces you to define your style, making for a more solid design.

Designing the Guidelines for the brand

Brand Guidelines also called brand standards, style guide or brand book are a set of rules that explain how your brand works. These guidelines typically include:

- An overview of your brand's history, vision, personality and key values.
- Brand message or mission statement it will also include examples of 'tone of voice'.
- Logo usage – where and how to use your logo including minimum sizes, spacing and what not to do with it.
- Colour palette – showing your primary and secondary colour palettes with colour breakdowns for print, screen and web. These colors will describe the look and feel of your brand.
- Type style – showing the specific font that you use and details of the font family and default fonts for web use.
- Image style/photography – examples of image style and photographs that work with the brand.
- Business card and letterhead design – examples of how the logo and font are used for standard company literature.

> **Logo**
>
> A logo identifies a business in its simplest form via the use of a mark or icon.

If you are just starting out and need only a few key elements, then focusing on the above area is enough. But to make sure that all the areas are covered, you need to develop detailed brand guidelines that will include:

- Design layouts and grids
- Social media profile page applications
- Brochure/flyer layout options
- Website layout
- Signage specifications
- Advertising treatments

- Merchandising applications
- Copywriting style
- Editorial guidelines

Brand guidelines should be quite flexible for designers to be creative, but rigid enough to keep your brand easily recognizable.

3. Colour Themes Based on Brand Guidelines

Guidelines should be designed keeping all the design element, design principles in mind. Brand Guidelines and Manuals should include following details

1. Strategic Brand Overview

This should be short and sweet. In as few words as possible, make the vision clear for this design and if there are any keywords, people should keep in mind while designing. Most people will probably move straight to the picture pages, but they may read a few sentences here.

In the above picture the photography used, balanced backgroud image, readability of text, color contrast is perfect. Text is short and to the point.

2. Logos

For print and Web, most brands revolve around the logo. Make sure you provide logo variations and clarify minimum sizes.

Logo Design and Variation of Logo Sizes

The variations of logo sizes should be provided as in the above example because logo could be used at many places.

Correct Usage of Logos

Correct variations of the logos in different colors should also be provided so that it can avoid recreation of logos as in the below example

Variation of Logo Colors

Spacing

Many non-designers underestimate the need for white space. Include a spacing detail, especially for the logo.

Rather than specifying inches or centimeters, use a portion of the logo (a letter or a shape) to explain the spacing in the logo.

As in the blackberry logo, there is always a clean little space around the logo so they measure it with letter "B" from the logo.
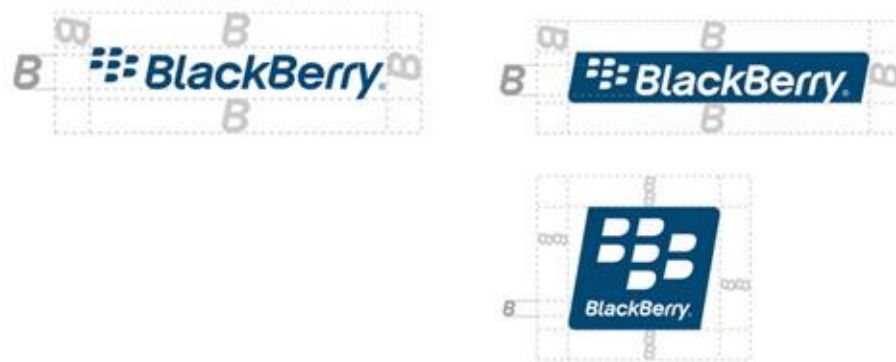
Spacing in BlackBerry Logo

Typography

You'll need to define the typefaces to use: sizes, line height, spacing before and after, colors, headline versus body font, etc. While choosing the type face, keep in mind the readability, elegance of text and contrast.

4.1 Primary typeface.

SangBleu Sans is our elegant and distinctive primary typeface. It should be used in all communications.

SangBleu Sans should only ever be used in Light and Light Italic weights.

Black text should only be used as a minimum of 80% black and a maximum of 90% black.

SangBleu Sans can be purchased from swisstypefaces.com foundry.

ABCabc
Light 72pt

ABCabc
Light Italic 72pt

ABCDEFGHIJKLMN
OPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890 £&?
Light 16pt, 80% black

*ABCDEFGHIJKLMN
OPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890 £&?*
Light Italic 24pt, 80% black

4.2 Setting type – SangBleu Sans.

Body copy on standard A4 and A5 communications should be 9/12pt with 0pt tracking.

When setting text you should use size and colour to help the reader navigate.

In body copy use leading that is approximately 130% of the typesize, eg 9pt/12pt

4.3 Secondary typeface.

Akkurat Pro is our secondary typeface and can be used for body copy in printed communications. It should be used where SangBleu Sans is too large or has to be reduced to a size less than 9pt to fit copy on the page. It can also be used for terms and conditions.

Akkurat Pro should only ever be used in Light and Regular weights.

Akkurat Pro can be purchased from lineto.com type foundry.

ABCabc
Light 72pt

ABCabc
Regular 72pt

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890 £&?
Light 16pt, 80% black

**ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
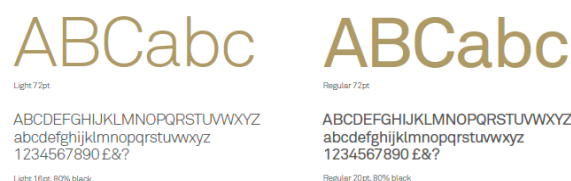1234567890 £&?**
Regular 20pt, 80% black

4.4 Setting type – Akkurat Pro.

Body copy on standard A4 and A5 communications should be 9/12pt with -15 (indd) and -3 (QXD) tracking.

When setting text you should use weight, size and colour to help the reader navigate.

In body copy use leading that is approximately 130% of the typesize, eg 9pt/12pt

Typography Information

Color

Remember
For printing purposes, always provide CMYK and RGB replacement of pantone colors so that if they can't find pantone, they can go ahead with CMYK or RGB

Always include color palettes and what the colors should be used for. And include formats for both print and Web: CMYK, Pantones (if they exist) and RGB (or HEX).

Colors should be selected according to overall design theme. The warm colors should be used to attract attention. Cool colors to give an effect of calmness, neutral colors as backgrounds. Meaning of different color should be considered for example greys and black for professional subject websites, greens, blues for nature and white for health etc.
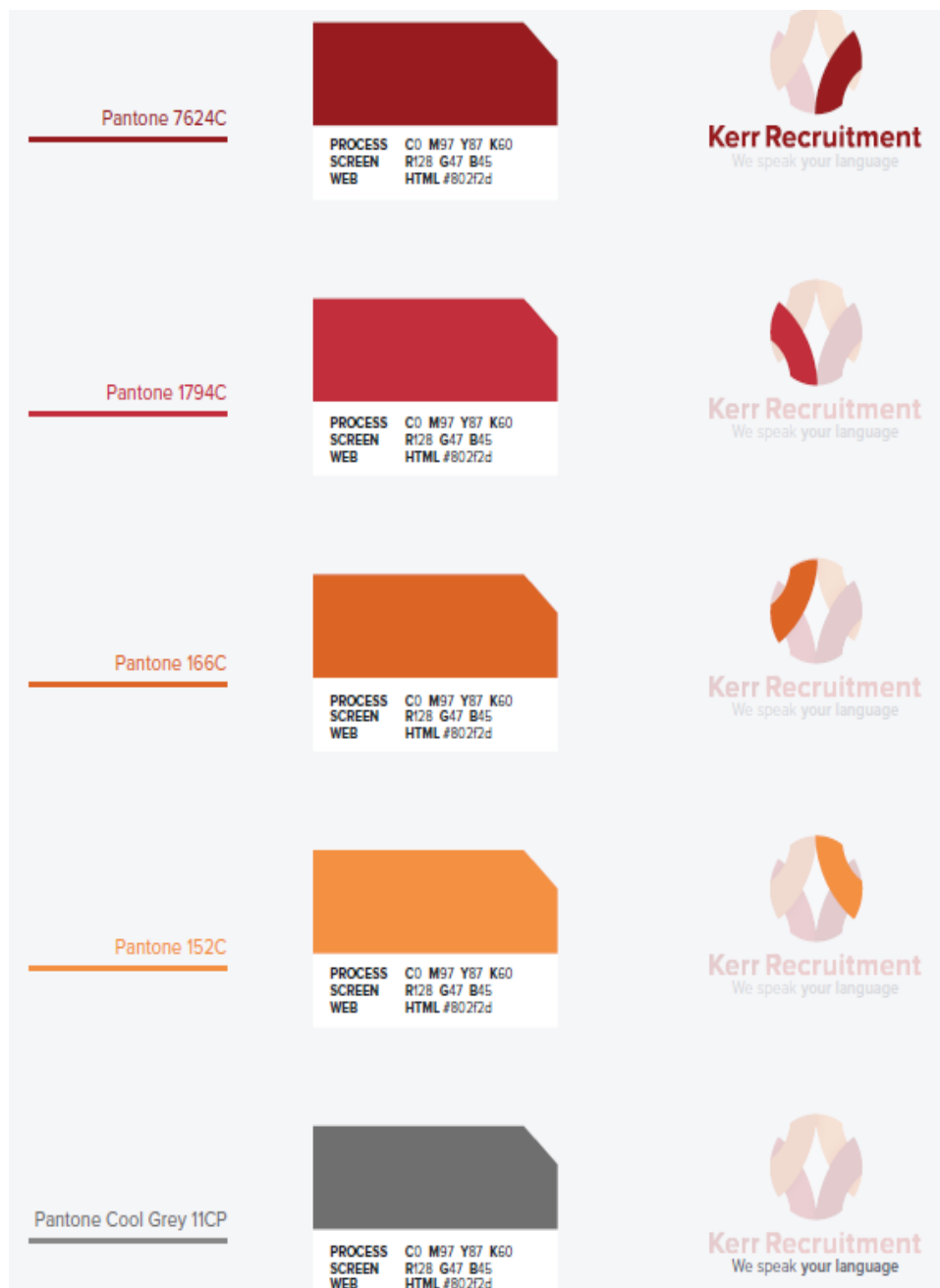
Colors in Kerr Recruitment Logo

Icons

Defining size and spacing and where to use icons is another great way to promote consistency. Icon set should also work with the theme of Brand.

Do you know!

Beside the elements defined in guidelines, there are certain concept which are also related to brand like, tone of voice, music associated, smell and texture if any.
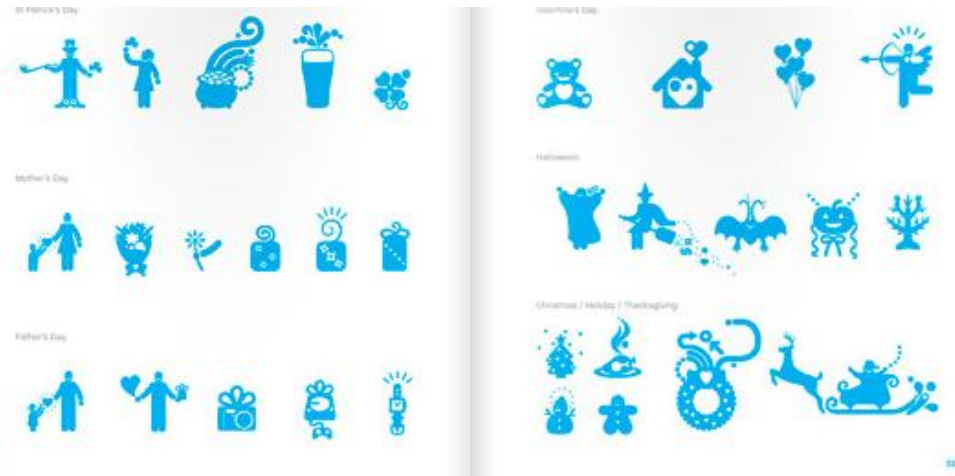
Icon set in Skype Brand Guideline

Putting it all Together

Show a few examples of what the logo, photography and text look like together and the preferred formats.

Learning Unit 3: Visualize Concepts of Brand

Overview

In this learning unit, you will learn about techniques and concepts involved in visualizing the layout of the big idea of your brand designed according to the guidelines. After the completion of this learning unit, you will be able to understand and demonstrate the designing and organization of the canvas following the brand guidelines and the concepts of graphic designing.

1. Develop Thumbnails of Objects and Design

The first visual forms of an idea are thumbnails which are small sketches or simple drawings. When you develop fresh ideas in your mind about the design then it is important that you draw them quickly so that you can record those idea before forgetting.

Thumbnails
Thumbnail sketches (called thumbnails) are one of the most powerful tools available to an artist. This is where the image is invented.

Thumbnail examples of BioTrekker logo

Once you draw an image, you will be able to evaluate your design more efficiently. It is not necessary to draw each of all of a thumbnail. You can just draw a few samples of the repeated pattern to get the

<table>
<tr><td>

Remember

When you have developed some sketches you will develop a style that works for you.

</td><td>

idea. These thumbnails are not meant to be the final product they only communicate their meaning with the designer. Draw as many ideas as you can keeping your project in mind to get variations of design.

Initially a series of thumbnails will be drawn with a lot of unrelated ideas. As you get in the process, the sketches will start to center around one or two major ideas. Ideas will develop in your mind about the design of different aspects and areas of brand designing.

</td></tr>
</table>

Evaluate your sketches relative to your concept. Do as much planning as possible using thumbnails. Change the concept if it does not match the assignment.

Decide the sketch that you are most likely to develop. Select the sketch based on the reasons that it fully expresses the main idea of your project. It is able to represent your brand with full strength. Put a rectangle around it. That will be used as your design book page. It will give you an idea how large should your image be. You can experiment with how the image will fit on the design in the thumbnail stage.

This is the best place to experiment with value, color, perspective, typeface, balance, design elements and design principles relationships. It is much faster to color and make changes in a thumbnail than a full size drawing. Choose colors for contrast and impact.

2. Design Based on Brand Guidelines

Whether you're designing a page for print, or a website, there are some common principles you should follow. These approaches will help you to create a balanced layout.

1. Use a Grid

<table>
<tr><td>

Remember

Using Grids is one of the most common practices to develop a balanced design.

</td><td>

One of the easiest ways to ensure your page or canvas layout is balanced, is to use a grid system. Grids used to be preserved for printed pages only, but now idea of using grid is also popular in the digital medium.

By using a grid to define the position of different elements on a page, you'll create a connection between the different elements that make up your page. This can help provide a sense of order to your layout, providing the reader with

</td></tr>
</table>

a clear structural reference to look at. This is important because when all your page elements have a feeling of connectivity with each other, the overall effect feels more comfortable to the reader, helping to put them at ease, and facilitating their access to the important stuff that is the content.

Use of Grid in Designing Page Layout

2. Choose a Single Focal Point

One of the most effective ways to provide a sense of balance is to choose a single focal point for your layout. A good example of this in practice is the use of a large image as the biggest single element on a page. That can be the logo of your brand just like how it is defined in the guidelines.

A strong visual can provide a powerful way to lead the reader into your page, acts as a structural element around which you can arrange the remaining content in your layout. If you have multiple visual elements, you will have to group them together, aligning them in the same way.
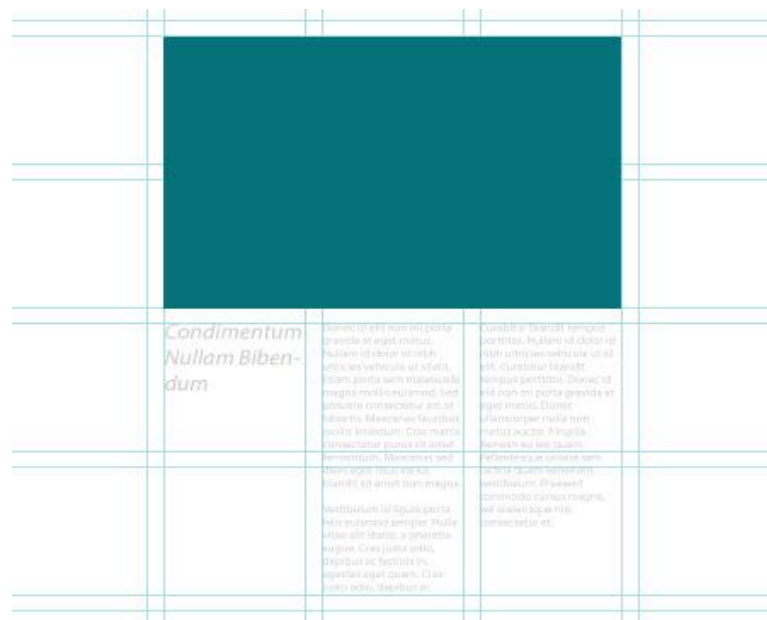
Use of Focal Point in Design

Another great idea is to use a main heading or quote at the page. This heading will draw the attention of the audience in the same way as does the image. It can also provide a structure to the layout of your page.

3. Use the Rule of Thirds

One of the best ways to provide a sense of balance is to use the Rule of Thirds or Golden Ratio. According to the rule of thirds, if you divide your page into three, both vertically and horizontally, the points at which the grid lines intersect provide the natural focal points. By aligning your design elements to these four points, you'll achieve a more pleasing composition than aligning your elements centrally.
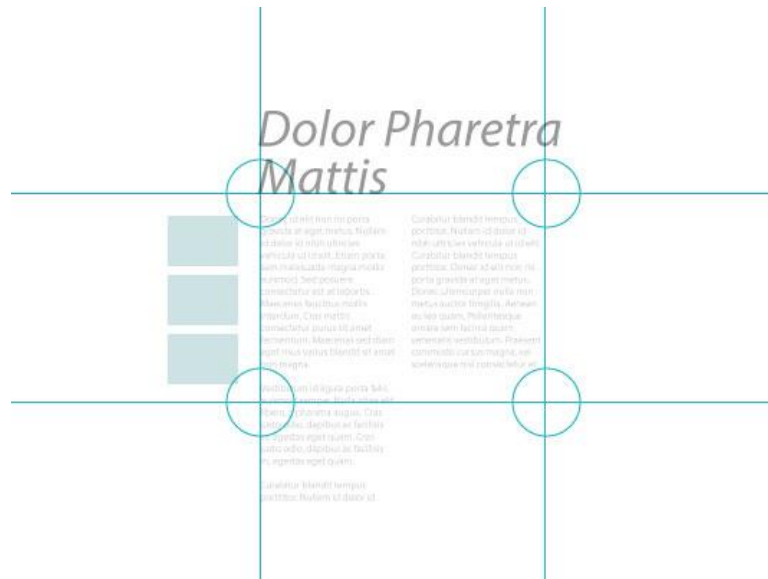
Use of a Rule of Thirds

A common approach is to place the most important elements of your page in the upper third of the page.

4. Use white Space

Remember
If too much space is used in the layout, it can cause a disconnection between objects.

It is not the right approach to fill in the every single space on the page. Sometimes it is more appealing to leave some space around the elements instead of stuffing them together tightly.
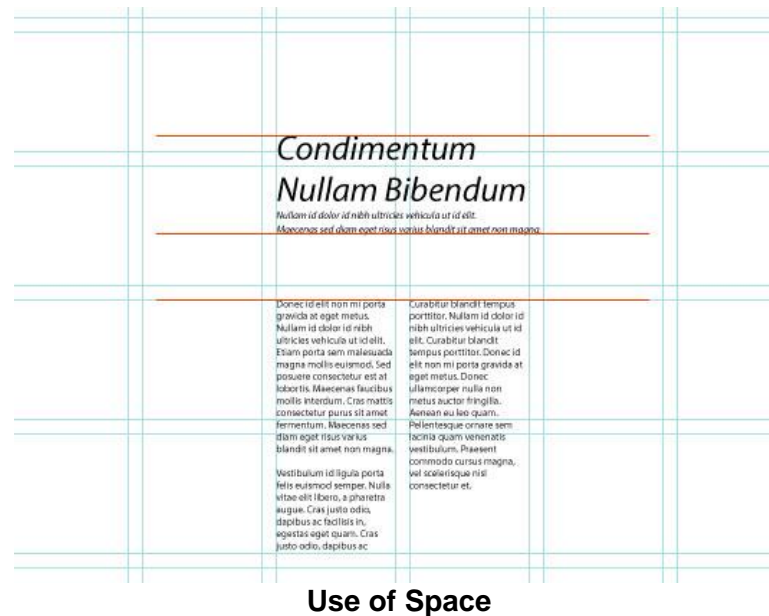
Use of Space

The most common way to make use of white space is by enlarging the page margins and gutters. On the web, simply providing plenty of space around elements can help make the layout feel composed and balanced. Using negative space works best when you have a clear structure that keeps content together (such as that provided by a grid).

5. Repeat Design Elements

Remember

Repetition can also provide a focal point in your design.

Repetition of Design Elements
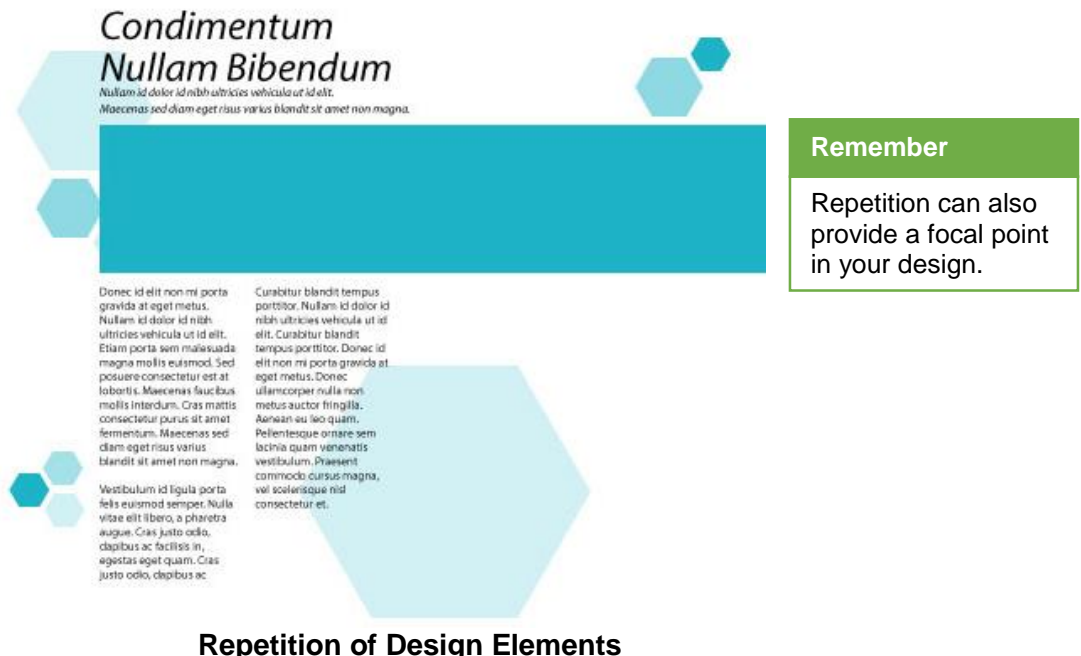
Repetition can provide a strong sense of connected design and balance to a layout. The idea is that by identifying and re-using a design element throughout your layout, you can provide a reference for the reader so that different areas feel connected and part of the same overall composition.

6. Use of Hierarchy

Hierarchy in the Design

It is also a good approach to make correct use of hierarchy of elements. Heading text should be more visually important then the paragraph text. Focus on the most important element in the page and structure your document accordingly.

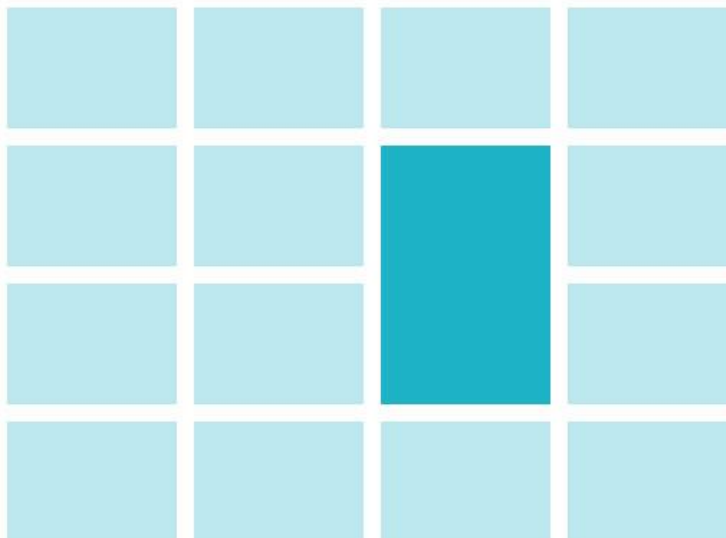## 7. Use Scale, Contrast and Harmony

Repetition in Design

Finally, the use of scale can be a very effective method for achieving a good visual balance in your layout. By making some elements larger than others, a sense of order and hierarchy will develop. This helps create a comfortable layout because the viewer will automatically look at the larger elements within the layout first, progressing to the smaller elements as they read.

Increased contrast to isolate an element in the design makes it more prominent. This acts as a way into the design and supports the structure of the design.

Use the principles of harmony to make the others feel connected and accentuate the focal point.

> **Do you know!**
>
> Both scale and contrast work best when they apply to one element, making it stand out from the other parts of your layout.

3. Composition of Elements

Once you have developed the layout of the canvas or design, the next and the most important step is to check if it satisfies the needs of the project as we learned earlier. Below is the check list of requirements that a layout must full fill:

1. The design layout should cover the complete idea so that your USP can be better comprehended by the customers.

2. It should represent the emotional needs of the target audience. For example in the case of cosmetics brand, it should capture the psychology of customers for a wish of being pretty or to follow a latest trend in the market.

3. The layout should be effective enough that it can change the purchase behavior of the customer and motivate them to come towards your brand.

4. It should outline all aspects of your product or service which are unique and can't be imitated by the competitors. The expression of the design should be unique instead of inspired design from some other brand.

5. The colors used in the design layout should be according to the guidelines of brand.

6. Typography, line height, typeface, font size used should also be according to the defined guidelines.

7. The final layout should be balanced, properly aligned, readable, united, perfectly contrasted, with proper harmony, appealing, with clear perspective so that I can lead the audience to the focal point.

4. Page Layout

Page layout is the part of graphic design that deals in the arrangement of visual elements on a page. The material/information needed to develop a layout includes the following:

Do you know!
If each layout applies valid principles of design, it might be impossible to say one is better than another. Layouts may be judged differently by different people.

1.   Size of the Design Layout

You should be clear about the size of the layout needed. It depends on the size of idea you want to deliver and media where the design layout will be used in future. After confirmation of size, organize all the design element into that size area balanced. Size specification will also include margins and gutter measurements.

2.   Typeface

Typeface used in the layout is of great important. You need to select a typeface that is readable, appealing and fits to your subject at the same time. A large number of extra ordinary fonts are available to be used free for example Squares Font, Taurus Mono Font, Primiterus Font, Garnata Font etc. you can use any of them. Other than these fonts, there are a large number of paid fonts available. You can purchase a typeface which is best suited to your design. Typography should be used correctly with proper font, font size, font style, line height, balance and location.

3. Display Type

Display type is the type that conveys the main message of the layout. It is intended to draw attention. Newspaper and magazine headlines are typical examples of display type. The display line is key to the success of a message. If the display type creates interest, the reader will proceed to the body. It can be a heading outlining the USP or an image like logo representing the identity of Brand and USP. Display type should be collected from guidelines of Brand and used at the focal point of layout.

4. Illustrations

The illustrations in a layout include the decorations, photographs, and artwork, such as line art. Illustrations are common in most printed materials. Small icon to be used and buttons are taken from the guidelines. The photographs to be used should be properly contrasted, original and well cropped. All the illustrations should be well suited to the topic and used at balanced locations in the layout.

5. Colors

Colors are one of the most influential elements of layout. Colors to be used should be according to the subject represented in the layout and guidelines. Colors chosen should be easily available for printing.

Intended Meanings of Colors

Learning Unit 4: Storyboard Using Thumbnails and Time Duration

Overview

In this learning unit, you will learn the steps of creating a storyboard, composing videos, drawing thumbnails. After completion of this learning unit, you will be able to create story board showing individual scenes, draw thumbnails to show composition of scene and allocate time duration in seconds to each scene.

1. Use of Story Board

Storyboards

A storyboard is a graphic organizer in the form of illustrations or images displayed in sequence for the purpose of pre-visualizing a motion picture, animation, motion graphic or interactive media sequence. It is created prior to video production, and serves to visualize the main elements of the video in sequence, thereby organizing the story and scenes and simplifying overall editing and planning.

In some ways, it is similar to an outline for a written paper, in that it allows the narrative to be organized and thought through ahead of time. Knowing ahead of time all the scenes you need to film allows for more efficient planning, resource gathering, and set/location development and use.

Storyboard is often based on sketches that are intended to depict what will be shown on screen. In lieu of sketches, storyboards could contain photographs, screen captures, or text descriptions. If only text is used, the storyboard becomes something more like an annotated script, where the narration text is placed next to notes about the various visual and audio clips that will be associated with it.


Layout of a Storyboard

Drawing Thumbnails to Represent the Scene

Illustrating Images or Scenes in Sequence

When you are planning a video, there are eight steps in the process so you can bring your script to life and present it to other people. These are as follows:

1. Choose Part of the Problem

First we have to draw a user story diagram. Look at it together as a team. If the user story is more than two steps long (and it probably is) as shown in picture below, you are going to need to divide it up before you start sketching:
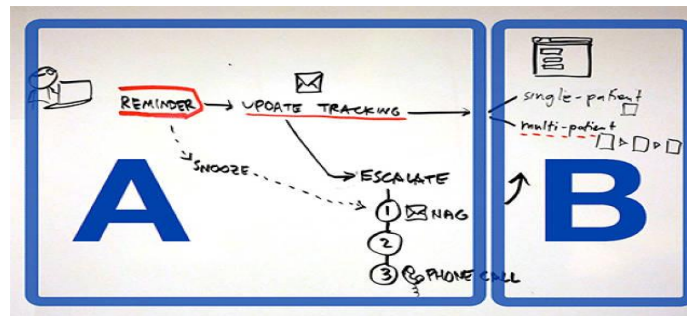
User Story Diagram

Now decide which part to focus on first. It usually makes sense to have everybody in the sprint focus on the same part of the problem at once. If you take that approach, you will do one cycle for each part of the problem, with everybody collaborating on each part as you go.

2. Take notes (5 minutes)

At this point the whiteboards and pin boards are probably covered by diagrams, notes, and sticky notes. Now everyone takes a piece of paper and jots down anything they think is useful.

3. Mind map (10–15 minutes)

Now you are going to add all the other ideas that are in your head, mix them with the notes you just took, and loosely organize them on paper. The mind map is going to be your "cheat sheet" you can use when you are sketching UI (user interface) ideas.

Here is an example:
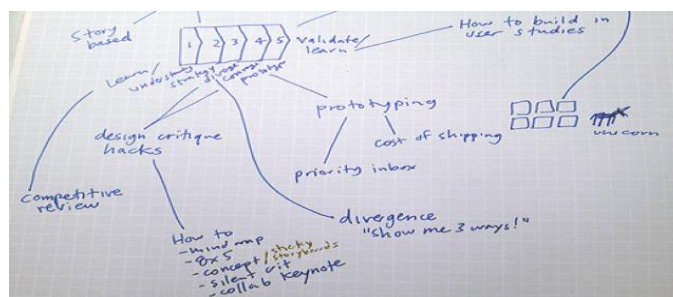
Mind Map

4. Crazy Eights (5 minutes)

Crazy Eight

Practice of folding a blank paper sheet to create eight panels for story board.

Fold a blank sheet of paper in half three times, then unfolds it, so you get eight panels. Then you have five minutes total to draw eight sketches, one in each panel. Yes, you did the math correctly, that's about 40 seconds per sketch.
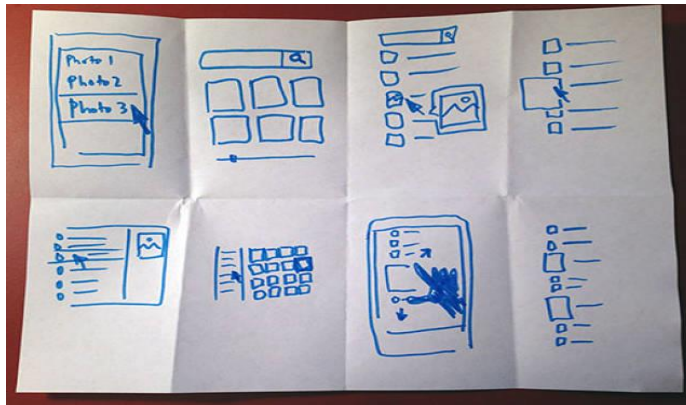
Since you have only 40 seconds for each drawing, you will need to turn off the self-editing and just get your ideas on paper.

Remember

Fold a Blank paper sheet in a half only 3 time to get eight panels for sketches of story board.

Eight Panels' Layout

5. Sticky Notes Storyboard (10–20 minutes)

Start with a blank sheet of paper, and put three sticky notes on it. Each sticky note is one frame in the storyboard. It is kind of like a comic book that you are going to fill in. Look back at your mind map and your Crazy Eights and find the best ideas.

Do you know!

By folding a blank paper sheet thrice in different style, you can get eight panels as well 6 panels, and the number of story board panel can be increased or decreased by the folds.
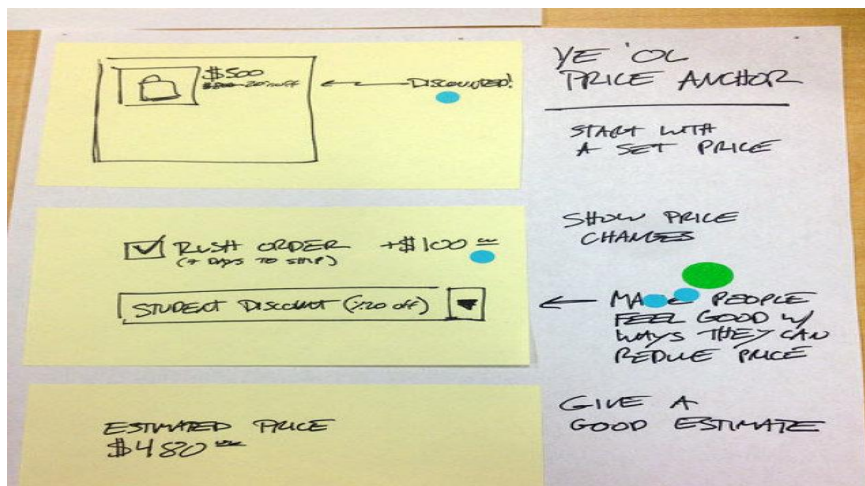
Story Board using Sticky Notes

6. Story board Analysis (5–10 minutes)

Put a dot sticker on every idea or part of an idea you like. There are no limits to how many stickers you can use, by the end, you have got a kind of heat map, and some ideas are already standing out.

7. Minute Analyses (3 minutes per idea)

Everybody gathers around the storyboards one at a time. First, they talk about what they liked, and then ask the person who drew it if they missed anything important. This process works far better than letting people explain their ideas first—which almost always uses up a lot of time.

8. Super vote (5 minutes)

Once looking at all the ideas, everybody gets one or two "special" stickers These are "super votes" for the ideas you think are the very best. Between the original heat map and these super votes, it is very easy to see which the strongest concepts are.

> **Do you know!**
>
> Usually the best, most popular ideas are the ones people can understand without an explanation, so the author of the storyboard often does not have anything else to add.

2. Time Duration in a Motion Video

Using the Timeline

The Timeline is where you control all timing aspects of the project. Whether you want to line up multiple objects to begin or end together, lengthen or shorten an object, or change which portion of a clip is used, the Timeline provides the tools you need. You can organize your objects to begin and end on the frames you choose. You can also align multiple effects so they occur simultaneously. You can control objects' durations and even perform common trim operations to edit the objects as you would in a nonlinear video editing application.

Adjustment Timeline 1

Procedure of Creating a Story Board

The procedure of creating a story board has the following steps:

1. Draw a user story diagram on a paper (using pencil/pen)

2. Take Notes from group participants

3. Add the ideas of your mind on a paper as Mind map

4. Take a blank paper sheet for creating storyboard panels.

5. Fold the sheet in the half thrice to get 6 panels for sketches

6. Draw sketches on each panel

7. Write your story scene against each sketch

8. Analyze storyboard using dot stickers

9. Gather the group members for minute analyses
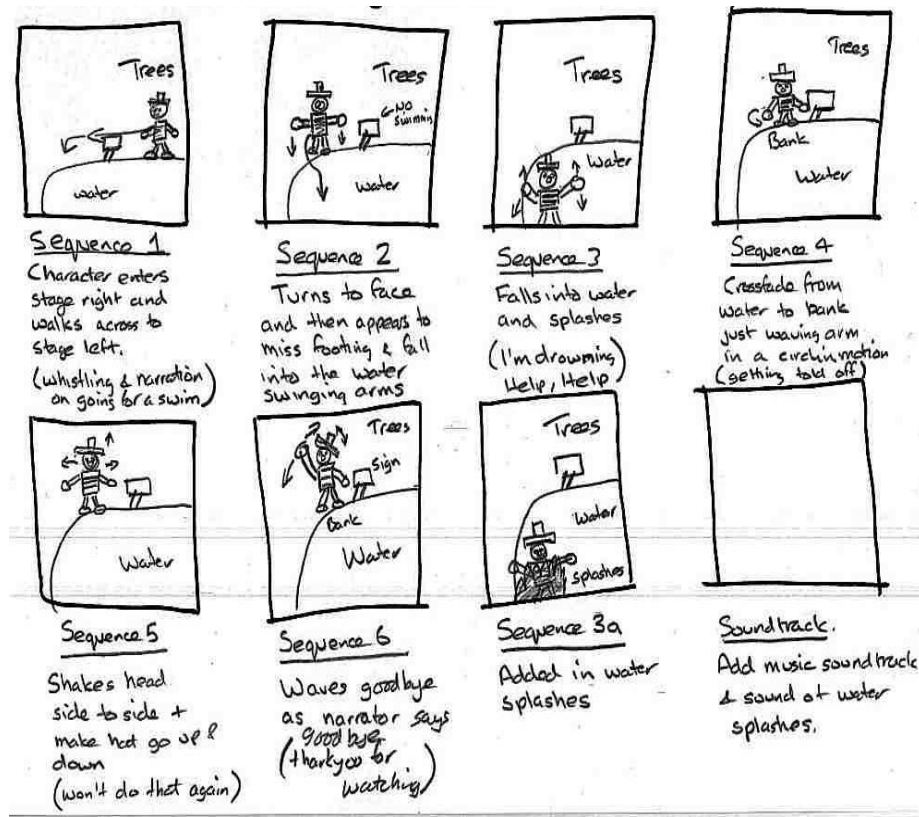
Summary of Module

- Unique Selling Point is the key to effective selling. Unless you point out what makes your product unique in a world of homogenous products, you cannot target your sales efforts effectively.

- In order to make your product successful, you need to satisfy the needs of your target market. So you need to inspect carefully what your customers really want.

- If you can better assess the emotional need of customer and add that to your product or service it can set you apart from competitors.

- A purchase decision of a customer is the result of cultural factors, social factors, personal factors and psychological factors.

- Identify aspects of your product or service that your competitors cannot imitate. It can be the quality of product that is matchless or it can be the customer service with unique and creative ideas.

- Big idea is the idea that defines your brand and set it apart in the market. A big idea is the powerful, merging force behind a brand's marketing efforts.

- Your brand not necessarily what you want it to be but, it all about what the customers experience. And what consumers think of your brand may be very different from the message you're putting out there. Simply, your brand isn't the work you do, but it is how you do it.

- Brand Guidelines also called brand standards, style guide or brand book are a set of rules that explain how your brand works. They incude breif overview of brand, logos, variation of logos, spacing details, typeface and color details for brand, icon sets etc.

- The first visual forms of an idea are thumbnails which are small sketches or simple drawings. When you develop fresh ideas in your mind about the design then it is important that you draw them quickly so that you can record those ideas before forgetting.

- After developing the layout check if it meets the requirements and is according to the guidelines defined for the brand.

- Storyboard is often based on sketches that are intended to depict what will be shown on screen. In lieu of sketches, storyboards could contain photographs, screen captures, or text descriptions.

Frequently Asked Questions (FAQs)

FAQ 1:	What is Unique Selling Point?
Answer	The factor presented by a seller as the reason that one product or service is different from and better than that of the competition is called Unique Selling Point.
FAQ 2:	Why USP is important for a brand?
Answer	USP is the key to effective selling. Unless you point out what makes your product unique in a world of homogenous products, you cannot target your sales efforts effectively.
FAQ 3:	Which factor motivates the customers to purchase?
Answer	A purchase decision of a customer is the result of cultural factors, social factors, personal factors and psychological factors.
FAQ 4:	How feature is different from benefit?
Answer	Feature is what your brand does. Benefit is how your brand does its job better than others.
FAQ 5:	How to measure the success of your design?
Answer	In many instances customer response will be a crucial factor for that purpose. For example, if you design a new product or a new website interface, the key point to know its success will be its performance in the market
FAQ 6:	What is a big idea for an organization?
Answer	A captivating expression of the needs & wants a brand best satisfies and that simultaneously conveys the brand's ultimate purpose or commitment.
FAQ 7:	What is Brand Guidelines?
Answer	Brand Guidelines also called brand standards, style guide/brand book are a set of rules that explain how your brand works. It includes overview of brand, color details, typography details, logo usage etc.
FAQ 8:	What is a thumbnail?
Answer	Thumbnail sketches (called thumbnails) are one of the most powerful tools available to an artist. This is where the image is invented.
FAQ 9:	What is the purpose of using Grid in the layout?
Answer	By using a grid to define the position of different elements on a page, you'll create a connection between the different elements that make up your page.
FAQ 10:	What does too much use of space do in the layout?
Answer	If too much space is used in the layout, it can cause a disconnection between objects.
FAQ 11:	Can I Share My Storyboards?

Answer	Absolutely! You are encouraged to share your storyboards digitally, physically, via email, social media, linking, and any other way you can think of.
FAQ 12:	How Do People React At Work When You Use A Storyboard?
Answer	Most people are visual people and react very positively to a new and refreshing way to consume information. Storyboards provide that novel approach.
FAQ 13:	What can you do with a mind map?
Answer	- You can place each new idea in the right place, regardless of the order of presentation. - It encourages the reduction of each concept to a single word. - The resultant mind map can be 'seen' by the eye and memorized by your visual memory which has been shown to be almost perfect

Test Yourself!

Please mark the correct one from the given options. You can check your answer with the Answer Key at the end of this module.

1.   Four Ps of Marketing are

a.   Product characteristics, Price structure, Placement strategy and Promotional strategy

b.   Product characteristics, Policy structure, Placement strategy and Promotional strategy

c.   Product characteristics, Price structure, Presentation strategy and Promotional strategy

d.   Product characteristics, Price structure, Placement strategy and Performance

2.   A customer's desire is _____

a.   That's necessary for the product

b.   Related to the product

c.   What he wishes to be in product but not necessary

d.   Both a and b

3.   Lifestyle that affects the customer's behavior belongs to _____ Factor

a.   Psychological

b.   Personal

c.   Social

d.   Cultural

4.   Feature and Benefit of a product is _____

a.   Same

b.   Compulsory

c.   Different

d.   Optional

5.   Transformation characteristic of an idea mean that _____

a.   Idea can be easily replaced

b.   New changes can easily be made in the idea

c.   idea can easily be spread

d.   Idea can change attitudes and behaviors

6.   Choose INCORRECT option, Guidelines are necessary because _____

a.   It is an easy guide to refer to when handing over the project

b.   When something awful happens, you can refer them to the guidelines

c.   Contains documentation of products in a business

d.   Helps to make the design more solid

7. **A logo is _____ of a Brand**

a. Identity

b. Structure

c. Need

d. Backbone

8. **A thumbnail of an object is _____**

a. Final design

b. Layout of design

c. Design Prototype

d. Rough sketch of ideas

9. **Rule of thirds is _____**

a. Divide the page into halves and use the intersection as focal point

b. Draw two diagonal lines and use the intersection as focal point

c. Divide the page in three and use the middle section as focal point

d. Divide the page into three both vertically and horizontally use the intersection of line as focal point

10. **Choose the INCORRECT option, A design layout should _____**

a. Properly printed

b. Represent USP

c. Meet customer needs

d. Balanced

11. **By folding a paper 3 times in a half you will have _____ story board panels**

a. 8

b. 6

c. 12

d. 4

12. **Everybody gets one or two "special" stickers These are _____**

a. Vote

b. Super Votes

c. Lower Vote

d. Minor Vote

13. **A storyboard is a _____organizer in the form of illustrations or images**

a. Sticky Note

b. Mind Map

c. Graphic

d. Timeline

Answer Key

MCQ No.	Correct Answer
1	a
2	c
3	b
4	c
5	d
6	c
7	a
8	d
9	d
10	a
11	a
12	b
13	c

Module 3: Analyze Cost Effective Solution

Learning Outcomes

After completion of this learning module, you will be able to:

- Add time in seconds to individual scenes of video sequence

- Select the output file format, container, codec for motion video

- Set optimal compression ratio for video file

- Select output size of video file

- Set resolution of video

- Select optimal frame rate for playback

# Learning Unit 1: Time Duration of Video Sequence

Overview

In this learning unit, you will learn calculation of time based on narration and audio in the scenes/visuals, length in seconds of audio clip for each particular scene for dialogues use, synchronization of music in scenes and computing of time duration of scenes.

1. Calculation of Time Based on Narration and Audio

The Timeline shows the chronological arrangement of clips and layered video and audio clip items, while the Canvas provides a single view that allows you to watch your sequence just as it will appear on a movie or television screen. Timeline contains tabs for all open sequences. Each sequence in the Timeline is organized into separate video and audio tracks, which contain clip items you've edited into the sequence from the Browser. You can quickly navigate through an entire edited sequence, adding, overwriting, rearranging, and removing clip items.

> **Remember**
>
> Chronology is the science of arranging events in their order of occurrence in time. Consider, for example, the use of a timeline or sequence of events.
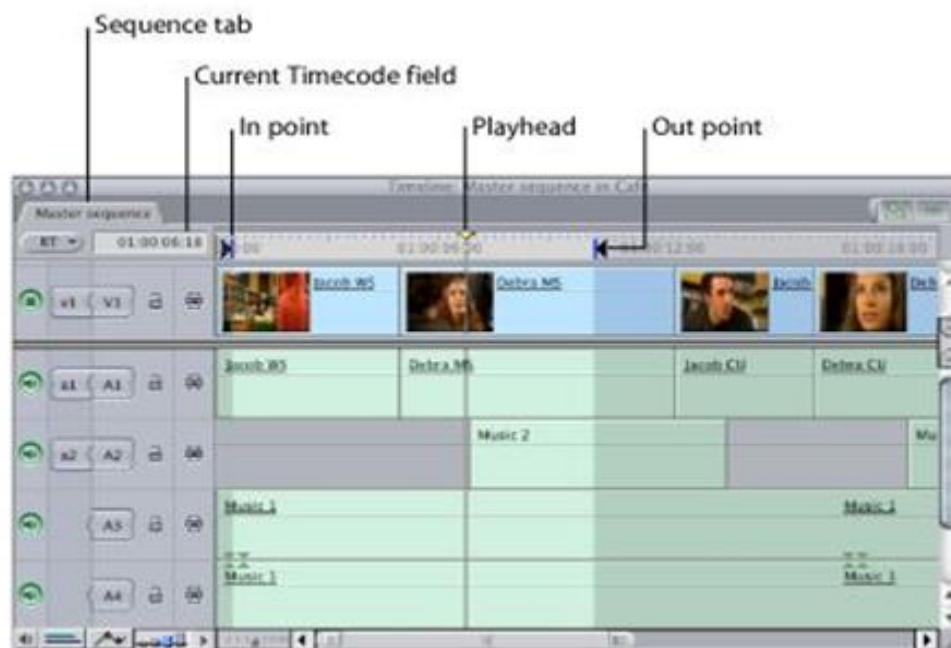
Time Line

TVET RSP does not secure copyright of these pictures

Remember
Final Cut Pro Software used here.
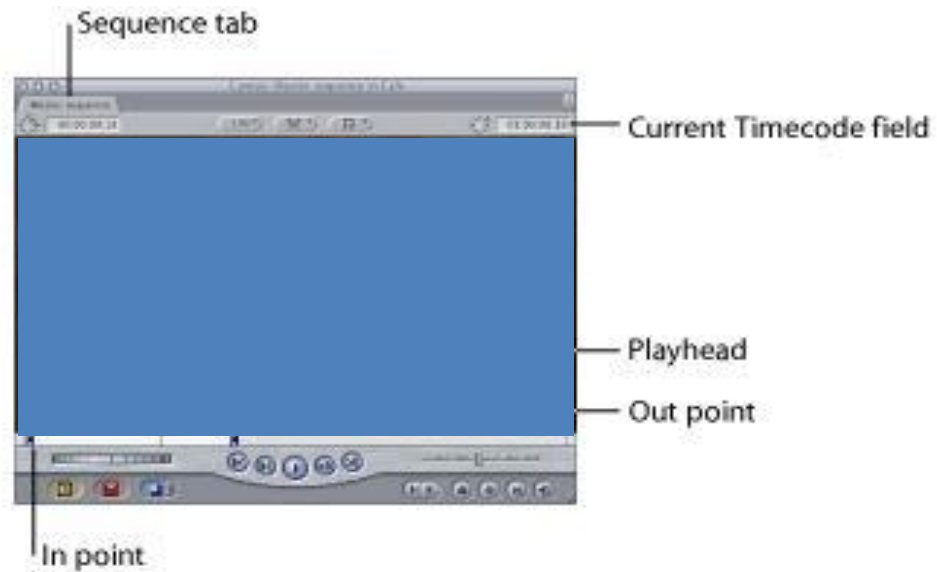
The Timeline editing controls determine which tracks are selected and turned on for editing and playback. The controls are;

- Source and Destination controls

- Track Visibility control

- Lock Track control

- Auto Select control

Vertical Multitrack Controls

The vertical multitrack controls includes the following:

- Tracks

- Unused area

- Vertical scroll bars and thumb tabs

Vertical Time Control

Horizontal Time Controls

They includes the following:

- Ruler

- Play head

- Current Time code field

- Zoom control

- Zoom slider

Horizontal Time Controls

2. Length in Seconds

Material acquired via dual system recording i.e. video and audio are recorded simultaneously to different devices; you need to capture your audio and video separately and then synchronize them together in Final Cut Pro.

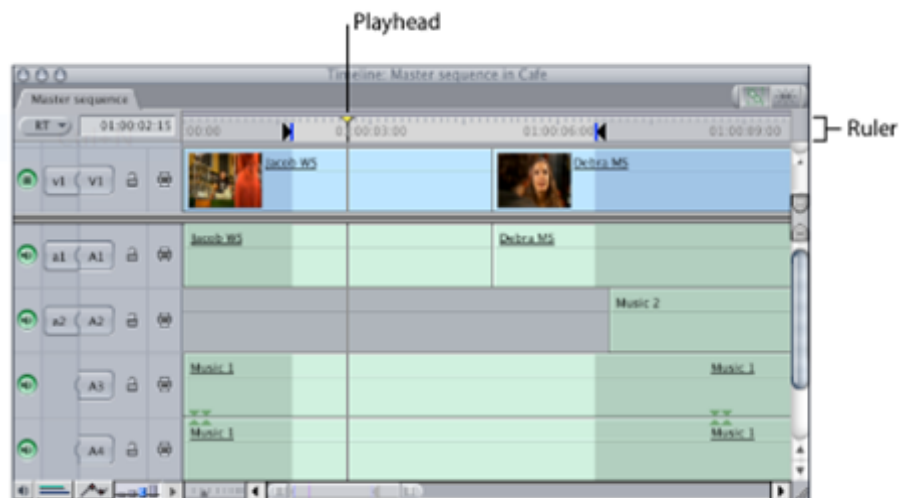After capturing, you can combine the corresponding video and audio clips into a merged clip. Merged clips work in the same way as other clips in Final Cut Pro, but they refer to separate video and audio media files. Following are the steps for learn and synchronize audio with scenes:

- Open the video clip you want to synchronize in the Viewer.

- Scrub through the beginning or end of the clip and find the frame where the clapper on top of the slate first closes.

Synchronize in the Viewer

- Set an In point if the "clap" appears at the beginning of your clip, or an Out point if at the end.

- Open each audio clip you want to merge in the Viewer, and repeat steps 1 through 3, identifying instead the frame of audio where you first hear the clap.

3. Synchronization of Music in Scenes

Syncing music with the scene means the sound and the video matches with each other. Suppose in a video one person is asking a question from other but their lips are not matching the word and there is a delay. For synching music with scenes we have different options in Final Cut pro. Some of them are given below:

- Each tab in the Timeline represents a sequence.

- Multiple sequences open simultaneously, each with its own tab.

- Controls in Final Cut Pro affect only the sequence whose tab is in front. Clicking another sequence's tab brings it to the front.

The beginning, end, and overall duration of a merged clip depends on the method you used to synchronize the original clips.

Synchronization

Process of making two or more data storage devices or programs (in the same or different computers) having exactly the same information at a given time.

Read more: http://www.business dictionary.com/defini tion/synchronization. html#ixzz3kfIl5FHG
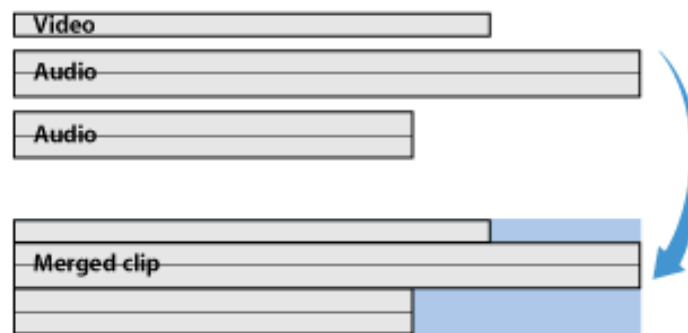
Remember

Gaps appear in a particular track if one or more items in a merged clip is shorter than all the others, but they cause no problems

Synchronization of original clips using In point

Synchronization of the original clips using Out points

Synchronization of Original clips using Time code

Learning Unit 2: Determine Output Format, Container, Codec of Video Sequence
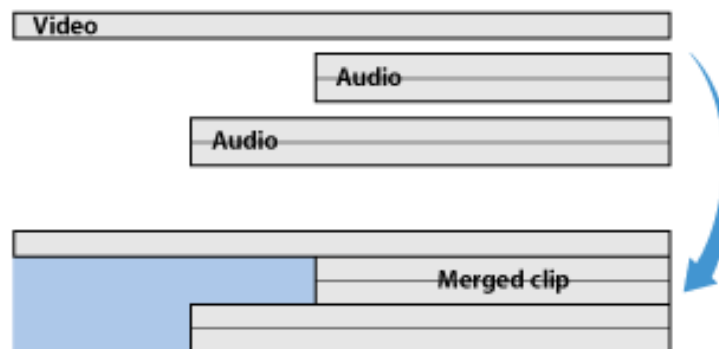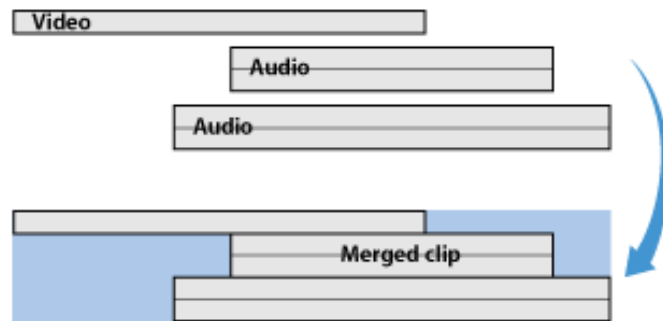
Overview

In this learning unit, you will learn about video file formats and codec. After completion of this learning unit, you will be able to select suitable video file format for your video, demonstrate the process of compression, use different codecs, select required bit rate for video and transcoding.

1. Anatomy of a Video File

An image is a two-dimensional array of intensity or color data. A camera outputs a one-dimensional stream of analog or digital data. The purpose of the frame grabber is to acquire this data, digitize it if necessary, and organize it properly for transfer across the PCI bus into system memory, from where it can be displayed as an image. To understand this process and be capable of troubleshooting display problems, you need to know the exact structure of the video signal being acquired.

There is a wide range of video formats; in general, each format has the following characteristics:

- Container type
- Video and audio signal
- Codec

CRT Video Display

It is an analog computer display which uses streams of electrons that activate dots or pixels on the screen to create a full image.

2. Characteristics of a Video Signal

Every video file has some attributes that describe what makes up the video signal. These characteristics include:

Do you know!

High definition video has two resolutions: 1920-by-1080 (Full HD) and 1280-by-720

Interlaced

Interlacing was invented as a way to reduce flicker in early mechanical and CRT video displays without increasing the number of complete frames per second, which would have sacrificed image detail to remain within the limitations of a narrow bandwidth.

Color Space and Bits Per Pixel

The number of distinct colors a pixel can represent depends on the number of bits per pixel (bpp). A common way to reduce the amount of data required in digital video is by Chroma subsampling.

File Formats

A file format is a standard way that information is encoded for storage in a computer file. It specifies how bits are used to encode information in a digital storage medium.

Resolution

This is the number of pixels in each video frame. A frame is one of many still images you view in quick succession to get the illusion of

Frame Size

This is the pixel dimension of the frame.

Aspect Ratio

This is the ratio of width to height. It describes the dimensions of video screens and video picture elements. Aspect ratio of a traditional television screen is 4:3 or 16:9 for HD television.

Frame-Rate

This is the speed at which the frames are captured and intended for playback.

Bit-Rate

The bitrate or data rate is the amount of data used to describe the audio or video portion of the file. It is typically measured in per second units and can be in kilobytes, megabytes or gigabytes per second. In general, the higher the bitrate, the better the quality.

3. File Formats Concepts

File Format

File formats may be either proprietary or free. File formats are designed for very particular types of data. For example, PNG file stores bitmapped images using lossless data compression, the OGG format act as a container for different types of multimedia including combination of audio and video.

Container

Container format is a type of file format that contains various types of data compressed by standardized codec. Container formats are essentially wrappers in that they don't specify what codec the container format uses, but rather it defines how the video, audio and other data is stored within the container.

To understand the difference between a container, a compression scheme, and a codec, first we need to break down the parts of a video file. Think of a video file as a bookshelf filled with books. It holds many tracks of audio and video just like a bookshelf can hold many books. Common Multimedia Containers are given below:

- AVI

- MPEG-4

- FLV

- MOV

- OGG

- OGM

- OGV

- MKV

- VOB

- ASF

Codecs

Codec is short for compressor/de-compressor. A codec is a piece of hardware or software that interprets an audio or video signal and compresses it. Every video file contains the video and audio data. This data is created by a piece of software called a codec. Codec act as a helper application that the program or the operating system uses to make or play the video file. Without the proper codec, a video file can't be played by a computer.

Common Multimedia Codec's

- H.264

- Spinoffs

- DV

- WMV

- RM

- DivX

- Quicktime 6

- Sorenson 3

- Theora

4. Common Containers

Audio Video Interleave (.avi)

An AVI (Audio Video Interleaved) file is a sound and motion picture file that conforms to the Microsoft Windows Resource Interchange File Format (RIFF) specification. AVI files can hold different types of video and audio streams inside, they can display incredible video quality while maintaining a small file size. Basic structure of avi contains two thing, chunks and list.

MPEG-4

A graphics and video lossy compression algorithm standard that is based on MPEG-1 and MPEG-2 and Apple QuickTime technology. MPEG-4 enables different software and hardware developers to create multimedia objects possessing better abilities of adaptability and flexibility to improve the quality.

SWF File
SWF is a file extension for a Shockwave Flash file format created by Macromedia and now owned by Adobe. SWF stands for Small Web Format

MKV (Matroska Video)

MKV is a flexible, open standard video file format that has quickly become the preferred file extension for high definition video on the Internet. The MKV container can include video, audio, and features such as alternate audio tracks, multilingual subtitles and chapter points.

OGG

The Ogg bit stream format, spearheaded by the Xiph.Org Foundation, has been created as the framework of a larger initiative aimed at developing a set of components for the coding and decoding of multimedia content, which are available free of charge and freely re-implementable in software.

FLV

Flash Video is a container file format used to deliver video over the Internet using Adobe Flash Player version 6 and newer. Flash Video content may also be embedded within SWF files.

5. Codecs Available and Compatibility

The large number of codecs in use makes video compatibility a very complicated area. You cannot tell what codec is used by the file extension, and your system software may only give you partial information. Your video editing software may be able to tell you what codec was used to make the file, or you may need to get some specialized software.

6. Common Codecs

MPEG

(Moving Pictures Expert Group): three video formats, MPEG 1, 2, and 4.

MPEG-1:

Old, supported by everything (at least up to 352x240), reasonably efficient. A good format for the web.

MPEG-2:

A souped-up version of MPEG-1, with better compression. 720x480. Used in HDTV, DVD, and SVCD.

MPEG-4:

A family of codecs, some of which are open, others Microsoft proprietary.

MPEG Spinoffs

MP3 (for music) and Video CD.

MJPEG

(Motion JPEG): A codec consisting of a stream of JPEG images. Common in video from digital cameras, and a reasonable format for editing videos

H.264

H.264 is a popular standard for high definition digital video, and for good reason. A codec based on the H.264 standard compresses a digital video file so that it only uses half the space of MPEG.

DV (Digital Video)

Usually used for video grabbed via fire wire off a video camera. Fixed at 720x480 @ 29.97FPS, or 720x576 @ 25 FPS. Not very highly compressed.

WMV (Windows Media Video)

A collection of Microsoft proprietary video codecs. Since version 7, it has used a special version of MPEG4.

DivX

An ASF (incomplete early MPEG-4) codec inside an AVI container; DivX 4 and later are a more full MPEG-4 codec. No resolution limit.

Sorenson 3

Apple's proprietary codec, commonly used for distributing movie trailers (inside a quick time container).

Quick time 6

Apple's implementation of an MPEG4 codec.

RP9

A very efficient streaming proprietary codec from Real (not MPEG4).

WMV9

A proprietary, non-MPEG4 codec from Microsoft.

Ogg Theora

A relatively new open format from Xiph.org.

Dirac

A very new open format under development by the BBC.

7. Video Sampling Bit Rates and Quality Measured

The bit rate, or data rate of a video file is the size of the data stream when the video is playing, as measured in kilobits or megabits per second (Kbps or Mbps). Bit rate is a characteristic of a file, it

specifies the minimum capabilities of the hard drive transfer rate or Internet connection needed to play a video without interruption.

Higher bit rates can provide more information to describe the visual or audio data. Cameras typically record at a higher bit rate than can be optimized for delivery files to the Internet or optical disc.

- **16 kbit/s** video phone quality minimum necessary for a consumer-acceptable "talking head" picture using various video compression schemes

- **128–384 kbit/s** business-oriented video conferencing quality using video compression

- **400 kbit/s** YouTube 240p videos (using H.264)

- **1 Mbit/s** YouTube 480p videos (using H.264)

- **1.15 Mbit/s max** VCD quality (using MPEG1 compression)

- **2.5 Mbit/s** YouTube 720p videos (using H.264)

- **3.5 Mbit/s type** Standard-definition television quality (with bit-rate reduction from MPEG-2 compression)

- **4.5 Mbit/s** YouTube 1080p videos (using H.264)

- **9.8 Mbit/s max** DVD (using MPEG2 compression)

- **8 to 15 Mbit/s type** HDTV quality (with bit-rate reduction from MPEG-4 AVC compression)

- **19 Mbit/s approximate** HDV 720p (using MPEG2 compression)

- **24 Mbit/s max** AVCHD (using MPEG4 AVC compression)

- **25 Mbit/s approximate** HDV 1080i (using MPEG2 compression)

- **29.4 Mbit/s max** HD DVD

- **40 Mbit/s max** 1080p Blu-ray Disc (using MPEG2, MPEG4 AVC or VC-1 compression)

8. Process of Transcoding

The process of transcoding is given below:

1. Transcoding is the process of changing some part of a video file format to another type.

2. If you change frame size, or bit rate, or codec, or audio signal, you are said to be transcoding a file.

3. The process of transcoding is generally pretty time-consuming, and can often add a significant hurdle to the production process.

4. Transcoding also introduces the possibility of errors into the file.

5. If the video signal is being transformed in some significant way like change in frame rate.

6. If you can accomplish your workflow without transcoding, you'll generally save yourself time, money and storage costs.

9. Compressed and Un-Compressed Videos

Compressed Video

Video signal requires a large amount of storage space and transmission bandwidth. To reduce the amount of data, strategies are employed that compress the information without negatively affecting the quality of the image. Some methods are lossless, but most are lossy. Some simple methods of data compression are:

- Throw away pixels at regular intervals

- Average several pixel values together (subsampling)

- Throw away color channel information at regular intervals

Lossless Codecs

Intensive algorithms can be employed to reduce the amount of transmitted and stored image data. Mathematical algorithms can be used to encode and decode each video frame.

Lossy Codecs

Codecs lose some information in the video signal, the goal is to make this information loss visually imperceptible. When codec algorithms are developed, they are fine-tuned based on analyses of human vision and perception.

Uncompressed Video

Video that has no compression applied can be unwieldy, so it is only used for the highest-quality video work, such as special effects and color correction at the last stage of a project. Most professional projects have an offline phase that uses compressed video and then an online, finishing phase that uses uncompressed video recaptured at full resolution. Uncompressed video requires expensive VTRs and large, high-speed hard disks.

10.   Storage Space or Size of Footage

Video or footage format you choose for output affects the capture settings of your clips, your sequence settings, and the equipment you need. The most common output formats include:

DV

The DV format family includes DV, DVCAM, DVCPRO, DVCPRO 50, and DVCPRO HD. DV formats are compressed video formats designed with nonlinear video editing in mind.

Uncompressed digital and professional analog video formats

These are formats such as Betacam SP (analog), Digital Betacam, D-5, or HDCAM. VTRs for these formats support several different video interface connections, such as component analog (Betacam SP), SDI (Digital Betacam, D-5), and HD-SDI (HDCAM).

Analog composite video output

VHS and 3/4" U-matic are still the lowest common denominator for video distribution, even though these formats are being replaced by DVD, DV, and QuickTime movie files.

11.   Recording Device and Quality

Digital media (especially high data rate video) makes your disks work harder, you should use dedicated disks for capturing and playing back your digital video. Depending on what kind of computer you are using, you may be able to use internal and external hard disks to store your media files. Each has benefits and drawbacks.

Internal Disk

- May be less expensive because they don't have external cases or require their own power supplies.

- Are inside your computer, causing less noise.

- Are limited by the expansion capabilities of your computer and the heat buildup they cause.

External Disks

- Let you easily switch between projects by switching disks connected to the computer.

- Let you move a project quickly from one computer system to another in a different location.

- May be more expensive because of external cases and power supplies.

- May be noisy.

Type of hard disk storage system appropriate for your needs, keep in mind the format and data rate of the video you're capturing. Depending on whether you work as an independent video editor. The amount of storage you require and the bit rate of data transfer will be important factors to match up with your storage needs.

Common choices include:

- ATA

- FireWire

- SCSI

- RAID and Fibre Channel

Learning Unit 3: Understand the "Trade of" between Quality and Size of a Video File

Overview

On completion of this learning unit, you will be able to understand compression methods available for media types, transmission channels, playback/ output platform, frames per seconds as fps, effect with increasing/decreasing FPS on video file, standard definition (SD), high definition (HD) and higher resolution yields bigger file.

1. Compression Methods for Media Types

Video footage has been recorded on videotape. As digital acquisition replaces analog technology, some camcorders now record footage as files on non-tape-based media such as hard disks, solid-state cards, and optical discs.

SD:

DV, DVCAM, DV25, DV50•

MPEG-2@ML 4:2:0, I-Frame & Long • GOP 2-15 Mb/s

MPEG-2 @ML 4:2:2, I-Frame & Long • GOP 4-50 Mb/s

Asynchronous Transfer Mode
ATM is a dedicated-connection switching technology that organizes digital data into 53-byte cell units and transmits them.

HD:

MPEG-2@HL 4:2:0, I-Frame & Long • GOP 12-50 Mb/s

MPEG-2@HL 4:2:2, I-Frame & Long • GOP 20-50 Mb/s

XDCAM HD (18, 25, 35 Mb/s)•

XDCAM HD 4:2:2 (50 Mb/s)•

XDCAM EX

2. Transmission Channels and Playback

- Digital video technology has fundamentally changed the way visual information is processed stored and transferred.

- Analog video with the emergence of various applications such as High Definition TV Video CD, Digital Versatile Disk, Digital Video Broadcasting and video conferencing.

Video Transmission over Broadband Networks

- Public access networks are expected to provide transmission services for various forms of information.

- Asynchronous transfer mode (ATM) networks are an example of a network architecture designed for broadband applications in public networks.

Video Transmission over Burst-error Channels

- Wireless connection can provide convenient tether less data access and mobility to users.

- Video communication over wireless is challenging as the hardware and channel resources are very constrained.

3. Effect of Increasing and Decreasing FPS

Frame Rate

- Movies on film are almost exclusively projected at 24 fps.

- Television does not have an internationally accepted frame rate.

- Converting video formats from one frame rate to another is technically challenging

- There are often unwanted visual side effects.

- This is especially true when the frame rates do not evenly divide.

Example

- Converting 30 fps to 60 fps is fairly easy to do.

- Converting 29.97 fps to 25 fps is difficult. You have to make sure audio stays in sync throughout the conversion is yet another challenge.

24 FPS

This is the universally accepted film frame rate. Movie theaters worldwide almost always use this frame rate. Many high definition formats can record and play back video at this rate, though 23.98 is usually chosen instead.

23.98

This is 24 fps slowed down by 99.9% (1000/1001) to easily transfer film to NTSC video. Many high definition video formats (and some SD formats) can record at this speed, and it is usually preferred over true 24 fps because of NTSC compatibility.6) fps.

25 FPS

The European video standard. Film is sometimes shot at 25 fps when destined for editing or distribution on PAL video.

29.97 FPS

This has been the color NTSC video standard since 1953. This number is sometimes inaccurately referred to as 30 fps.

30 FPS

Some high definition cameras can record at 30 fps, as opposed to 29.97 fps. Before color was added to NTSC video signals, the frame rate was truly 30 fps. However, this format is almost never used today.

50 FPS

This refers to the interlaced field rate (double the frame rate) of PAL. Some 1080i high definition cameras can record at this frame rate.

59.94 FPS

High definition cameras can record at this frame rate, which is compatible with NTSC video. It is also the interlaced field rate of NTSC video. This number is sometimes referred to as 60 fps, but it is best to use 59.94 fps unless you really mean 60 fps.

> **Do you know!**
>
> In Europe, PAL and SECAM use 25 fps
>
> North America and Japan uses 29.97 fps

60 FPS

High definition equipment can often play and record at this frame rate, but 59.94 fps is much more common because of NTSC compatibility.

4. Resolution of Video as Defined by Number of Pixels

Two major signal types recorded on videotape: NTSC and PAL. With the emergence of new high definition (HD) video formats, NTSC and PAL formats are now referred to as standard definition (SD) video formats.

Standard Definition Video

Screen Aspect Ratio
SAR is the proportional relationship between its width and its height.

- National Television Systems Committee (NTSC) is the television and video standard used in most of the Americas, Taiwan, Japan, and Korea.

- Phase Alternating Line (PAL) is the television and video standard used in most of Europe, Australia, India, Brazil, China, and many African countries.

- SD formats almost always have an aspect ratio of 4:3 (1.33:1).

High Definition Video

- HD video formats were standardized in the United States by the Advanced Television Standards Committee (ATSC).

- These HD video formats are the next generation of broadcast and recording video formats.

- SD formats, which are restricted to fixed frame rates and numbers of lines per frame, HD video provides several options per format.

- Increased flexibility is convenient

- For HD format you have to define the frame size, frame rate, and scanning method of your HD format.

Video frame is composed of lines. In digital video, each line is sampled to create a number of pixels (samples) per line.

320*240

Used for web distribution or offline video editing.(PAR 1:1)(SAR4:3)

640*480

Standard for analog-to-digital video editing and an ATSC video specification.(PAR 1:1)(SAR 4:3)

720*480

NTSC DV and DVD image dimensions. Also part of the ATSC video specification. (SAR 4:3)

720*576

PAL SD video dimensions used for digital formats DVD and DV. (SAR 4:3)

1280*720

An HD video format, capable of higher frame rates in exchange for smaller image dimensions. (PAR 1:1)(SAR 16:9)

1920*1080

An HD video format with very high resolution. (PAR 1:1)(SAR 16:9)

960*720

Some 720p formats (such as DVCPRO HD and HDV) subsample 1280 pixels to 960 to minimize the data rate. (PAR 4:3)(SAR16:9)

Pixel Aspect
PAR is a mathematical **ratio** ratio that describes how the width of a pixel is compared to the height of that pixel

1440*1080

Some 1080-line formats (such as HDV and DVCPRO HD) subsample 1920 pixels to 1440 or even 1280 to minimize the data rate. (PAR 4:3)(SAR16:9)

5. Higher Resolution yields Bigger File

Size of the file depends on certain parameters like color coding, fps and resolution of the file.

Example:

Suppose we keep frame rate and color coding constant and change the pixel values

For 8-bit color coding and 25 FPS

Resolution

720*576

720 x 576 x 25 x 8 + 2 x (360 x 576 x 25 x 8) = 1.66 Mb/s (SD Video)

1920x1080

1920 x 1080 x 25 x 8 + 2 x (960 x 1080 x 25 x 8) = 605 Mb/s (HD Video)

The above examples prove that by increasing the number of pixel size of the final video file will increase.

Summary of Module

- Calculation of Time Based on Narration and Audio in the scenes/visuals is done by Vertical Multitrack Controls and Horizontal Time Controls.

- Length is the length of in Seconds of Audio Clip for each Scene.

- Synchronization of music in scenes using Synchronization of the original clips using out points, in point and time code and time duration is computed accordingly of scenes.

- There is a wide range of video formats, in general, each format has the following characteristics: Container type, Video and audio signal and Codec.

  Interlaced, Color space and bits per pixel, Resolution, Aspect Ratio, Frame rate, Bitrate are characteristics of video signal. Study of file formats concepts (containers/ wrappers, and codecs)

- AVI, MPEG-4, FLV, MOV, OGG, OGM, OGV, MKV, VOB, ASF are most common containers/ wrappers used.

  Codecs available and compatibility based on where the video file will be played or viewed

- MPEG, MPEG 1,2,4, H.264, MPEG Spinoffs, MJPEG, DV, WMV, RM, DivX, Quicktime 6, Sorenson 3, WMV9, RP9, Ogg Theora, Dirac

- SD and HD are compression methods available for media types.

- FPS is frames per seconds and it effects video with increasing and decreasing fps on video file as increasing frame rate makes the video smother.

- Resolution of video is defined by number of pixels present in the image. This determines if definition of the video file is standard definition (SD) or high definition (HD). Higher resolution yields bigger file

Frequently Asked Questions (FAQs)

FAQ 1:	What is CODEC?
Answer	Container format is a type of file format that contains various types of data compressed by standardized codec

FAQ 2:	How number of pixel effect the resolution?
Answer	Number of pixel on screen is called resolution. Thus by increasing the number of pixel resolution increases.

FAQ 3:	SAR and PAR stands for?
Answer	Screen aspect Ratio and Pixel aspect ratio.

FAQ 4:	Difference between compressed and uncompressed video?
Answer	Compressed video are smaller in size but of the same quality and uncompressed videos are of same quality but bigger in size.

FAQ 5:	Minimum frame per second for video?
Answer	24fps is the minimum standard to be called it a video.

FAQ 6:	What is Container?
Answer	Container format is a type of file format that contains various types of data compressed by standardized codec.

FAQ 7:	Factors that affects the quality of video?
Answer	Quality of video depends on color coding, frames per second and number of pixels on screen.

FAQ 8:	Is there any standard frame size of video?
Answer	No, there is no such standard. Different countries use different standards like in Europe 25fps is stand and in north America its 29. 97.

FAQ 9:	Which storage device is best?
Answer	Luckily there is no such standard. It depends on the size and bit rate of the video it the bit rate is big device should be high speed for smooth running of video and vice versa.

FAQ 10:	What are the characteristics of video file?
Answer	Container, codec and video signal.

Test Yourself!

Please mark the correct one from the given options. You can check your answer with the Answer Keys at the end of this module.

1. **Video is represented as a series of images formally known as _____.**

a. Pics

b. Shots

c. Frames

d. Snaps

2. **The faster the frames are displayed _____.**

a. The rougher the video appears

b. The smoother the video appears

c. It gets blurry

d. None of these

3. **Number of pixel on screen is called _____.**

a. Frame

b. Resolution

c. Compression

d. Bit Rate

4. **Which of the following is not a characteristic of video signal?**

a. Interlaced

b. Resolution

c. Compression

d. Aspect Ratio

5. **Minimum frame rate to be called it a video is _____.**

a. 24

b. 25

c. 23

d. 26

6. **Screen aspect ratio for High Definition video is _____.**

a. 16:9

b. 4:3

c. 3:4

d. 9:16

7. **Which of the following is a video format?**

a. JPEG

b. MPEG

c. EMPEG

d. TIFF

8.   Characteristic of a video signal is known as _____.

a.   Frame Rate   b.   Bit Rate

c.   Resolution   d.   All of Above

9.   AVI stands for:

a.   Audio Video Interleave   b.   Auto Video interleave

c.   Audio video Interface   d.   Audio Video Interaction

10.   Which of the following is <u>NOT</u> a HD resolution?

a.   960x1280   b.   780x576

c.   1920x1080   d.   780*1080

Answer Key

MCQ Number	Correct Answer
1	c
2	b
3	b
4	c
5	a
6	a
7	b
8	d
9	a
10	b

Teaching and Learning Material: Information Technology (Computer Graphics - Motion)

Module 4: Photo Editing and Graphic Development

Learning Outcomes

After completion of this learning module, you will be able to:

- Edit photos through different editing software, tools and techniques available

- Apply visual effects to a photo to enhance it, such as filters

- Merge different photos to create one single photo

- Identify the cost efficient solution based on number of pages and number of colours

- Use of scanner and scanned photos

- Identify sense of balance and alignment of objects in a layout on canvas

- Use typography, create graphics/ objects

- Use a good layout to allow better communication of complex information to the viewer

Learning Unit 1: Photo Editing and Scanning

Overview

In this leaning unit, you will learn the tools and techniques used in image editing software to make adjustments to the image. After the completion of this learning unit, you will be able to demonstrate the color correction techniques, adjust brightness, contrast, color tint, color saturation of the image as a whole, retouching, and removing dust. Also, you will be able to define transformation, correct lens aberrations, adjust the geometry by crop, rotate, use of filter, merging two photos into one and importing photos.

1. Color Correction Techniques

Color correction is the removal of unwanted color casts by neutralizing blacks, grays and/or whites. An adobe Photoshop, color correction can be done using two techniques. Using levels and using curves. Both techniques are explained below by correcting the same image.

Color Correction using Levels on following Picture:

Below are the steps for color correction:

1- Open the image in Adobe Photoshop.

2- Create a new level layer as:
Layer->New adjustment Layer ->Levels

Color Cast
A color cast is an unwanted tint in the image due to the lighting, the white balance of the video camera, or the type of film stock used given the lighting conditions during the shoot.
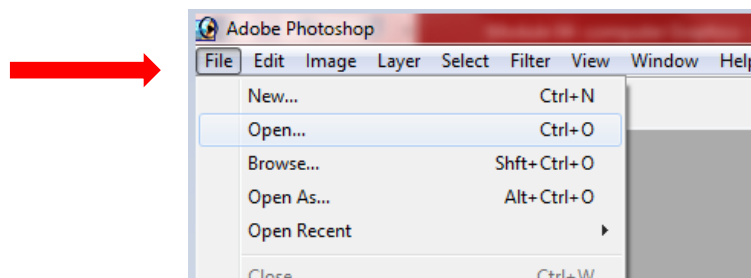
Do you know!
Adobe Photoshop can remove the color cast created by fog, dusty environment of light effects.
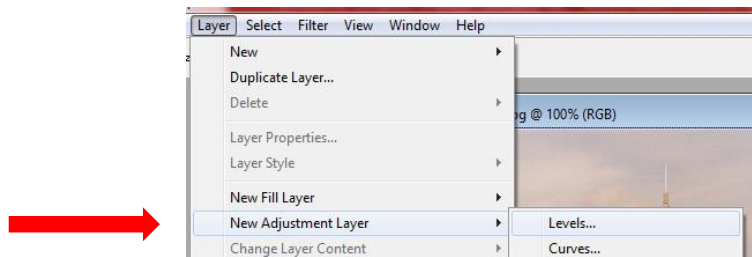
3- Double click at the black eyedropper on the left
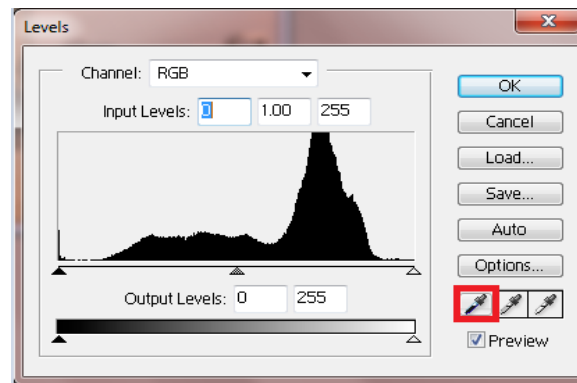
4- Color picker will appear, type 5 in the B text box as shown, press ok.
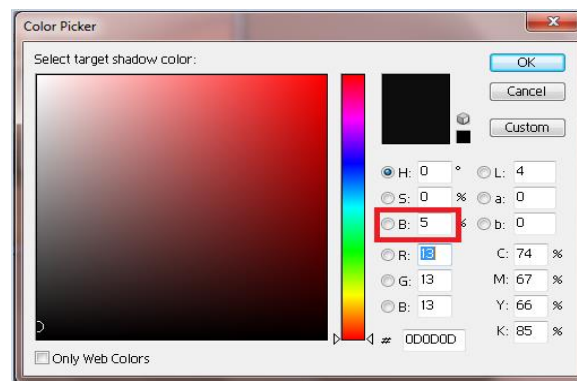
5- Double click at white eyedropper.
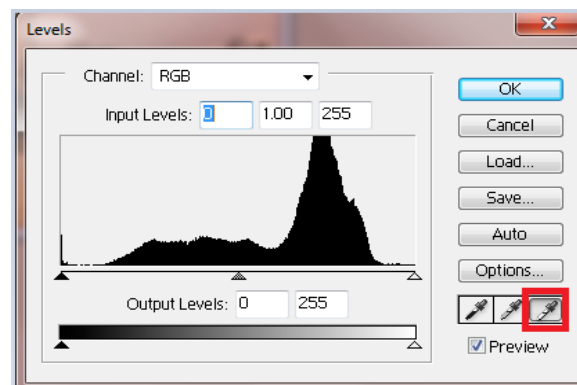
6- Type 95 in the B text box in the color picker and click OK.
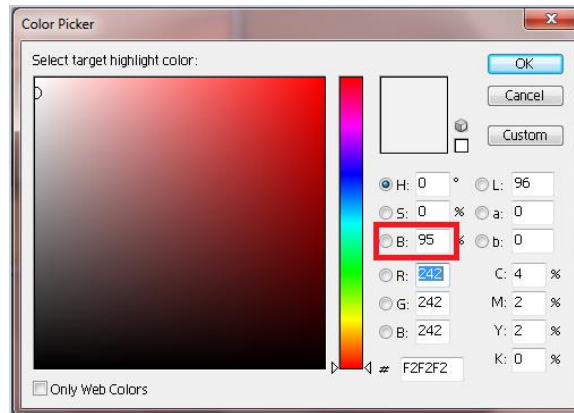
7- Add Threshold layer as Layer-> New Adjustment Layer->Threshold.
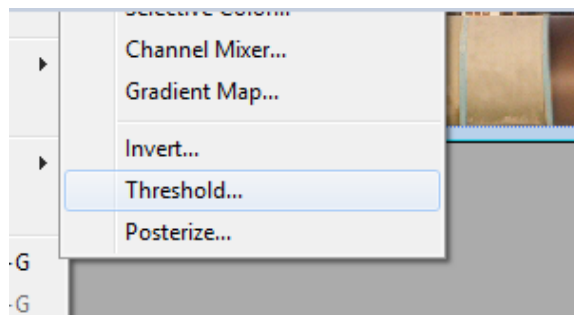
8- Move the slider towards right until the whole image becomes black. Now move the slider towards left a little bit. When a small white area appears Shift+click in the white area as shown below. Then move the slider towards left and slowly move towards right when a bit black appears Shift+Click in the black area.

9- Now click at Cancel.
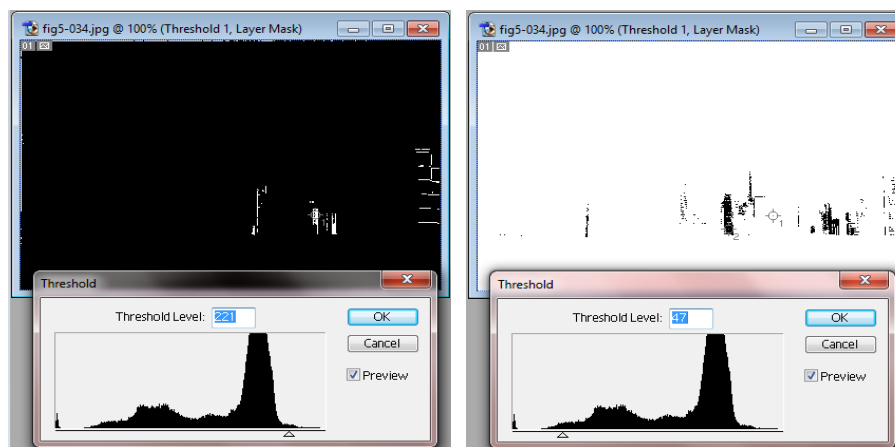
Do you know!

Threshold layer helps you to mark the lightest and darkest points in your image.

10- Click at New Layer button -> Levels.
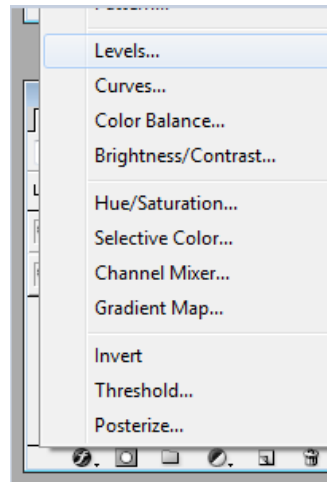
11- Click at white eyedropper and then click at marked point 1.
12- Click at black eyedropper and then click at marked point 2.
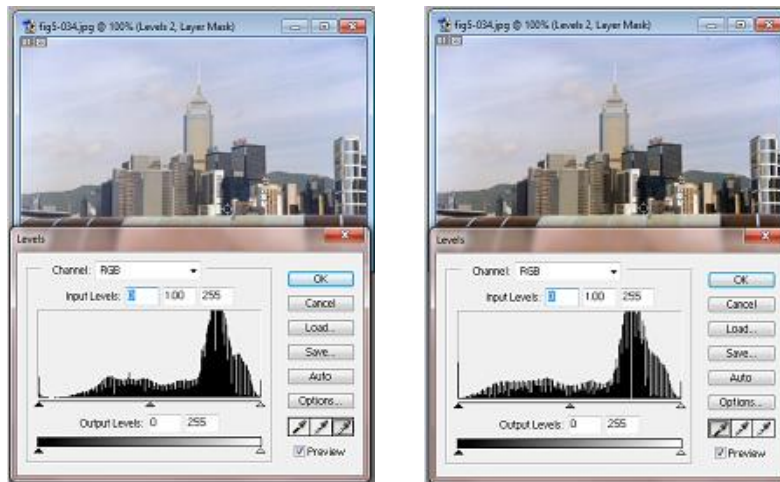
13- Click Ok.

| Before | After |

Color Correction Using Curves:

1- Open the image in Adobe Photoshop.
2- Add a curves layer as:
Layer ->New Adjustment Layer ->Curves.
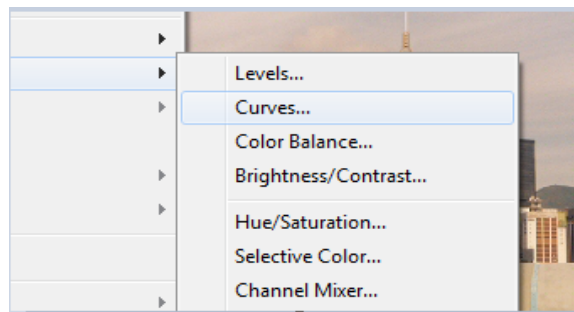
3- In the curves, click at the midpoint, one grid above midpoint and one grid below the midpoint.
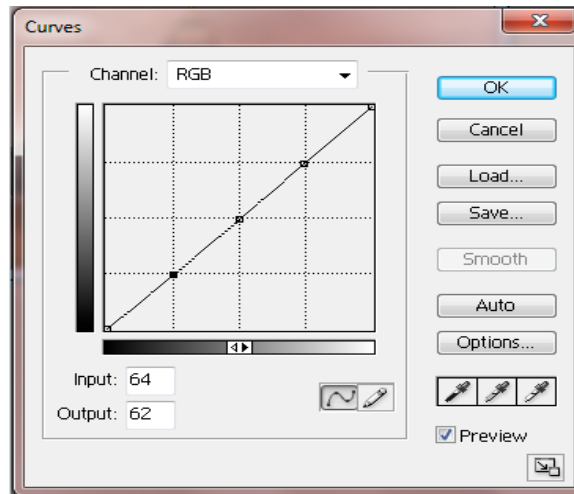
Curves

With Curves you can adjust any point along a 0-255 scale unlike making adjustments using only three variables (highlights, shadows, midtones).

4- Move the lower point a bit low and the upper point a bit more up.
5- Click ok.
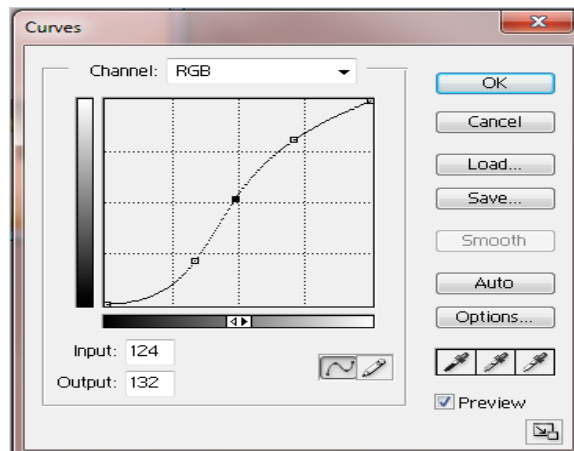
Before   *After*

2. Adjustment of Brightness, Contrast, Color Tint, Color Saturation

Changing Brightness, Contrast and color tint and saturation in Adobe Photoshop

You can change brightness, contrast and color as.

   1- Open the image in Adobe Photoshop.
   2- Click at Image ->Adjustment ->Brightness/Contrast
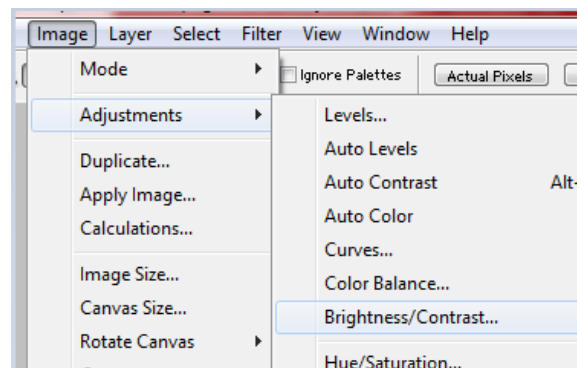
   3- You can adjust the brightness and contrast by moving the sliders.
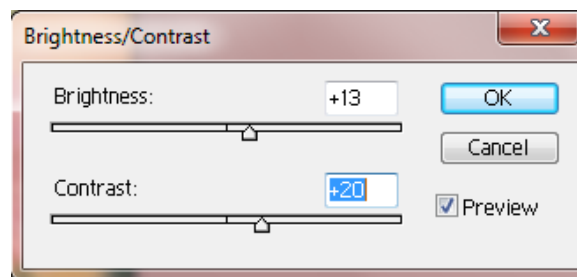
   4- To change color tint and saturation, Click at image->adjustment->Hue/Saturation.
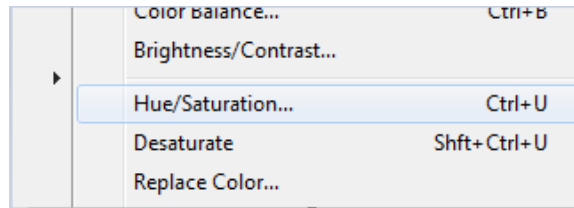
5- You can change the color tint (lightness), saturation (intensity) and hue using the sliders.
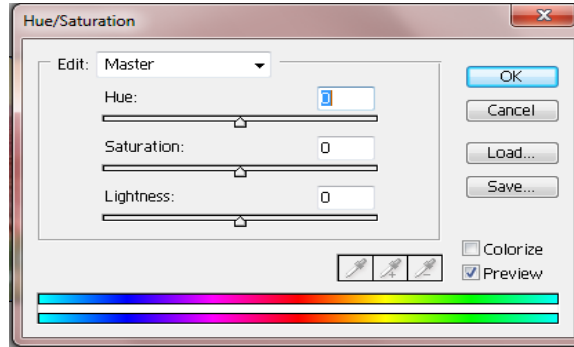
Changing Brightness, Contrast and color tint and saturation in Adobe Illustrator

1- Select all the artwork that you want to make less bright
2- Go to Edit -> Edit Colors -> Saturate...
3- Check the Preview check mark to see the results immediately
4- Decrease the intensity until the objects are less bright.

3. Sharpening and Retouching for Removing Dust Specks and Scratches

Retouching

Retouching is the process of getting an image ready for final presentation. This can take a variety of techniques and process. It can be very simple or dramatic but every image that you see used in advertising will be subjected to some form of enhancement.

Sharpening

Sharpening enhances the definition of edges in an image. Whether your images come from a digital camera or a scanner, most images can benefit from sharpening.
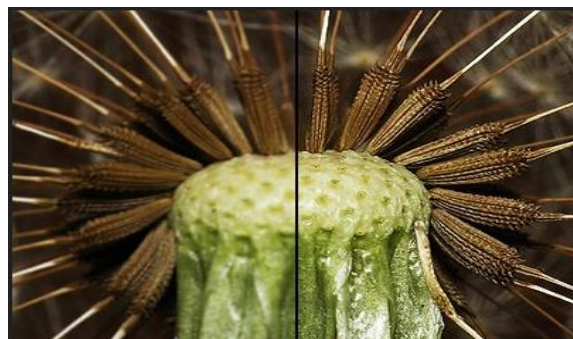
Before   *After*

Sharpening image in Adobe Photoshop

You can sharp the image in Adobe Photoshop as

1. Open your image in Adobe Photoshop.

2. Click at Filter->Sharpen.
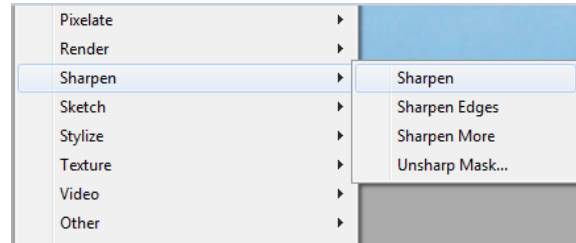
3. Now you can sharpen the image by using different options available in the menu.

Removing Dust Specks and Scratches

When you scan image from film, slides, or prints, you will face the problem of dust and scratches. You can use spot healing brush to remove dust and scratches as

1- Open the image in Adobe Photoshop.
2- Click the healing brush tool in the toolbox and then click at spot healing brush tool in the fly-out.

Healing Brush

The Healing Brush tool lets you correct imperfections, causing them to disappear into the surrounding image
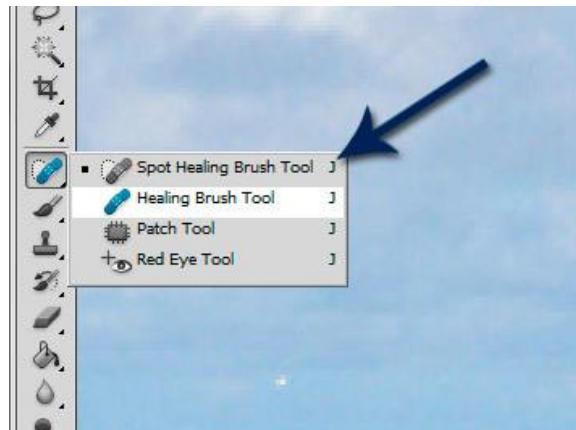
3- Make sure to have following settings for healing brush tool.

   a. Set the radius of the brush according to the spot size.
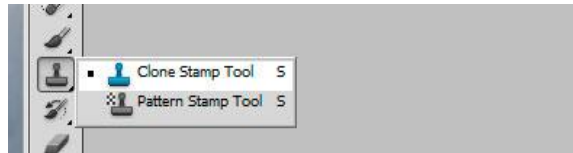   b. Set Content Aware option.

4- Now click at the spots one by one to have all the scratches removed.
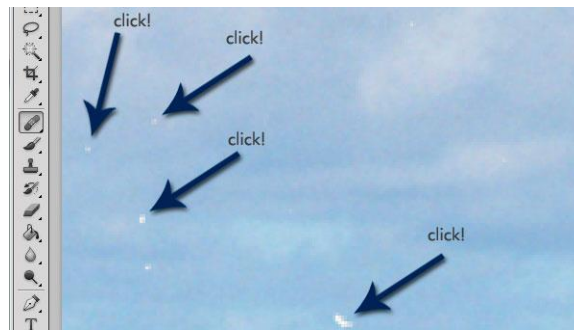
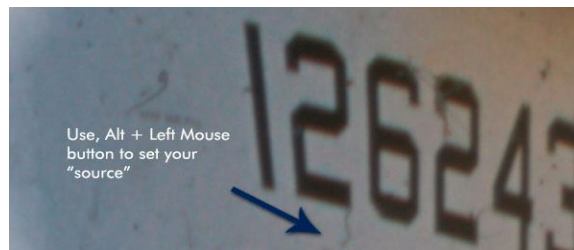### Remove Dust specks and scratches using Clone Stamp
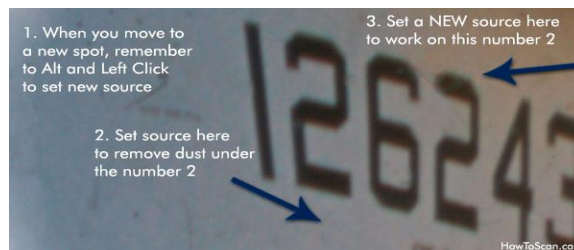
1- Select the clone stamp tool from toolbox.

Remember

To remove dust specks and scratches in tight spaces like face or designs, use clone stamp.

2- Select a clear point in the image as a source point. Alt+Click at that point.

3- Click at the dust or scratch spot one by one like distorted number 2 in the above picture.

4. Understand and Practice the Use of Visual Effects

Visual effects includes filters which are used to enhance the image. Filters are used to change the appearance of an image, layer or selection in Photoshop. Below is the detail of the use of some common filters.
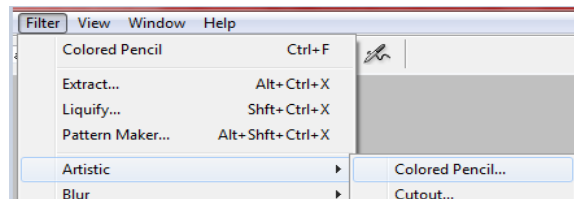
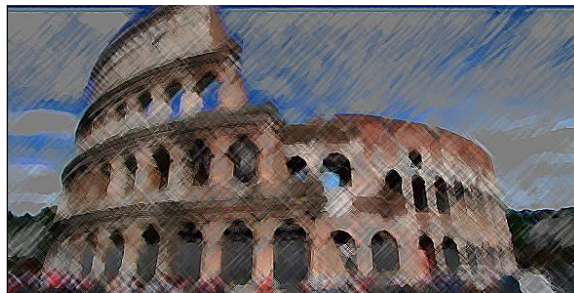Now we will apply different filters on the image below

Before Filter effect

Colored Pencil Filter

1- Open image in Adobe Photoshop.

2- Click at Filters->Artistic->Colored Pencil.

3- The output image will be like.

After Filter Effect

As in the above example you can apply a number of artistic filter in the same way clicking at Filter->Artistic…

Result of some of the filters is as shown below

Cutout…

Dry Brush

Film Grain

Fresco

Neon Glow

Paint Daubs

Plastic Wrap

5. Transformation and Styles

<table>
<tr><td>

Do you know!

You can apply transformations to a selection, an entire layer, multiple layers, or a layer mask.

</td><td>

Transformation

In Photoshop, Transform is used to scale, rotate, skew, and just distort the perspective of any graphic. You can also apply transformations to a path, a vector shape, a vector mask, a selection border, or an alpha channel. Transforming affects image quality when you manipulate the pixels. The different types of transformation used in Photoshop are

</td></tr>
</table>

Scaling Graphics

One of the most basic transformations Photoshop is capable of is scaling a graphic. Scaling allows you to enlarge or shrink a graphic around a reference point.
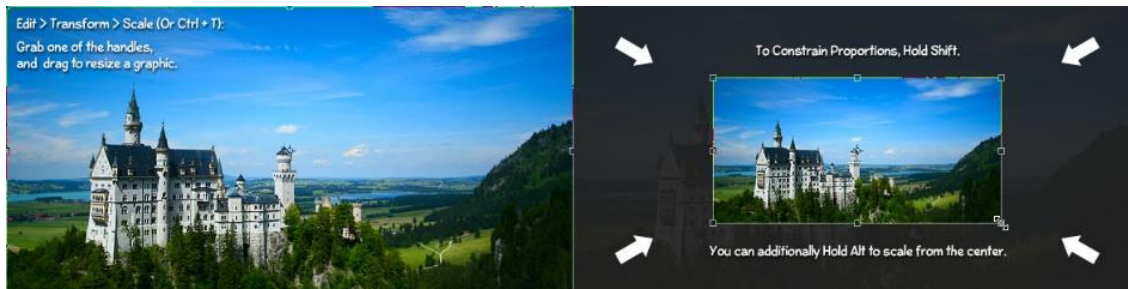
Scaling Graphics

Rotating Objects

You can rotate an image at any angle in Photoshop.

Skew, Distort, and Perspective Transformation

Images or objects can be skewed, distort, and their perspective can be corrected using transformation.

Warping an Object

The Warp Transformation is quite a bit different compared to the other transformations. The entire shape of the object can be modified, making this transformation useful for several different effects.

Wrapping Objects

Styles

Photoshop provides a variety of effects, such as shadows, glows, and bevels that change the appearance of a layer's contents. When you move or edit the contents of the layer, the same styles are applied to the modified contents. For example, if you apply a drop shadow to a text layer and then add new text, the shadow is added automatically to the new text.
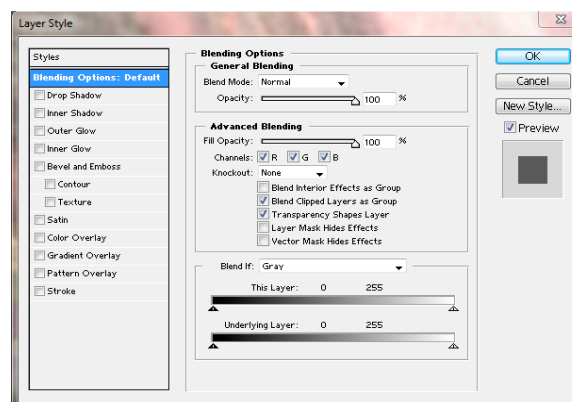
Remember
Layer styles are linked to the layer contents.

You can also create custom styles for your layer and can apply more than one styles to the layers.

Layer with Multiple Styles

Double click at the layer and layer style dialogue box will appear.

Layer Style Dialogue Box

You can apply any style you want from the list in the dialogue box like drop shadow, inner shadow, outer glow etc.

6. Correcting Lens Aberrations

Aberrations

In an ideal optical system, all rays of light from a point in the object plane would converge to the same point in the image plane, forming a clear image. The reasons which cause different rays to converge to different points are called aberrations.

Lens Distortion/Aberrations

Barrel distortion is a lens defect that causes straight lines to bow out toward the edges of the image.

Pincushion distortion is the opposite effect, where straight lines bend inward.

*Barrel and Pincushion*

Chromatic Aberrations

Chromatic Aberration, also known as "color fringing" or "purple fringing", is a common optical problem that occurs when a lens is either unable to bring all wavelengths of color to the same focal plane, and/or when wavelengths of color are focused at different positions in the focal plane.
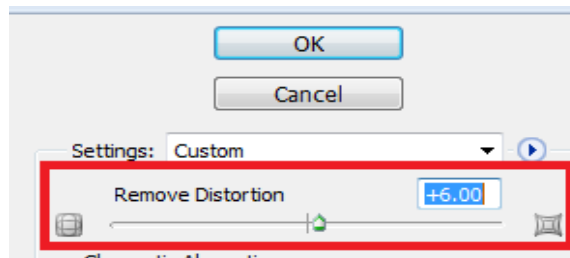
Teaching and Learning Material: Information Technology (Computer Graphics - Motion)
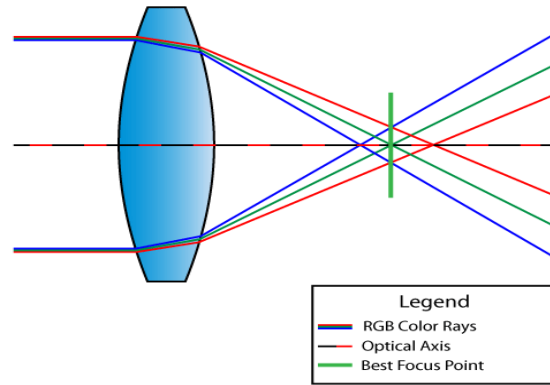
Chromatic Aberration

Correcting Lens Aberration

You can correct lens aberration in Adobe Photoshop as

1- Open image in Adobe Photoshop.
2- Click at Filter > Lens Correction.
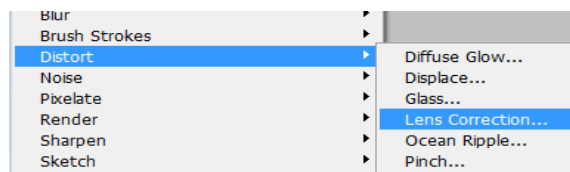
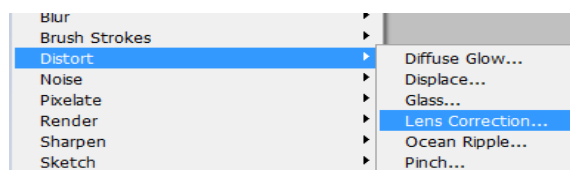3- Move the slider, drag it until it looks correct and then release.


4- Feel free to fine tune as you see fit.

Most lenses only need values between +5 and -3, so go easy here.

Correcting Chromatic Aberration

1- Open the image in Adobe Photoshop.
2- Click at Filter->Distort->Len Correction. Which gives you a new window with a preview and control sliders.

3- In the Chromatic Aberration box (towards the top) just move the two sliders until your image looks great.
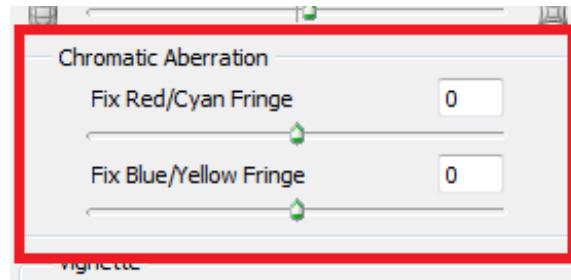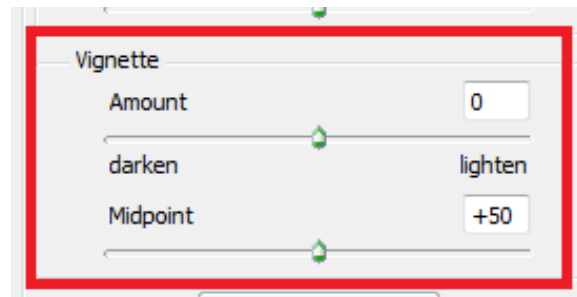

Correcting Light falloff

Vignette is a defect that darkens the corners of an image due to light falloff around the perimeter of the lens.

1- Open the image in Adobe Photoshop.
2- Click at Filter->Distort->Len Correction. Which gives you a new window with a preview and control sliders.

3- Move the lens Vignetting slider until the edges of image are lightened up.
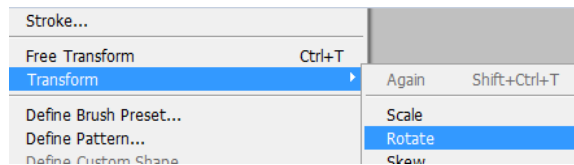

7. Adjustment of the Geometry by Crop, Rotate, Correct Perspective and Distortion

Rotating an Image

To Rotate an Object at any angel in Photoshop,

1- Open the image in Adobe Photoshop.
2- Click at Edit > Transform > Rotate.

3- Handles will appear but instead of dragging one of these, go just outside of the object until you see a curved arrow rotate icon.
4- At this point, simple drag left or right to rotate the selected object.
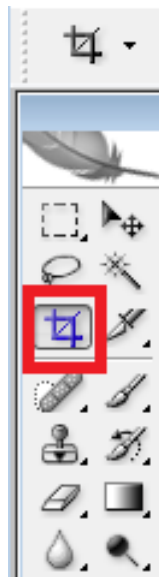

Do you know!

To rotate the image in increments of 15°, Press and hold Ctrl and rotate.

5- Press Enter to finish application of rotation.

Cropping an Image

To crop extra area from the image,

1- Open the image in Adobe Photoshop.
2- Select the crop tool from the tool box on the left.

3- Click and drag over the desired area in the image.

4- Press Enter.

Correcting Perspective

The Perspective transformation allows you to add perspective to an object. To correct perspective in Adobe Photoshop.

1- Open the image in Adobe Photoshop.
2- Click at Edit->Transform->Perspective.
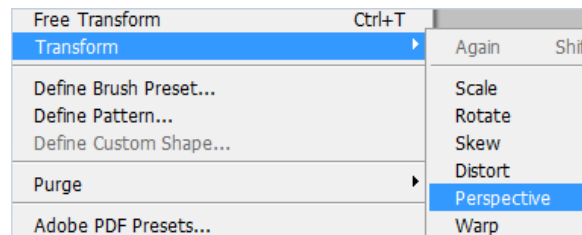
3- Click and drag the handles that appear on the edges on image to add perspective to the image.
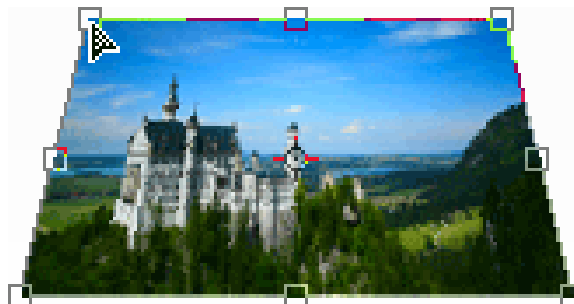
4- Press Enter to make the changes permanent.

Correcting Distortion

To correct distortion,

1- Open the image in Adobe Photoshop.
2- Click at Edit->Transform->Distort.

3- Click and drag the handles that appear on the edges of the image to distort it in the desired direction.

4- Press Enter to make the changes permanent.

8. Photo Enhancement or Manipulation through the Use of Filters

Filters in Adobe Photoshop

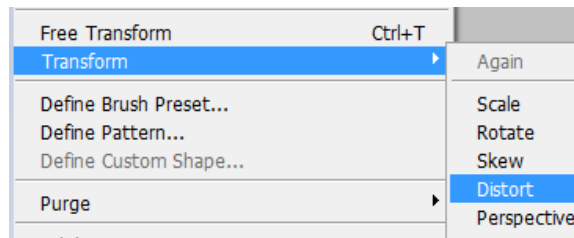You can use filters to clean up or retouch your photos, apply special art effects that give your image the appearance of a sketch or Blurred painting, or create unique transformations using distortions and lighting effects. The filters provided by Adobe appear in the Filter menu. These filter are formed in following groups.

Artistic Filter

Filters from the Artistic submenu help you achieve painterly and artistic effects for a fine arts or commercial project.

Do you know!

You can apply a filter to an individual channel, apply a different effect to each color channel, or apply the same filter but with different settings.
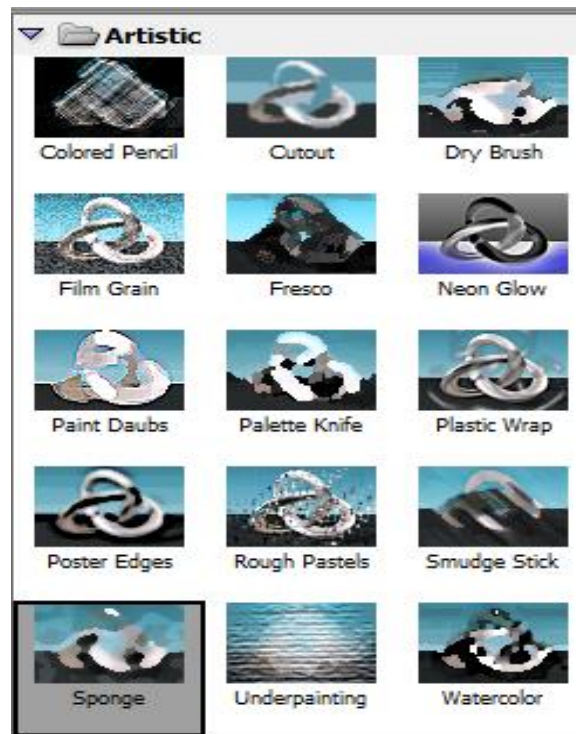
Bursh Strokes

Like the Artistic filters, the Brush Stroke filters give a painterly or fine-arts look using different brush and ink stroke effects.
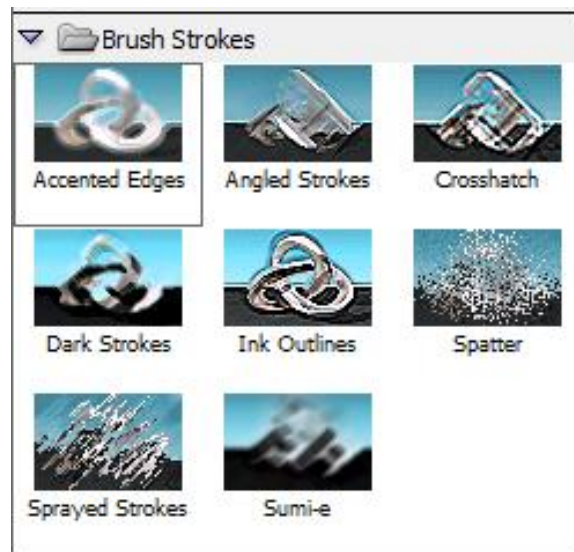
Distort Filter

The Distort filters geometrically distort an image, creating 3D or other reshaping effects.
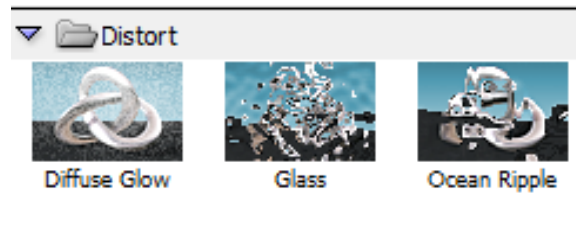
Sketch Filter

Filters in the Sketch submenu add texture to images, often for a 3D effect. The filters also are useful for creating a fine-arts or hand-drawn look
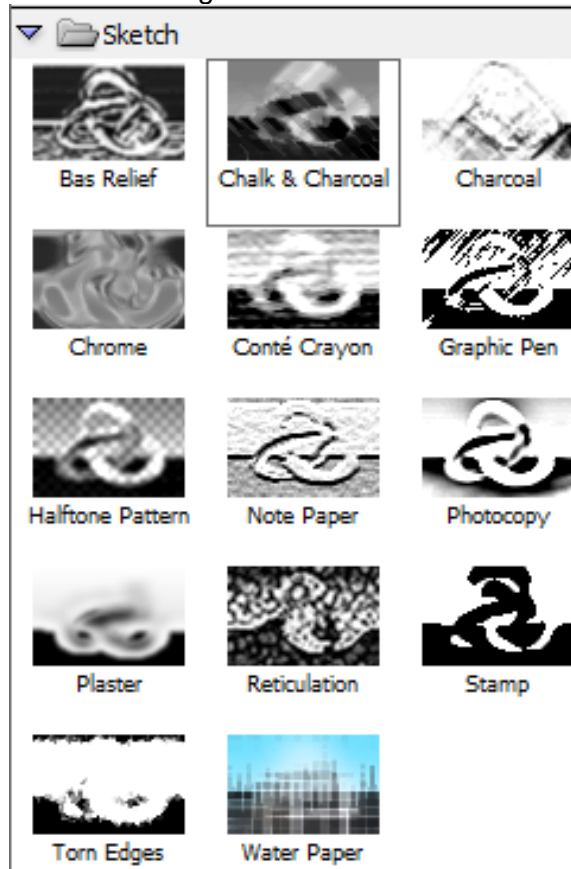
Remember

Distort filters can be very memory intensive so these may occupy much space and make the design very heavy.

Stylize Filter

The Stylize filters produce a painted or impressionistic effect on a selection by displacing pixels and by finding and heightening contrast in an image. It includes many filters like, diffuse, glowing edge, embose, extrude etc.
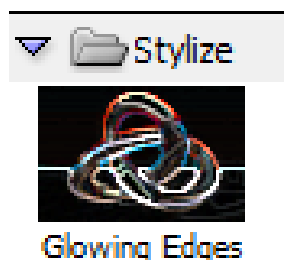
Texture Filter

Texture filters is used to simulate the appearance of depth or substance, or to add an organic look.
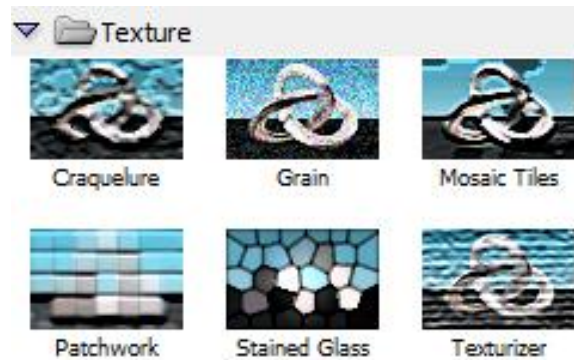
9. Merging Photos

Merging two or more different pictures allows you to create beautiful graphics in many fields. Photoshop lets you create special effects with merging photos.

1- Open Adobe Photoshop.
2- Open the two photos that you want to merge in photoshop.
3- Create a new file by clicking at File-> New and enter the dimentions for the new file.
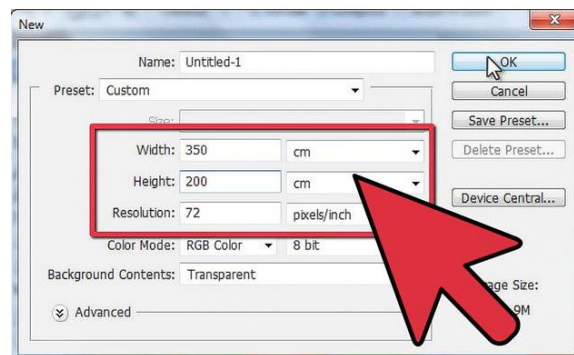
4- Drag the other two photos in the new image file.
5- Now remove the unwanted parts of image by selecting the eraser and and set up the size to 145px and the Hardness to 15%. Set the Opacity to 30% so the Eraser tool will be less effective and easier to use.
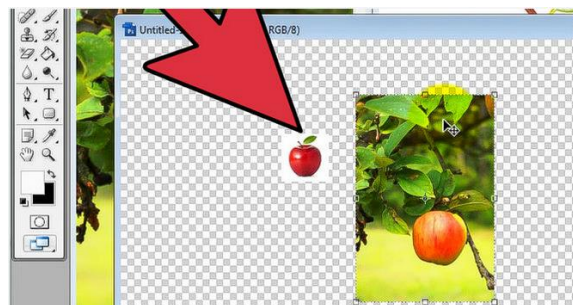
6- Erase the unwanted parts and use smaller sized eraser for narrow areas.
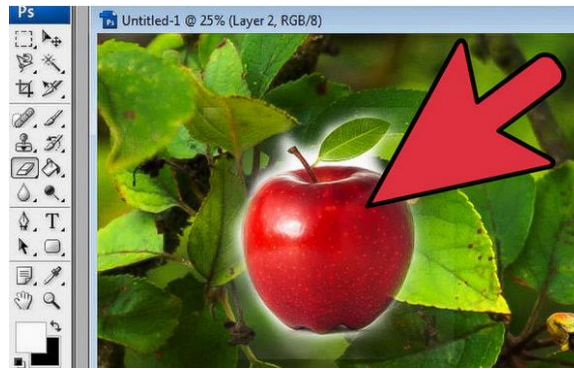
7- Select the Brush tool from the toolbox, set up the size to 100px, hardness 20% and Opacity to 30% using color which best matches with your images.
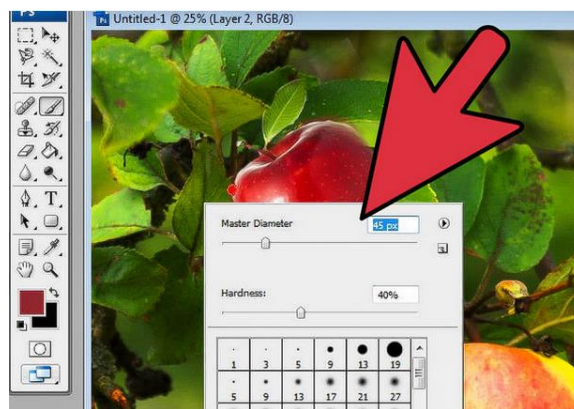
8- Use smaller size areas for fine details.
9- Refine the results.
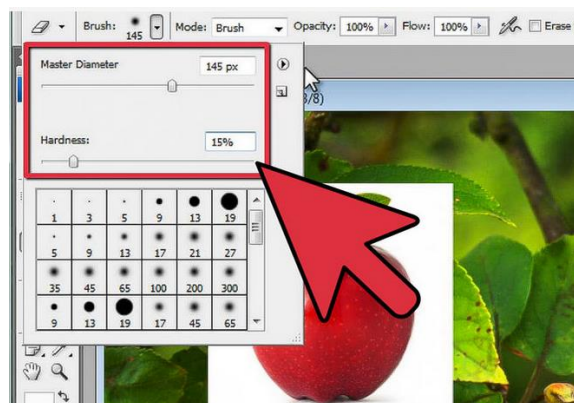
10. Importing Scanned Photos in a Layout

To import scanned images, either open TIFF files saved from separate scanning software, or use a TWAIN or WIA interface directly in Photoshop. In either case, make sure to install the software necessary for your scanner.

Import Images from a Separate Scanning Application

Most of the scanners come with softwares that you can run outside of the Adobe Photoshop. To import images in photoshop using these software,

1- Place the image in the scanner.
2- Start the scanning software, and set options as desired.
3- Save the scanned image as .TIFF file.
4- In Photoshop, open the saved TIFF files.

Import images using a WIA interface

1- Choose File > Import > WIA Support.
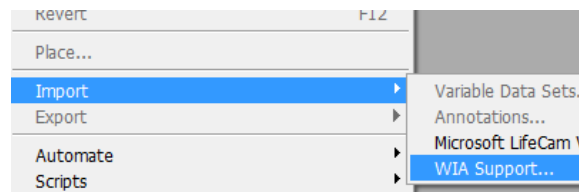
2- Choose a destination on your computer for saving your image files.
3- Click Start.
4- Select Open Acquired Images In Photoshop (unless you have a large number of images to import, or if you want to edit the images at a later time).
5- Select Unique Subfolder if you want to save imported images in a folder named with the current date.
6- Select the scanner that you want to use.
7- Choose the kind of image you want to scan: Color Picture, Grayscale Picture, or Black And White Picture or Text.
8- To specify custom settings, select Adjust The Quality Of The Scanned Picture.
9- Click Preview. If necessary, drag the handles of the bounding box to adjust the size of the crop.
10- Click Scan.

The scanned image is saved in BMP format.

Learning Activity

Removal of Color Tint from an Image

Description: This activity consists of a practical session in which all students select image with a color tint for them and try o remove the tint using threshold layer and curves.

Time Guideline: 30 min

Purpose: To practice the use of threshold layer and curves for removing color tint in an image

Presentation:
1- Browse Internet and collect some images having color tint.
2- Give an image to each student and ask them to remove the tint in Adobe Photoshop.
3- Check the performance of each student
4- Encourage the learners for their try.

Application of Filters to Image

Description: This activity consists of practical session in which students will learn about the effect of different filters on an image.

Time Guideline: 30 min

Purpose: To differentiate between different filters in Adobe Photoshop.

Presentation:
1- Ask the students to select an image for them and apply different filters to those images in Adobe Photoshop.
2- Ask them to label each filter effect.
3- Assess the student's performance.
4- Encourage each students for his try.

Learning Unit 2: Create Layout

Overview

In this learning unit, you will learn how to develop a layout on canvas. After completion of this learning unit, you will be able to create media elements, graphs, tables, text and diagrams using the techniques and also applying colors to the developed objects.

1. Create Objects on Canvas

A layout is the starting point for a design. It may include media elements, graphics, tables, diagrams etc. it is important to keep in mind that all the elements in the design layout should be in balance with correct harmony.

We can develop a layout in Corel Draw For example let's develop a simple notepad as shown below. You can develop a simple notepad graphics on the canvas as.

1- Open Corel Draw.
2- Create a new file by clicking at File->New.
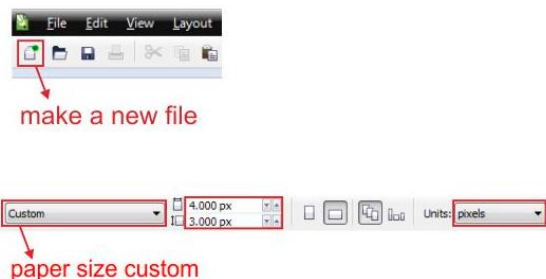
3- Enter the dimensions for the new file.
4- Select the "Rectangle Tool ", from the left toolbar, make a new box shape and then make the box shape resized into 885 x 635 pixel.

rectangle tool

| x: | -1,800 px | ↔ | 885 px | 100.0 | % |
| y: | 4,460 px | ↕ | 635 px | 100.0 | % |
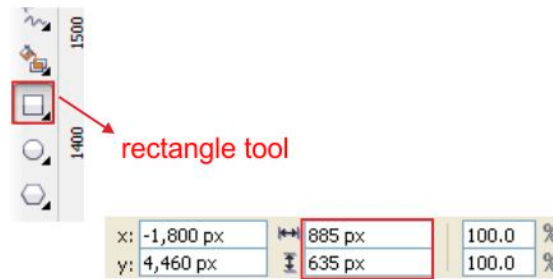
5- Select Shape Tool from toolbox and go to the upper toolbar there you will find corner shape option, set the type into Rounded Corner, and set the Corner Radius to 107 px, apply it on all corners.

shape tool

| 107 px | 107 px |
| 107 px | 107 px |
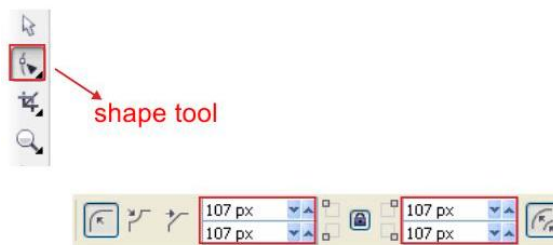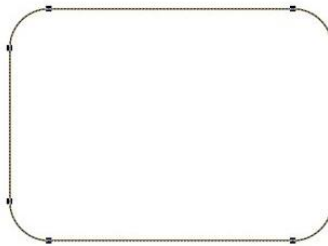
6- Select the box go to the "Fountain Fill Tool ", choose custom fill on the color blend and make the type Linear, fill the color with Gray on the left and white on the right.
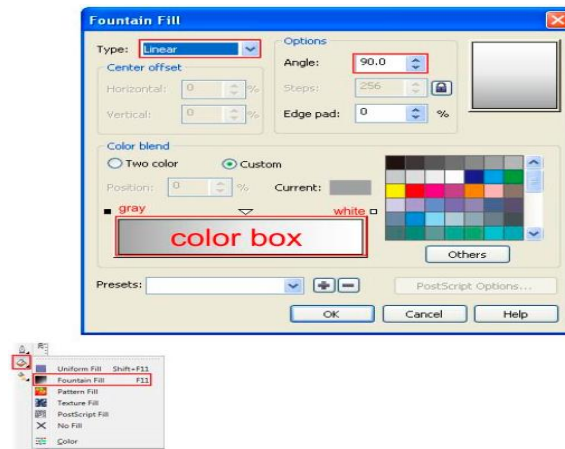
7- Now create a tiny Circle Shape using "Ellipse Tool "in the left toolbar.
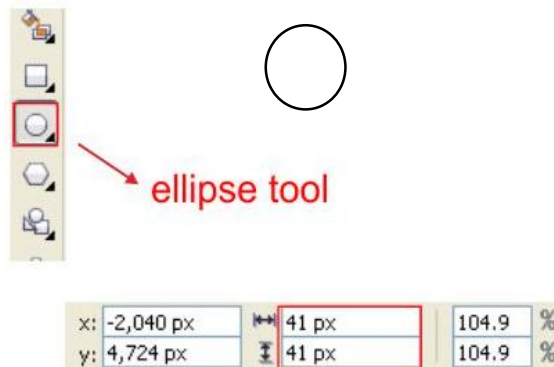
8- Arrange the Circles on top of the Gray Box Shape, give it Orange color and copy it as picture below.
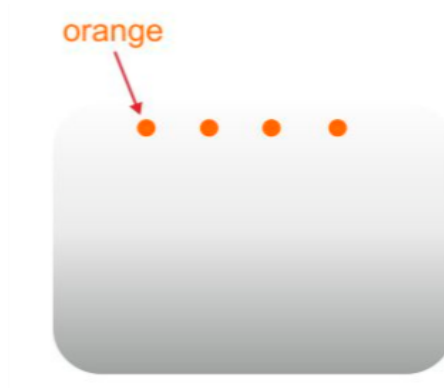
9- Create a line using "Bezier Tool "by left click and point.

bezier tool
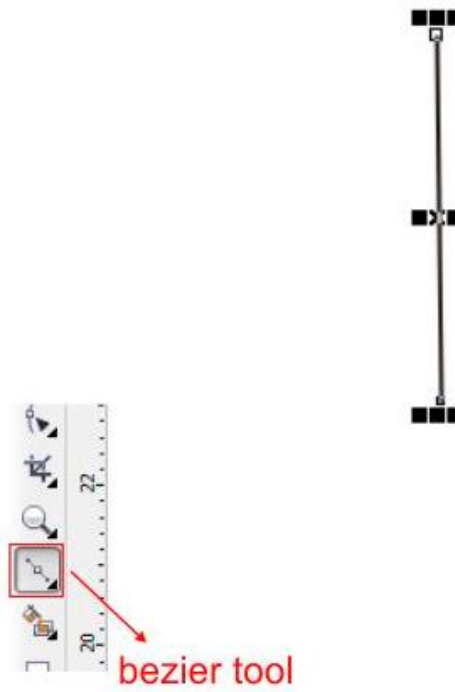
10- Shape it using "Shape Tool ", click on the middle of the line and find "convert to curves" in the top toolbar, drag the arrow on the corner in order to shape.

shape tool

Convert to curve
Convert a line segment to a curve, which can be reshaped by manipulating the control handles.
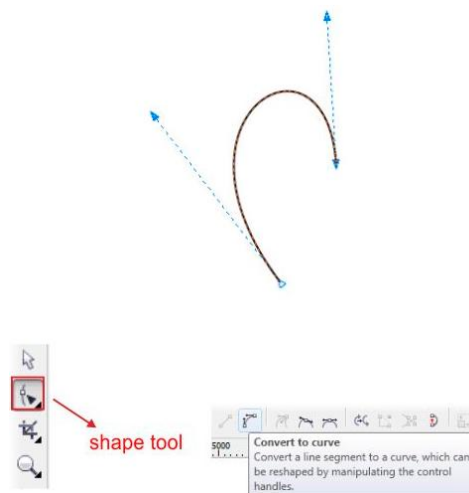
11- Make it outline strong arrange the shaped line on top of the Orange Circle.

<table>
<tr><td>Remember</td></tr>
<tr><td>Develop all the elements of the layout in the same way and then integrate them with balance in the form of a layout.</td></tr>
</table>

12- Create horizontal line and place them on top of notepad.

Creating Graphs in Adobe Illustrator

1- Open Adobe Illustrator.
2- Create a new document and click at Graph Tool, Left click and drag, you will see a graph dimensions box, this is primarily how big your graph will be.
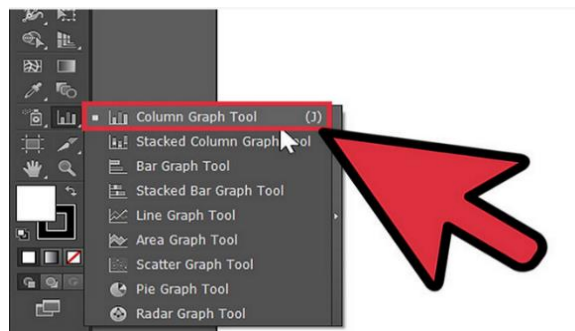
3- You will see a table to put your data, enter all your data in the table.
4- You will see a chart like in the picture (this illustrate is a Column Graph Tool).
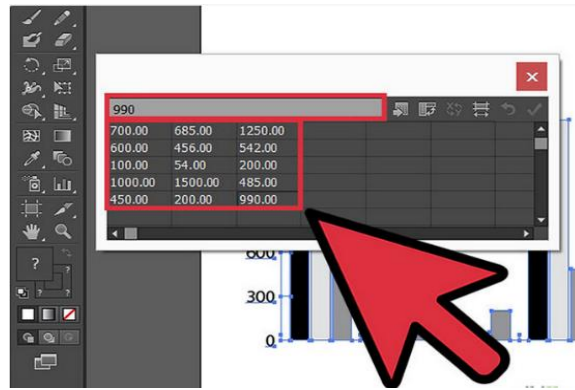
5- You can change the default graph by click on the graph (currently a bar chart), press the right click and select Type, let's change its type to area graph.
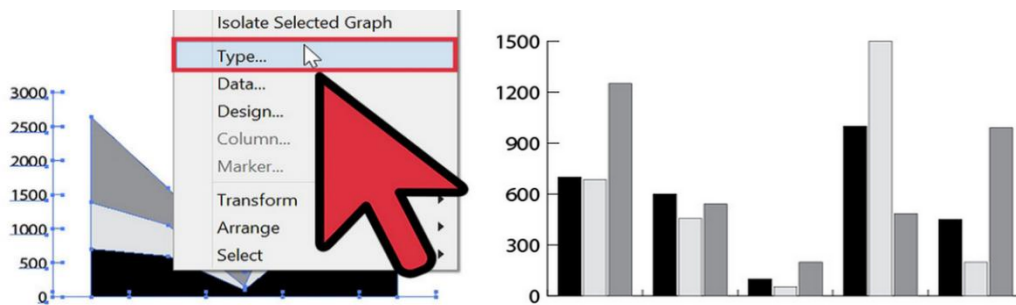
6- You can change your graph color or elements by use Direct Selection Tool.
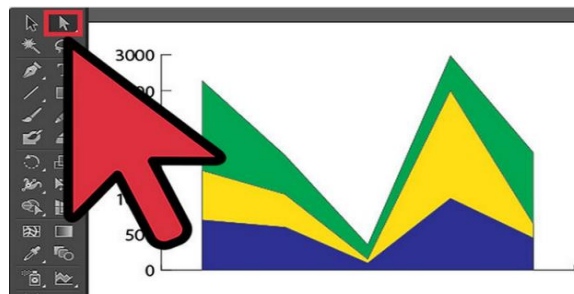
Remember

You can select the indivisual components of the graph and apply different formating.

Creating table in Adobe Illustrator

1- Open Adobe illustrator.
2- Create a rectangle of desired size using rectangle tool.
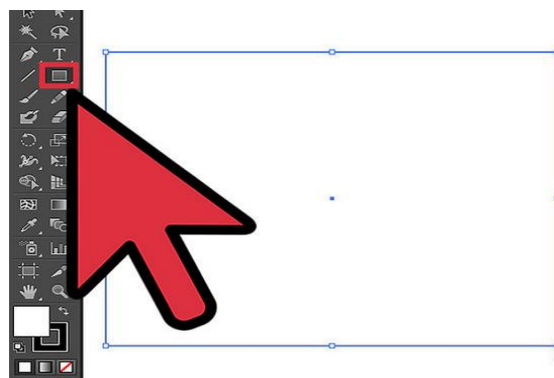
3- Click at your rectangle and choose Object at the main menu, scroll down to Path and select Split into Grid.
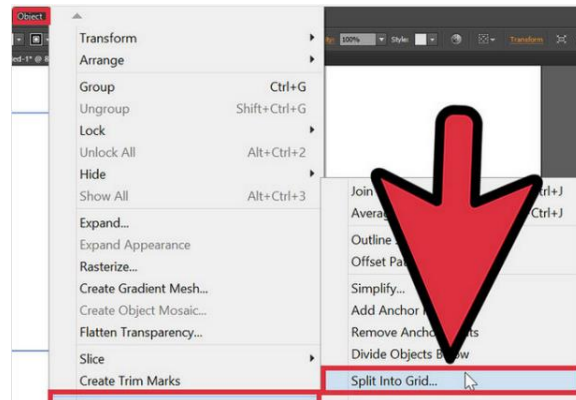
4- Set the number in Gutter box to 0px, type the number of row and column in the boxes and click OK.
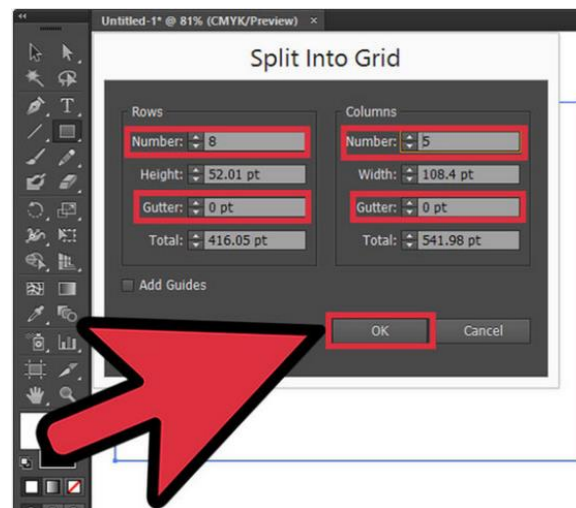
5- You will get a table and can change the color, stroke or type a text in each box.
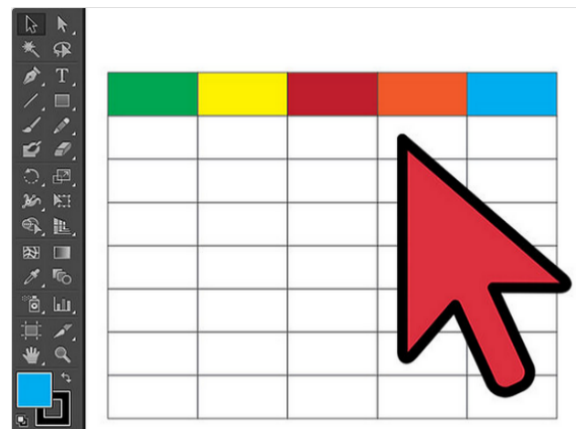
Creating table in Corel Draw

1- Open Corel Draw.
2- Create a new file as file->New.
3- Click at graph paper tool in the flyout next to the polygon tool.
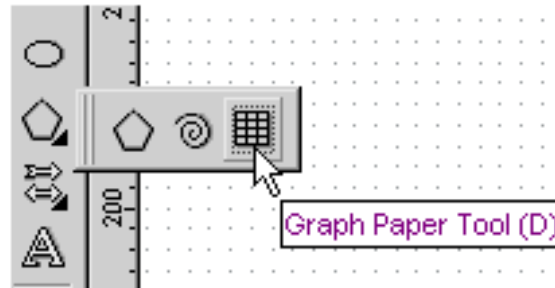
4- Enter the number of rows and columns in the graph paper tool property bar.

5- Click and drag to create the table of desired size.
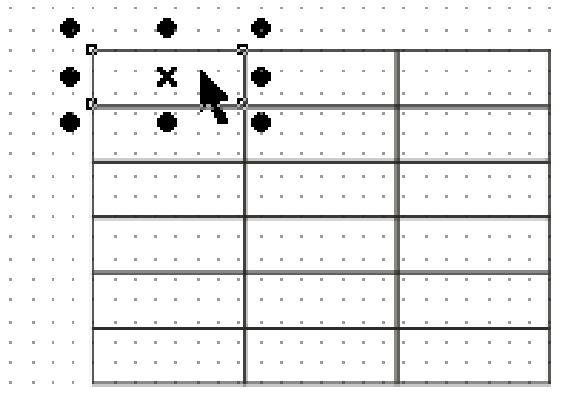
6- Just Ctrl+Click on cells to select and then specify the color or any other formatting.
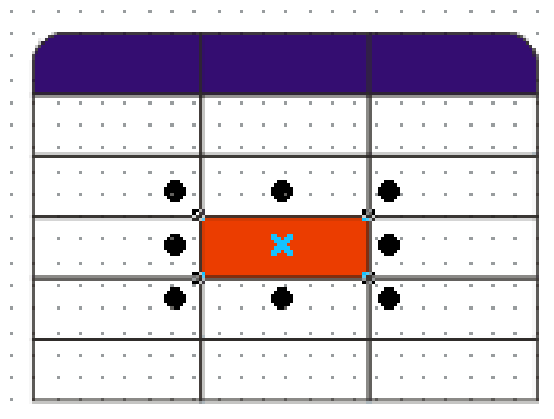
7- Fill in the data into the table and you are done.

	Q1	Q2	Q2
	$1.3	$1.2	$1.6
	$1.7	$1.1	$1.7
	$2.1	$0.9	$3.5
	$1.0	$3.6	$3.9
	$2.1	$4.0	$3.8

Do you know!

You can apply formatting to any group of or individual rectangle cell of the table

Creating diagram in Adobe Illustrator

Adobe Illustrator contains many tools which are helpful for creating professional diagrams. In the following steps we will draw a diagram in Adobe Illustrator.

1- Open Adobe Illustrator.
2- Create a new file as File->New and specify the height and width of the document.
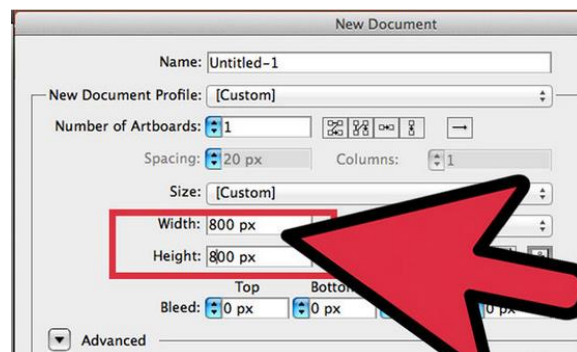
3- In our example we choose sketch of a hamburger.
4- Now create a new layer, use the "Ellipse Tool" on the toolbar. set the fill on toolbar to "none" and set the stroke color to "black" and the stroke weight to 1. Place the shape on the sketch following the sketch.
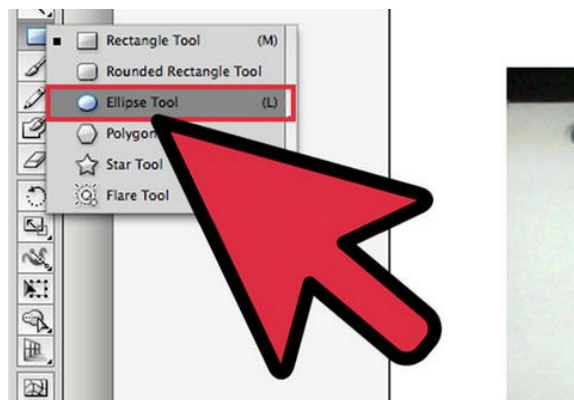
5- Create the other shapes for your sketch. Use "Pen Tool" to create a tomato slice, cheese and bread. Use "Pencil Tool" to create the meat and vegetable fillings.
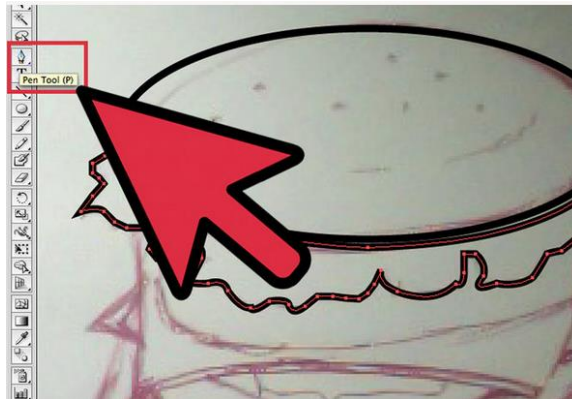
6- Draw all the shapes for ingredients on Hamburger.
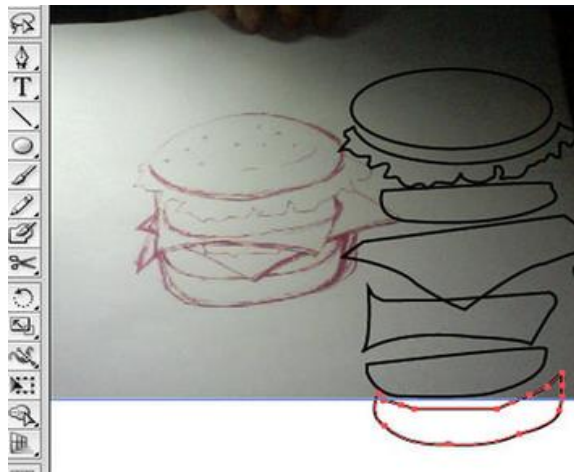
7- A dd color to the ingredients. Use the "Gradient Tool" to add color to two all the layers.
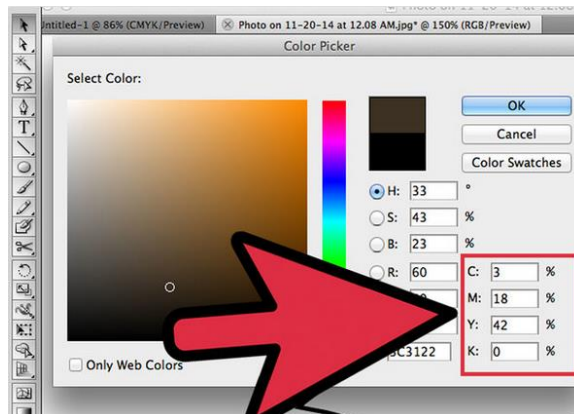
8- Add sesame seed on the top of burger using pen tool and you are done with the diagram.
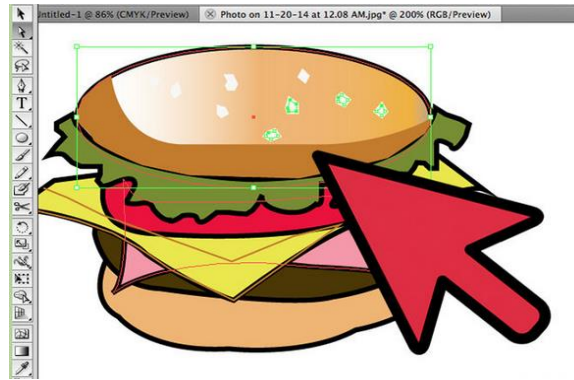
2. Apply Colors to Objects

While applying colors to the layout, keep in mind the purpose and target audience of the layout design. As all the colors have special meaning so in order to have better communication of the complex information to the viewer, selection of right color scheme is vital.

Colors scheme involves colors applied on various objects like, background, shapes, buttons, icons, typography, logo giving an overall sense of unity to the design
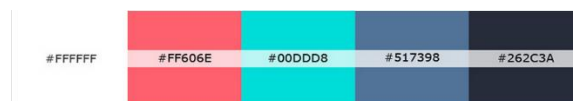
Different color used for objects

Appying colors in Corel Draw

In Corel Draw, you can apply two types of color fills to the objects.

1- Solid Color Fill
2- Fountain Color Fill

Solid Color Fill

> **Do you know!**
>
> You can also use the texture, pattern, bitmap of different color to apply color to the objects.

Solid color fill is a single color fill with a large number of shades available in corel draw. You can apply solid color fill as

1- Click at the object you want to color, to select it.
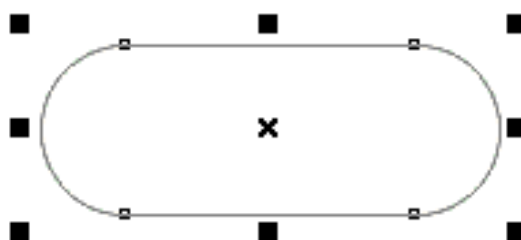
2- Click at the color in the color pallette to change the fill color and right click at the color to change the outline of object.

Fountain Color Fill

1- Click at the object to select it.

2- Choose the Interactive Fill tool from the Interactive Fill flyout in the toolbox.
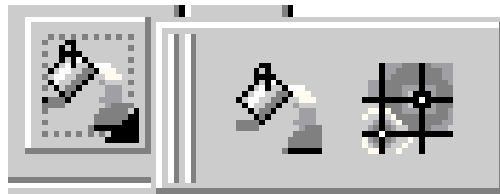
3- Using the default settings you can get a gradient fill from black to white. From the toolbar you can choose what type of fill as shown below

4- Drag and drop colors onto the handles of the fill to change the colors.
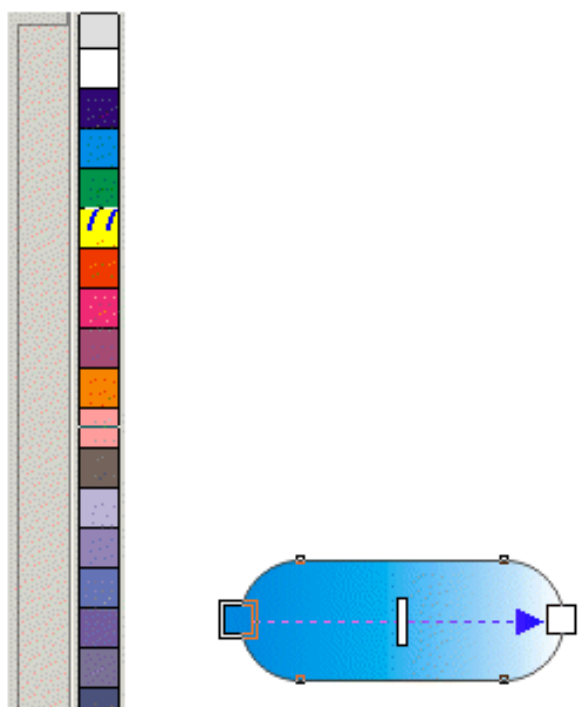
5- Move the drag handle on the fill to alter the gradients of the fill.

Summary of Module

- Color correction is the removal of unwanted color casts by neutralizing blacks, grays and/or whites. An adobe Photoshop, color correction can be done using two techniques, Using levels and using curves.

- Retouching is the process of getting an image ready for final presentation. Sharpening enhances the definition of edges in an image.

- When you scan image from film, slides, or prints, you will face the problem of dust and scratches. You can use spot healing brush and clone stamp to remove dust and scratches.

- Visual effects includes filters which are used to enhance the image. Filters are used to change the appearance of an image, layer or selection in Photoshop.

- In Photoshop, Transform is used to scale, rotate, skew, and just distort the perspective of any graphic. You can also apply transformations to a path, a vector shape, a vector mask, a selection border, or an alpha channel.

- Photoshop provides a variety of effects, such as shadows, glows, and bevels that change the appearance of a layer's contents. When you move or edit the contents of the layer, the same styles are applied to the modified contents.

- In an ideal optical system, all rays of light from a point in the object plane would converge to the same point in the image plane, forming a clear image. The reasons which cause different rays to converge to different points are called aberrations.

- You can use filters to clean up or retouch your photos, apply special art effects that give your image the appearance of a sketch or Blurred painting, or create unique transformations using distortions and lighting effects.

- To import scanned images in Adobe Photoshop, either open TIFF files saved from separate scanning software, or use a TWAIN or WIA interface directly in Photoshop.

Frequently Asked Questions (FAQs)

FAQ 1:	Explain Colour theory?
Answer	Colour can play a large role in the elements of design and colour theory providing a body of practical guidance to colour mixing and the visual impacts of specific colour combination.
FAQ 2:	Why do we use threshold to remove colour cast?
Answer	Threshold helps you to point the lightest and darkest area in your image.
FAQ 3:	Enlist different Colour Modes?
Answer	1. RGB mode (millions of colours) 2. CMYK mode (four-printed colours) 3. Index mode (256 colours) 4. Grayscale mode (256 grays) 5. Bitmap mode (2 colours)
FAQ 4:	Why do we use transformation?
Answer	Transformation is used to change the geometry of the objects. It rotates skews, distorts and adds perspective to the image.
FAQ 5:	What barrel distortion?
Answer	Barrel distortion is a lens defect that causes straight lines to bow out toward the edges of the image.
FAQ 6:	What is pincushion distortion?
Answer	Pincushion distortion is the opposite effect, where straight lines bend inward.
FAQ 7:	What is chromatic aberration?
Answer	Chromatic Aberration is a common optical problem that occurs when a lens is either unable to bring all wavelengths of colour to the same focal plane, and/or when wavelengths of colour are focused at different positions in the focal plane.
FAQ 8:	Describe Vegetating?
Answer	Vegetating is a defect that darkens the corners of an image due to light falloff around the perimeter of the lens.
FAQ 9:	What are two ways to import scanned images in Photoshop?
Answer	1. Import images from a separate scanning application. 2. Import images using a WIA interface
FAQ 10:	Where to use clone stamp for removing dust specks and scratches?
Answer	In the tight spaces like face or design, dust specks and scratches should be removed using clone stamp.

Test Yourself!

Please mark the correct one from the given options. You can check your answer with the Answer Key at the end of this module.

1.   Color cast is caused by _____.

a.   Lens flaw   b.   Software Mistake

c.   Photographer Mistake   d.   Lighting, fog etc.

2.   Tints are created by adding _____ to a color.

a.   White   b.   Grey

c.   Black   d.   Red

3.   Saturation means _____ of a color.

a.   Hue   b.   Tint

c.   Intensity   d.   Shade

4.   Sharpening _____.

a.   Makes an image brighter   b.   Enhances definition of edges in image

c.   Makes image colors more intense   d.   Develops tints of colors in image

5.   The tools used to remove dust and scratches are _____.

a.   Healing Brush and Patch tool   b.   Color Brush and Patch tool

c.   Clone Stamp and Patch tool   d.   Clone Stamp and Healing Brush

6.   Which of the following is not a Filter group?

a.   Adjustment   b.   Texture

c.   Artistic   d.   Sketch

7.   Select the incorrect option, Transformation is used to _____.

a.   Skew   b.   Rotate

c.   Scale   d.   Sharp

8. **Chromatic Aberration is also called_____.**

a. Red Fringing   b. Purple Fringing

c. Blue Fringing   d. Green Fringing

9. **The option for removing Aberration is present in _____.**

a. Filter->Distort->Lens correction   b. Edit->Distort->Lens correction

c. Filter->Sharpen->Lens correction   d. File->Sharpen->Lens correction

10. **_____ Filters are memory intensive.**

a. Artistic   b. Brush Strokes

c. Distort   d. Stylize

Answer Key

MCQ Number	Correct Answer
1	d
2	a
3	c
4	b
5	d
6	a
7	d
8	b
9	a
10	c

Teaching and Learning Material: Information Technology (Computer Graphics - Motion)

Module 5: Video Editing and Motion Development

Learning Outcomes

After completion of this learning module, you will be able to:

- Learn and apply colour correction to the video using filters

- Use filters to enhance video

- Add effects and transitions with creativity to convey message to audience

- Import and embed media assets into the project

- Create motion

Teaching and Learning Material: Information Technology (Computer Graphics - Motion)

Learning Unit 1: Apply Colour Correction

Overview

In this learning unit, you will learn the techniques of applying colour correction to the video. After completion of this learning unit, you will be able to apply colour correction to the video using filters.

1. Applying Colour Correction to Videos

There are three key statements about colour correction that you need to understand in order to be successful with this filter:

- "Grey" has two meanings: the colour grey and the *grey-scale* grey.

- When you talk about the "grey-scale" value of grey, you are talking about how light or dark a particular image or pixel is.

- When you talk about grey as a "colour," you mean that the amount of red, green, and blue contained by that shade of grey are equal.

NOTE: Colour in video is additive. Equal amounts of red, green, and blue equal grey.

> Red + green = yellow.
>
> Blue + green = cyan.
>
> Red + blue = magenta.

There is no necessary relation between the grey-scale value of a colour (how light or dark it is) and the colour value of a colour. The two are adjusted independently. If an object in the frame that is supposed to be grey has more red (or yellow, or blue, or any other combination of colours), it is said to have a colour cast.

The Fast Colour Correction filter measures the amount of red, green, and blue in an object that is supposed to be grey. It then adjusts the colour of the entire clip by adding or removing colours until that grey object is restored to equal amounts of red, green, and blue. At which point, both the object and the clip will look "normal".

> **Remember**
>
> This is a really important point. In fact, much of colour correction hinges on a restatement of this: "If something is *supposed* to be grey. It *must* contain equal amounts of red, green, and blue." If it doesn't, it has a colour cast.

> **Do you know!**
>
> It sounds complex, but this filter is designed to fix problems quickly.

> **Do you know!**
>
> The Change Colour effect adjusts the hue, lightness, and saturation of a range of colours.

2. Colour Correction in order to convey Feelings

View

Corrected Layer shows the results of the Change Colour effect. Colour Correction Mask shows the areas of the layer that will be changed. White areas in the colour correction mask are changed the most, and dark areas are changed the least.

Hue Transform

The amount, in degrees, to adjust hue.

Lightness Transform

Positive values brighten the matched pixels; negative values darken them.

Saturation Transform

Positive values increase saturation of matched pixels (moving toward pure colour); negative values decrease saturation of matched pixels (moving toward grey).

Colour To Change

The central colour in the range to be changed.

Matching Tolerance

How much colours can differ from Colour To Match and still be matched.

Matching Softness

The amount that unmatched pixels are affected by the effect, in proportion to their similarity to Colour to Match.

Match Colours

Determines the colour space in which to compare colours to determine similarity. RGB compares colours in an RGB colour space. Hue compares on the hues of colours, ignoring saturation and brightness—so bright red and light pink match, for example. Chroma uses the two chrominance components to determine similarity, ignoring luminance (lightness).

Invert Colour Correction Mask

Inverts the mask that determines which colours to affect.

3. Procedure of Colour Correction

The procedure of colour correction has the following steps:

Sequence clip

1.   Open the project and sequence containing the clip(s) you want to fix, and select the clip with a colour problem.

Here's the problem: a very green clip. Not only does it look green to the eye, but the vector scope also shows a strong shift (called a "colour cast") toward yellow/green.
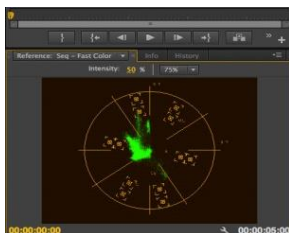
Colour Problem

2.   Go to the Effects Panel, twirl down Video Effects, twirl down Colour Correction and either double-click Fast Colour Corrector to apply it to all selected clips in the Timeline, or drag it on top of a clip that needs correction.
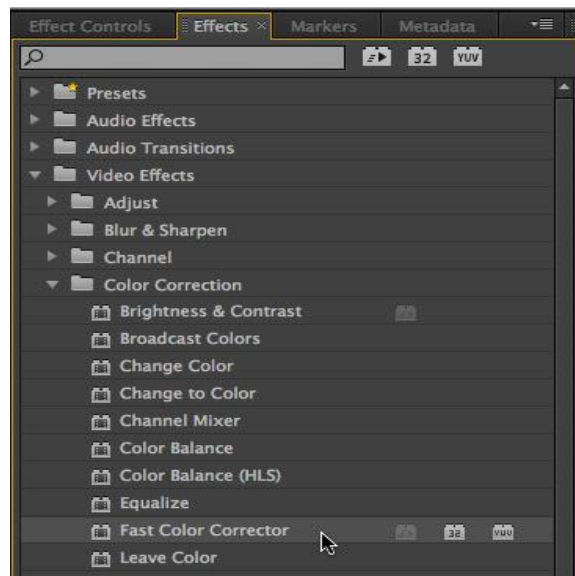
3. With the clip still selected, click the Effect Controls tab to display the Fast Colour Corrector controls. There are only a very few settings you need to adjust.
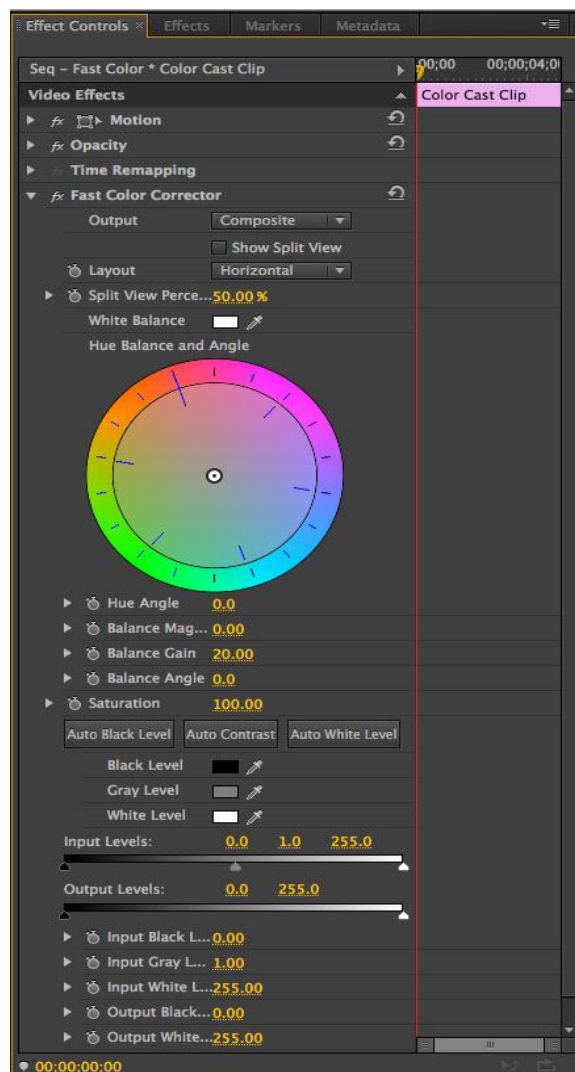
Using this filter is simple: find something in the frame that's supposed to be grey and click it.

4. Just above the colour wheel in this filter is the White Balance eyedropper. Click the eye-dropper to select it.
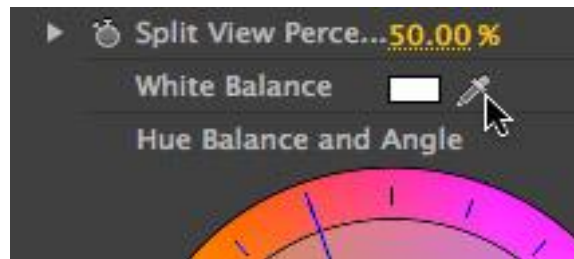
Then, in the Program monitor, find something in the frame that's supposed to be grey. This is the point where semantics start to get in the way, because "grey" is both a measure of brightness and a colour. In the sense of colour correction, white is a grey, black is a grey, and grey is a grey, because all three contain equal amounts of red, green, and blue. So, in this image, the car's grey (the colour) should also be in rich colour (contain equal amounts of red, green, and blue.). But, in this case, it isn't, it has a blue/green colour cast.

5. To correct this clip take the eyedropper, which you just selected, and click it on something that should be grey, but isn't. In this example, I'm clicking on the side of the car. Ideally, you want something which is not too light nor too dark.

Instantly, the picture looks better.

You can repeat this process by clicking on different "should-be-grey" elements in the frame, though after two or three more clicks, you won't see any additional improvement.

Making More Adjustments

If you want to make additional colour corrections, then:

6. Grab the white dot in the middle of the colour wheel and drag it in the direction you want the colours to move.
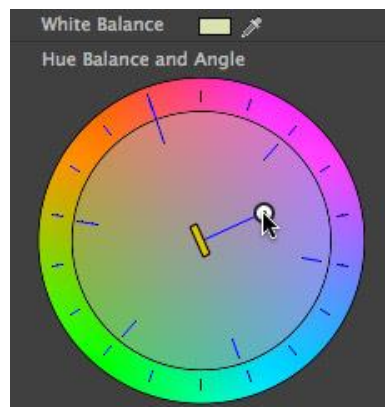
Colour Wheel

If necessary, click one or two other parts of the car to improve the correction. You can see the results on the Vector scope with the body of the car very nicely. (The "outline" is the yellow line going up left at about 1030 on a clock.)
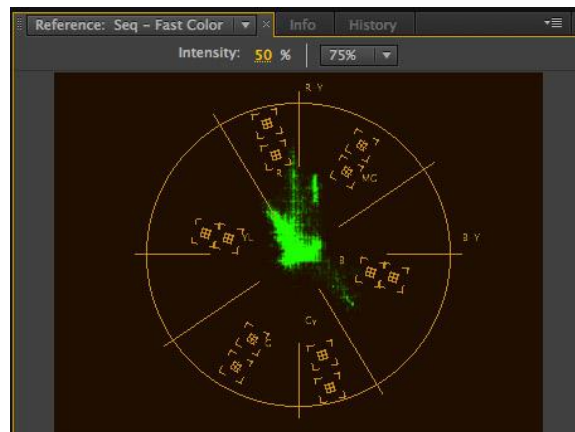
7. If you need to adjust the black or white levels, switch your scope to display the YC Waveform monitor (click the Wrench icon) and be sure to *uncheck* Setup (7.5 IRE) and Chroma.
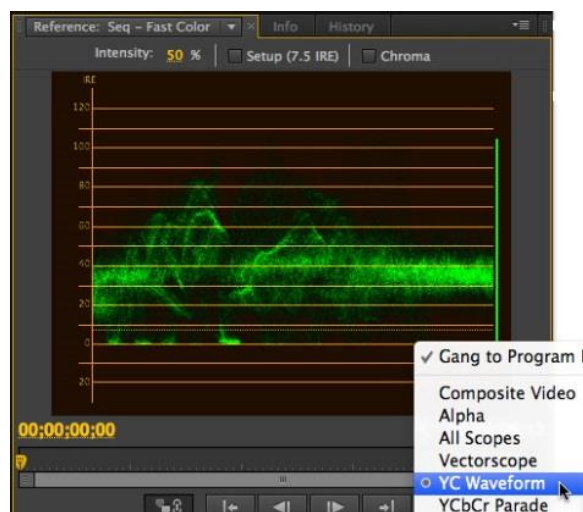
8. Then, adjust the Input Levels settings for black, mid-tone grey, and white.

Here is a before and after of our image.

Learning Unit 2: Apply Visual Effects and Transition

Overview

In this learning unit, you will learn to add effects and transitions with creativity to convey message to audience. The software lets you edit uploaded or downloaded video in a variety of ways, including visual effects. You can also insert variety of effects to transition between 2 chronologically adjacent video clips in your project. This guide shows you how to choose and implement a transition in Adobe Premiere Pro.

1. Use of Built in Filters for Adding Visual Effects

Video Filters and Audio Filters can be applied to existing clips on your timeline. Drag a plug-in from the effects palette onto a clip to apply it. Premiere is known mainly as a video editor, a big part of making finished productions is ensuring that the audio side of things is nicely put together too. So Premiere has a number of built-in audio and video filters to help you work with sound in your projects, whether it's location sound, foley, ADR or even music.

> **Do you know!**
>
> Different filters can be used to convey different messages.

> **Do you know!**
>
> You can also give Visual effects as audio effects to your video.

1. In your Premiere project, select an audio clip in the timeline and then go to the Effects bin located in the bottom left corner of Premiere's window. Click on the Audio Effects folder to expand it outwards:

Audio Effects Folder
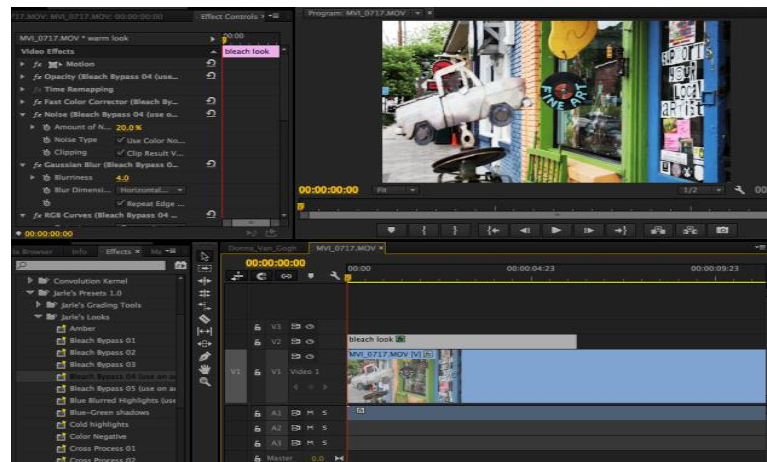
Video Effects Folder

2. Locate an effect you want to use and drag and drop it onto the audio clip you want to apply it to. Then double-click on the clip and it should appear in the Source viewer window. Click on the Effect Controls tab to access the effect controls.

Remember

Using key frames you could easily turn the threshold up and down over time. The same technique applies to any effect that needs to change over time, such as a reverb getting larger and larger in size to simulate the sound of someone getting further away.
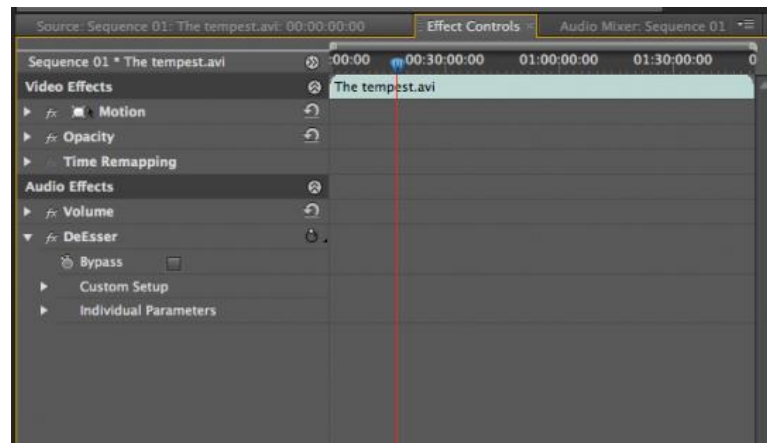
3. Click on 'Custom Setup', you can open a dedicated control window for the effect. In this case it lets you set the threshold for de-essing a vocal track such as a voiceover. You can set a male or female voice, and tweak the threshold while playing back until you reach the correct level of de-essing. There's a tiny button at the bottom of this window that lets you play back just the audio and not the video.

4. To change an effect's settings over time, go to the Individual Parameters field and click to expand it. Now you can use the key framing tool to put in different values at different points in time. This is a form of automation and is really useful when, for example, one part of a sentence needs heavy de-essing, but another part is muted by the same level of de-essing.
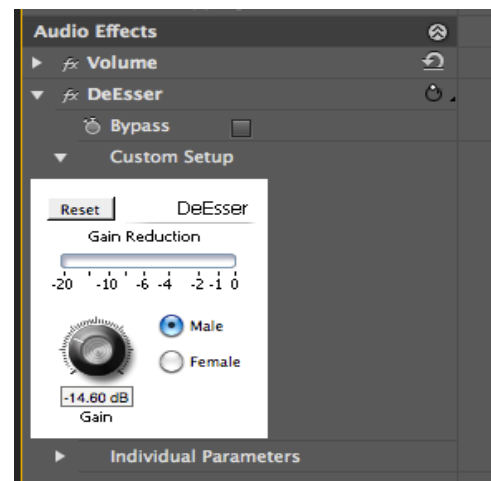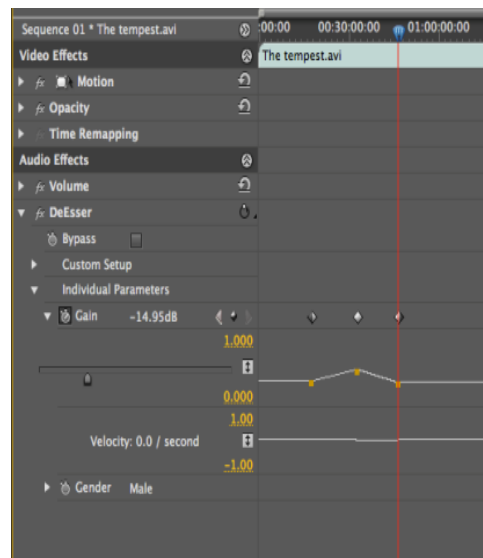
5. To edit key frames you can simply click on them and then move or delete them. To remove an effect altogether, right-click on it and choose Cut or Clear. Click the tiny FX button to the left of an effect's name to temporarily turn it off.

Remember

Bear in mind that if Premiere won't allow you to drop an audio effect onto an audio clip, it means that the two have mismatched formats. A stereo effect can't be dropped onto a 5.1 surround track, for example. If you need to do this for some reason you can always right-click on the audio clip and choose to edit in Audition, then have it sent back to the Premiere project.

6. As well as some good stock built-in effects like declicker, EQ and reverb, Premiere can also see third party audio plug-ins installed on your Mac. If you have any they should appear in the plug-ins list.
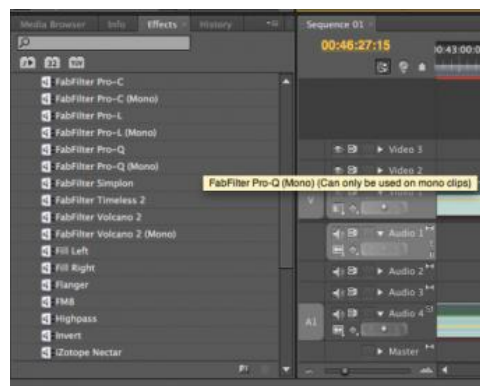
7. You apply external plug-ins in the same way as you did Premiere's own.
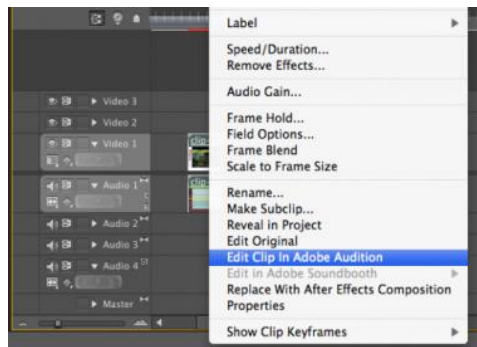
8.   Premiere sometimes has trouble displaying third party plug-in interfaces so if you need to do this you can always switch briefly to Audition. Otherwise, use the Individual Parameters lane to access each control and key frame it over time if you like.

9. Most audio filters and plug-ins run properly in real-time but if you are experiencing problems you always have the option to render the audio clip down to a new file, complete with the effect applied to it. To do this, simply go to …..

Clip > Audio Options > Render and Replace

Premiere will create a new copy so your original audio remains safe and unchanged.

2. Use of Built-in Transition to Move from one Scene to Another

A transition is the way one shot changes to the next. By default, if two clips are placed next to each other in the timeline, the transition is a cut. To make more interesting transitions such as dissolves, wipes and effects, use the transitions available in the Effects window.

Premiere has default video and audio transitions which can be added to clips in various ways. This can be much more efficient if you use the same transitions a lot. By default, these transitions are Cross-Dissolve for video and Constant Power (crossfade) for audio.

3. Procedure of Adding Transition

The procedure of adding transition has the following steps:

1. Select the "Effects" panel in the lower-left corner of the interface.

2. Open the "Video Transitions" folder.

3. Select the folder of the type of transition you want to use. The number and types of transitions depend on your version of Premiere Pro. Common transition types include dissolve, 3D motion, and slide. Each folder contains transitions that are stylistically similar but offer slightly different effects.

4. Click and hold on the transition you want to use, then drag it over to your video clip panel.

Remember

Don't drop a transition in between two clips unless the clips are overlapped.

Transitions will automatically be placed at the beginnings and endings of each clip if they aren't. Make sure to overlap the end of the first clip with the beginning of the second, allowing the transition to use the frames of both clips simultaneously. This will create a smoother effect.

Remember

When you play the video clips back, the transition may stutter and jerk, depending how much you shortened or lengthened the effect. It is signified by a red bar at the top of the video clip panel. Simply hit the "Return" key on Mac or "Enter" key on Windows to create a rendered video preview. This will make the video and transitions flow smoothly.
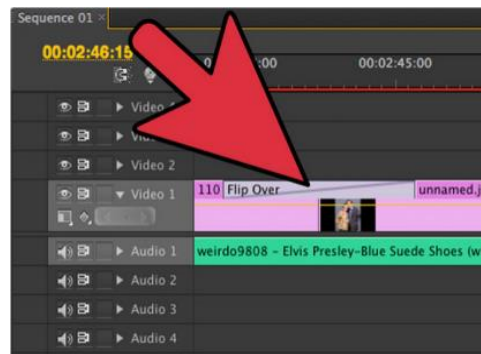
5. Drop the transition into a position on the video clip bar. Transitions can be placed in between two overlapped clips, as well as at the beginnings and endings of each clip

Remember

Try to place transitions so they make sense with the video you are editing. For example, a cross-dissolve effect can be used to blend two scenes together, while a dip-to-black effect is more suited for the beginning or ending of an overall project, as it fades in or fades out to soften the visual impact on the viewer.
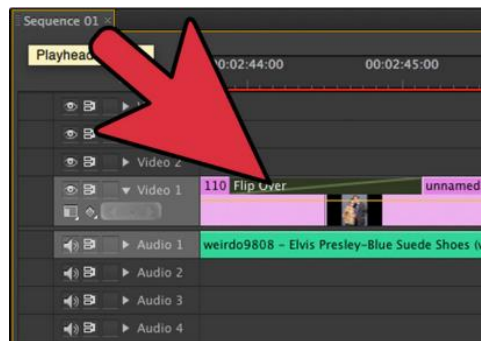
6. Click and drag the left and right edges of the transition to shorten it or extend it. Each transition has a default time length you can alter in this way.
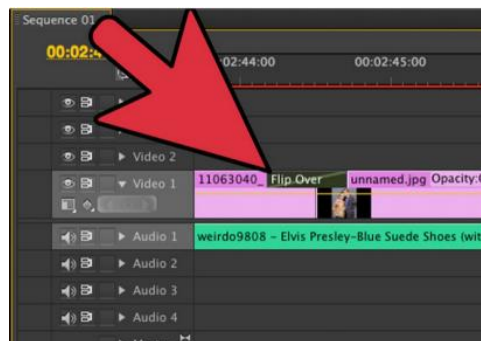
4. Brightness / Contrast Effect in Video Techniques

You'll learn how to maximize the brightness and contrast of your video in Adobe Premiere Pro using the Brightness, Contrast, and Gamma Correction controls for effective and balanced adjustments.

5. Procedure of Adding Brightness / Contrast Effect

The procedure of Brightness / Contrast Effect has the following steps:

1. For adjusting the colour or brightness in a video in Premiere Pro, Click…..   Window   >
    Workspace, and select Colour Correction.
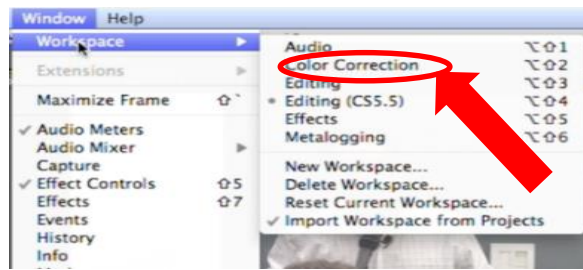
2. Customized the workspace, so it might look a bit different, but the main pieces you see in **Figure (below)** will be showing: The Waveform Monitor in the centre, the Effect Controls on the left, the Timeline below, and the video in the Program Monitor on the right.

> **Remember**
>
> The reference monitor has many alternate views that you can access by clicking the flyout panel.

3. Click to select *The Waveform Monitor fly out panel >*

   Composite Video or Alpha View.
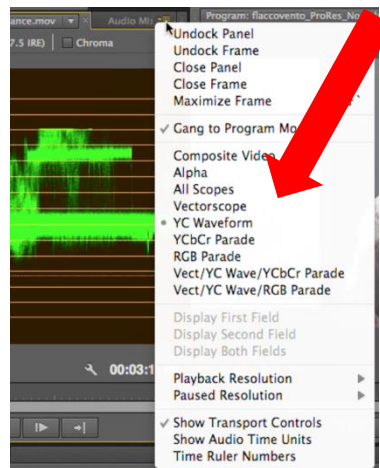
> **YC Waveform**
>
> It shows us the brightness of the pixels at their respective location in the frame.

4. Click - All Scopes to see all the scopes available, shows an RGB parade, a YUV parade, a waveform, and a vector scope. Choose YC Waveform to return to just that view.
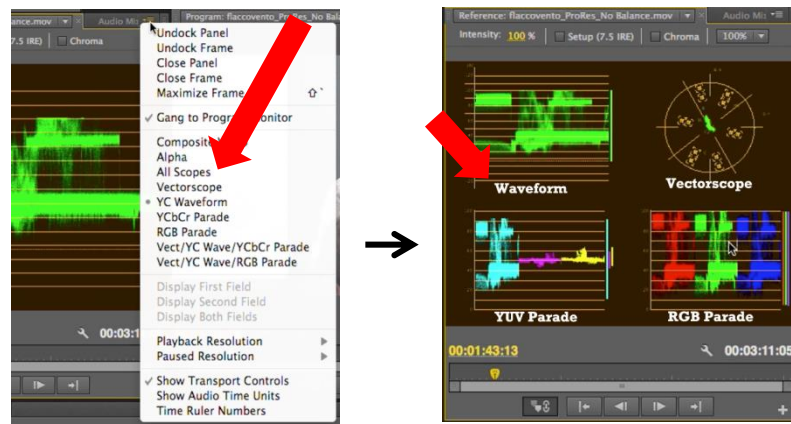
5. Working with the YC Waveform

You can see where the white and black areas of the image are represented in the waveform, but the levels aren't what they should be in either case.

In a well-lit, well-contrasted scene, the whites should be up around 100 on the IRE (Institute of Radio Engineers) scale, which ranges from 0 to 100. As you can see, the whites start at about 80 and range up to about 95.

Blacks, such as those you see on the bottom edge of the whiteboard--and directly below the cluster of whites in the waveform--should be right around 0 IRE. As you can see, the darkest pixels are 20 IRE or above, which is the cause of most of our contrast issues.

The third region you examine when adjusting contrast are the pixels in the face, which should be between 65 and 75 IRE at their brightest. To get the best view of the brightness of the face, move the current-time indicator (CTI) to a spot on the timeline where there is movement in the subject's face, and drag the CTI back and forth. In this example, you can see that the bulk of the pixels are moving below 60 IRE. This means the face, which should be registering around 65-75 IRE, is too dark. The whites are close to where they should be (ranging 80-97 IRE or so), but the blacks are faded (bottoming out around 18), and that's why the image lacks in contrast.

The effect control you'll use to solve this problem is the Brightness & Contrast control. Adjusting Brightness upwards doesn't just make the whites brighter--it moves up the levels of everything in the image.

6. Drag the Brightness slider to the right, the Waveform Monitor shows that all the pixels move upwards in the waveform as the entire image becomes brighter.
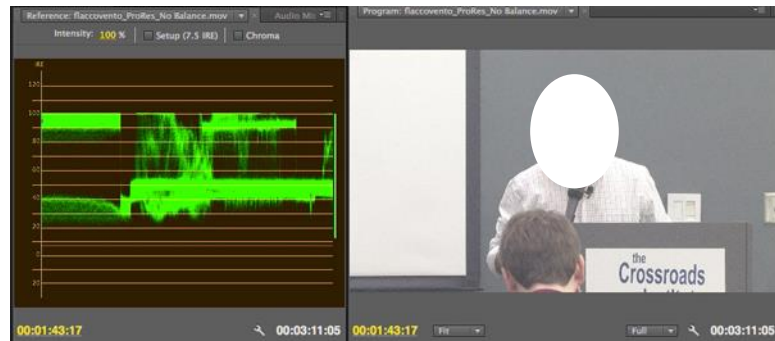
7. The Contrast adjustment, by contrast, pushes the pixels further away from each other--reflecting the definition of contrast as the difference between the brightest and the darkest pixels in an image. This pushes the whites toward 100 IRE and the blacks toward 0 IRE.
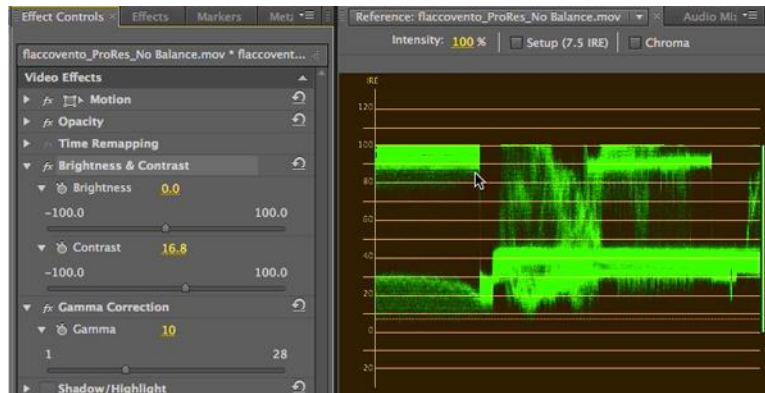
Gamma Correction

The Gamma Correction effect lightens or darkens a clip without substantially changing the shadows or the highlights. So, in theory, this should allow us to boost just the mid tones in the face without pushing up the whites or pushing down the blacks.

8. Every video is different and your adjustment strategy will differ as well. If you adjust the Brightness down, and then adjust the Contrast to push the white and black levels towards the extremes. Now you have the whiteboard at or around 100 IRE. The black pixels are at or around zero, and the dinginess is gone.
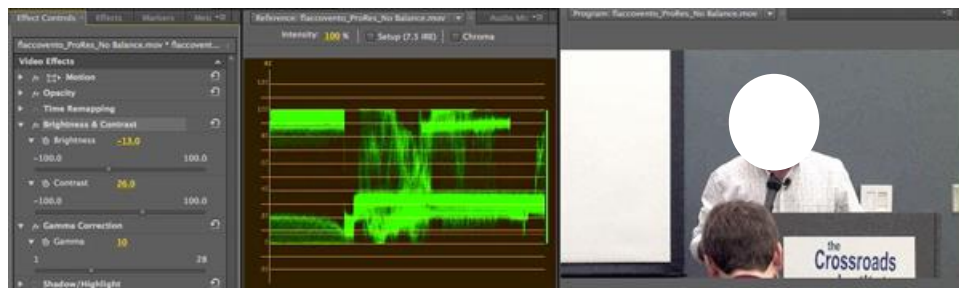
9. **Crushing the detail by** pushing the brightness down, this made the face darker.

Using Gamma Correction to Adjust the Mild Tones

10. Toggle the effect on or off and get the result. After enabling Gamma Correction. Drag the slider to increase brightness in the midtones. If drag it to 9. You see that you're pushing some of the blacker pixels up off the 0 IRE, but you're seeing very little movement in the whites.
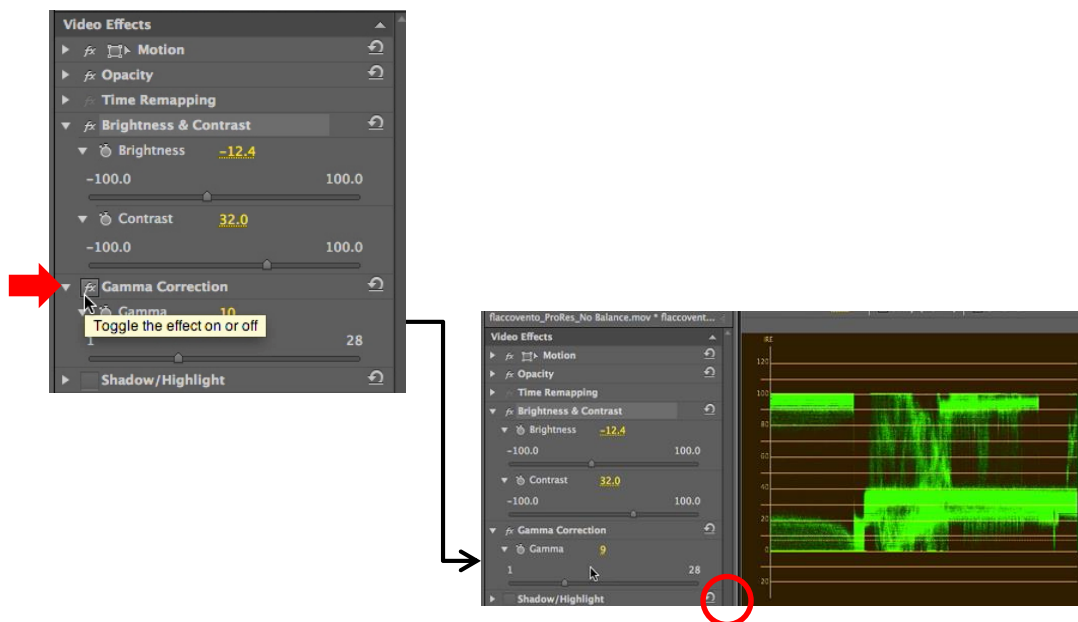
11. Push the Gamma Correction effect further to the left, it crush the whites a bit, but not to the same degree as adjusting the brightness control directly. If dial Gamma Correction back to 8, It adjust the Contrast to keep the black pixels at 0 IRE.
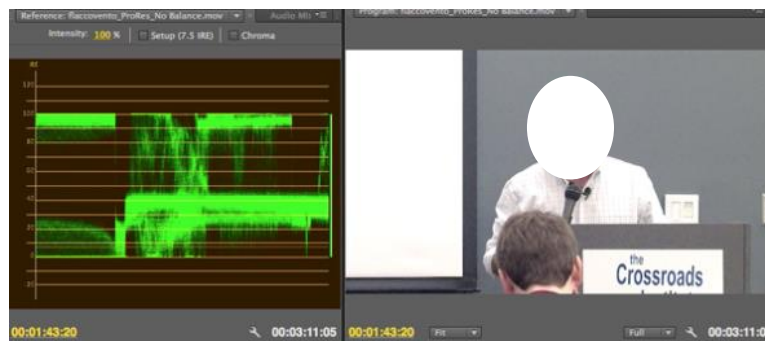
Flickering and the Shadow / Highlight Effect

Teaching and Learning Material: Information Technology (Computer Graphics - Motion)

12. One other effect that's useful for brightness and contrast adjustments is called the Shadow/Highlight effect.
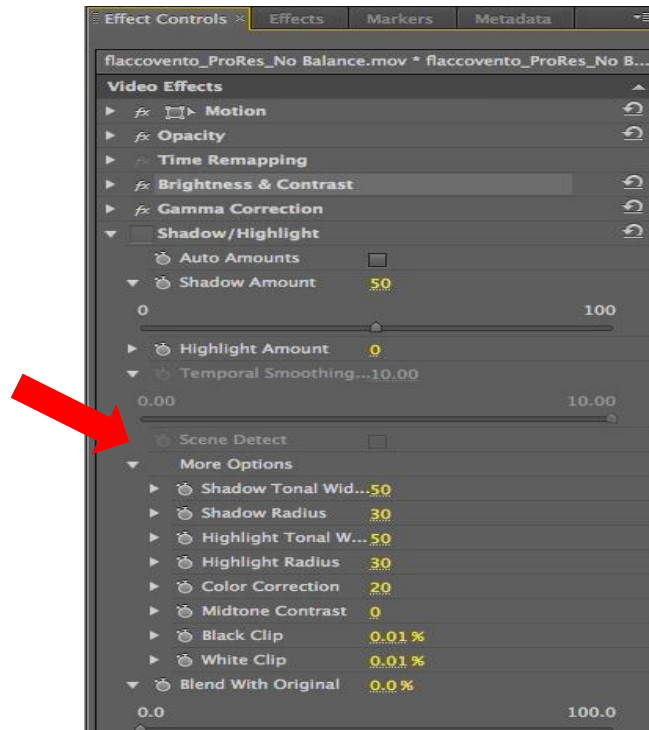
Before (Top) and After (Bottom)
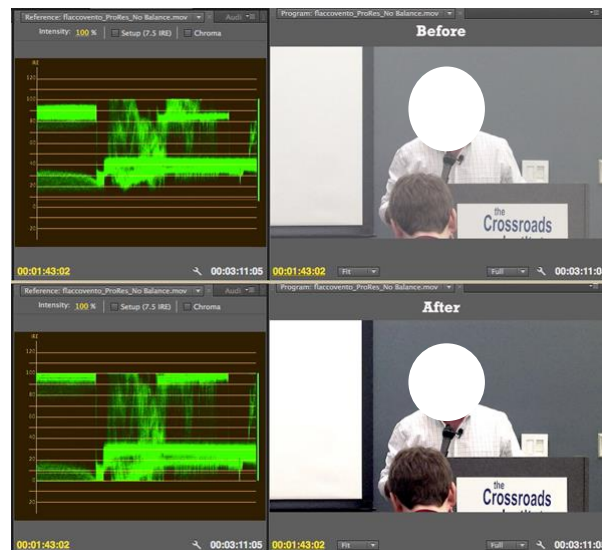
6. Understanding of Other Effects

Adding and Deleting Tracks:

You can control the number of video tracks and the number and type of audio tracks by creating a custom pre-set. After you start editing, you can always add and delete tracks as needed.

7. Procedure of adding a single Video or audio tracks / clips

The procedure of adding a single Video or audio tracks / clips has the following steps:

1. **To add a single video track,** Right-Click the **video track header area** Ⓐ and then Click **Add Track** Ⓑ
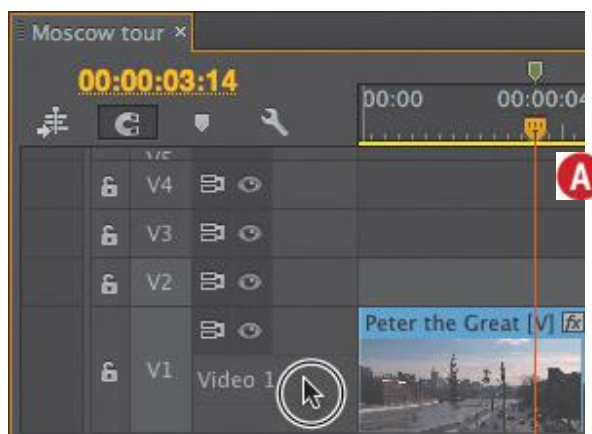
Right-click the video track header area Choose **Add Track**.

Remember

You can also create a new track by dragging a clip from the Project panel to the blank area above the video tracks and below the audio tracks.
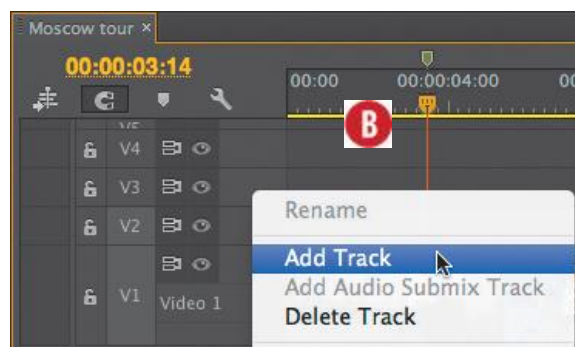
2. To Add a Single Audio Track,
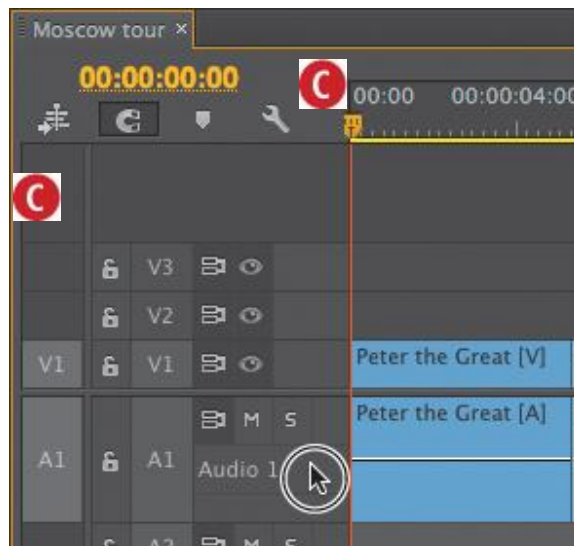
Right-Click **the Audio Track Header Area** 🅑 and then Click **Add Track**

3. **To Delete a Single Video or Audio Track / Clip**

To delete a single audio or video track,

Right-Click the **Track Header** 🅓 and Click **Delete Track**. 🅔
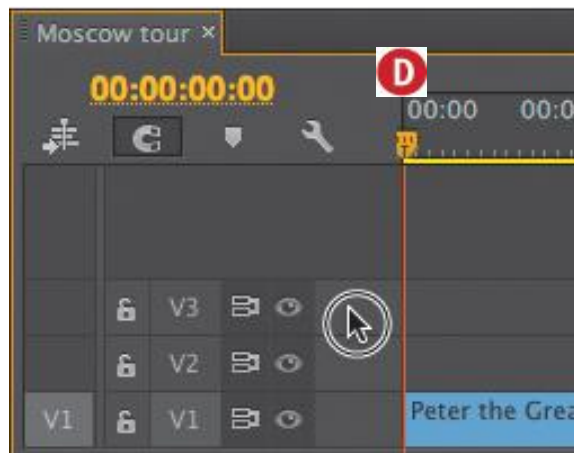
To delete a single track, **Right-Click** the **Track Header** and Click **Delete Track.**
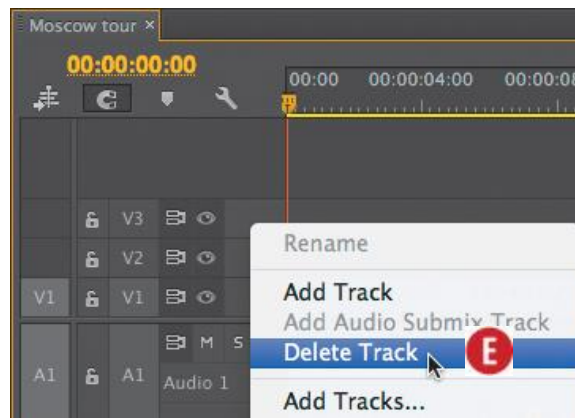
4. **To Add Multiple Tracks / Clips**

1. Right-click the track header area and choose Add Tracks.
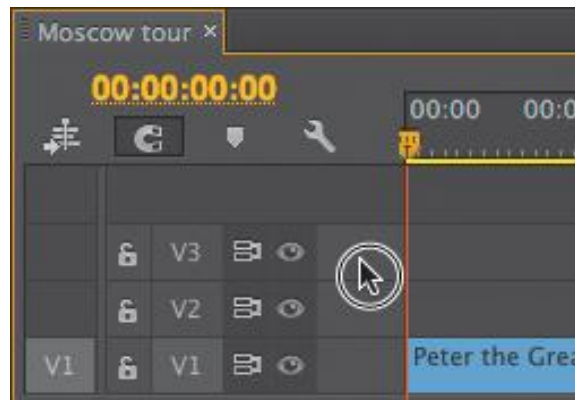
 Right-click the track header area.
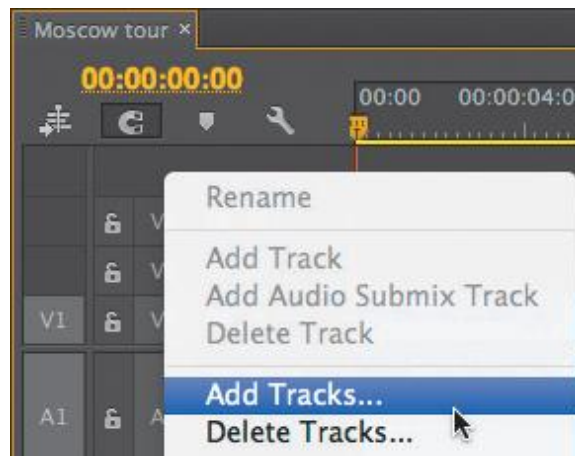
 Click Add Tracks.

Open the **Add Tracks dialog.**

2. Specify the number of video tracks to add, and choose their placement .
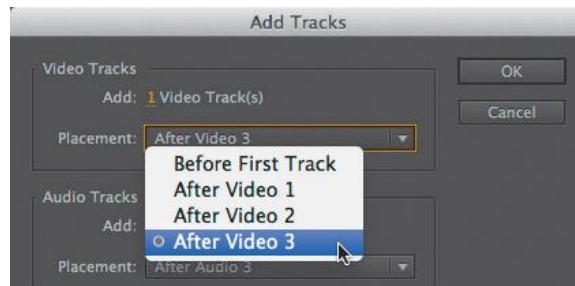
 Choose the number and **placement** of video tracks.

3. Specify the number, placement, and track type for audio tracks .
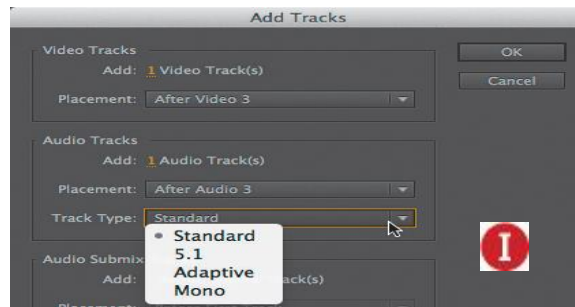
Choose the number, placement, and track type for audio tracks.

4. Specify the number, placement, and track type for any audio submix tracks .
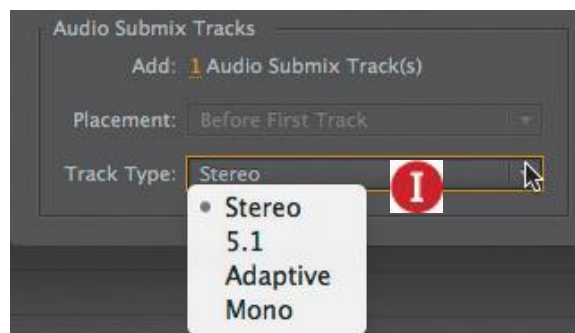
Choose the **number**, **placement**, and **track type** for submix tracks.

5. Click **OK** to close the **Add Tracks** dialog and add the specified tracks.

Audio Tracks in Premiere Pro

Premiere Pro uses six different audio tracks.

- **Standard:** A standard track can contain both stereo and mono audio tracks and is the default for new audio tracks.

- **Mono:** Contains one audio channel. If you drop a stereo file into a mono track, the stereo is converted to mono.

- **5.1:** Contains only 5.1 surround sound tracks, which include three front audio channels (left, centre, and right); two rear channels (left and right); and one low-frequency subwoofer channel.

- **Adaptive:** Can contain mono or stereo tracks, and are used when you need to map the source audio to different output channels.

- **Audio submix track:** A synthetic track that contains no audio other than audio sent to the submix from other audio tracks.

- **Master audio track:** Controls the combined output of all tracks in the sequence so, for example, you can adjust overall track volume via a single slider in the Audio Mixer.

To delete multiple tracks

1. Right-click the **Track Header Area** (F) and choose **Delete Tracks**.
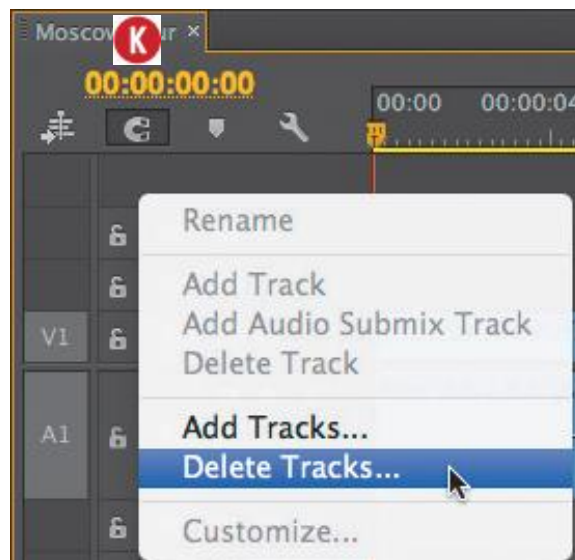
(K) Choose **Delete Tracks** to delete multiple tracks.

2. **To delete video tracks**,

   Select **the Delete Video Tracks** check box and identify the tracks to delete in the associated drop-down menu (L).
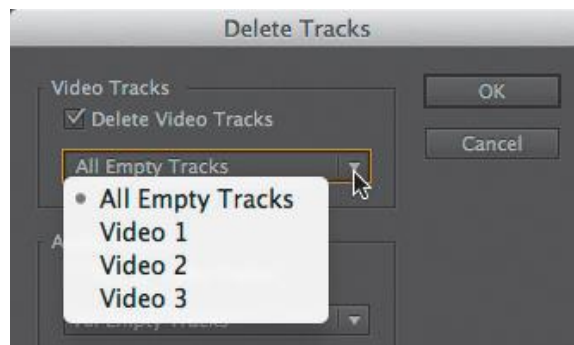
L Identify the video tracks to delete.

3. To delete audio tracks, select the **Delete Audio Tracks** check box and identify the tracks to delete in the associated drop-down menu. **M**
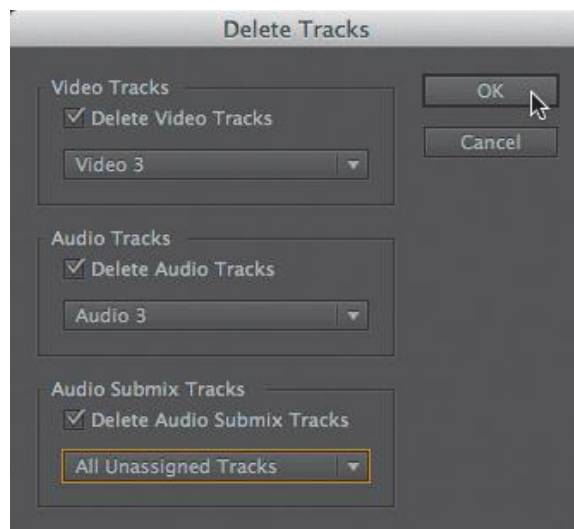
> **Remember**
>
> Rolling titles are must for any professional film production.

> **Do you know!**
>
> Use the keyboard shortcut: **CONTROL + T** (PC) or **COMMAND + T** (Mac).

M Identify the audio tracks to delete.

4. To delete audio submix tracks, select the **Delete Audio Submix**

    Tracks check box and identify the tracks to delete in the associated drop-down menu. **M**

5. Click **OK** to close the Delete Tracks dialog and delete the specified tracks. **M**

> **Do you know!**
>
> The length of the title clip in a Timeline panel determines the speed of the roll or crawl. The more you increase the title clip length, the slower the movement.

Creating Title Slides for Credits

- Though static titles, graphics, and logos serves for some projects, many others require titles that move across the screen.
- (Titles that move vertically over the footage are called *Rolls*. Titles that move horizontally are called *Crawls*.)

8. Procedure of Creating Title Slides for Credits

Do you know!

Use the keyboard shortcut:
CONTROL+T(PC)
or
COMMAND+T(Mac)
..

The procedure of creating title slides for credits has the following steps:

Titles can be created in a number of ways in Adobe Premiere Pro

For a static title:

1. Click the 'new items' button at the bottom of the project panel or access the title tool through the Menu bar – File > New > Title.

Do you know!

The advantage of doing it this way is that it will create a new title with the right options in place for setting up the roll.

For a rolling title:

2. Menu bar choose Title > New Title > Default Roll.
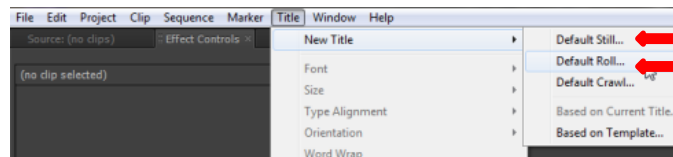
3. If you want to convert a static title into a rolling one click the Roll/Crawl option box
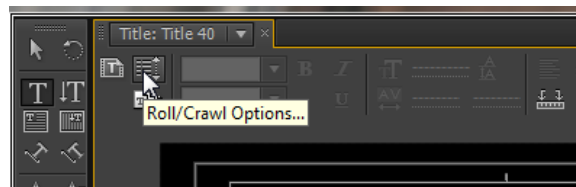
…and select the **'Roll'** option in the dialogue box that appears:
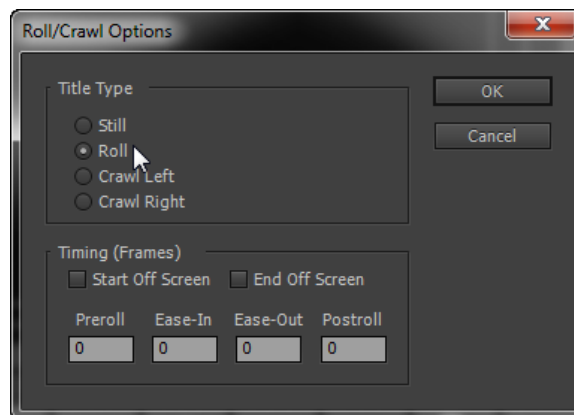
Creating a Text Area in Premiere

1. Selecting the text tool and starting to type.

    This will create 'point text' (text that continues off the screen and will not wrap around) – you need to create 'area text'.

    This can be done in one of two ways.

    Select the Area Type Tool
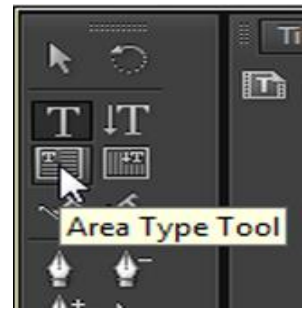
2. Drag out an area from the top left of the inner box (called the title safe area) to the bottom right of the same inner box. Simply click inside this area to add text.

    Another option is to drag the Standard Text Tool inside the box in the same way:
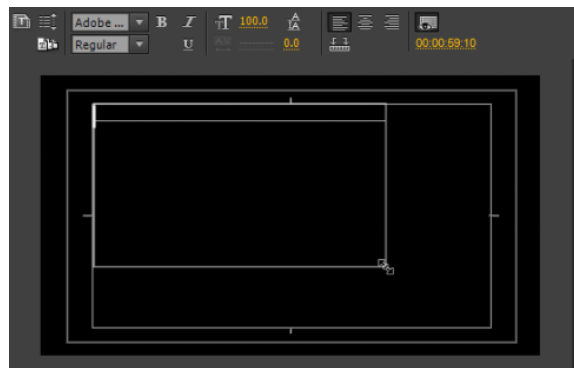
Remember

When you have finished the text cursor should be flashing.
It isn't, just click in the new area you have created with the standard 'T' text tool and you are ready to start creating your titles. Font, size etc. are all up to you.

Once text has gone off screen you get the **little '+'** sign (shown in the image above) which is simply telling you that there is more text than shown. So, how do you show that text to create the rolling title?

Rolling Titles

1. Select the Text Tool.

2. Hold the Control Key (on PC) or Command Key (on Mac), and drag the handle at the middle of the bottom of the scree until you can see the next text (as show below)….

Handles

When you hit the Ctrl / Cmd key to create the rolling title choose the middle bottom 'handle'.

3. When you will get this up/down arrow. Click and hold your mouse button and drag down until you see all the text you have created so far.
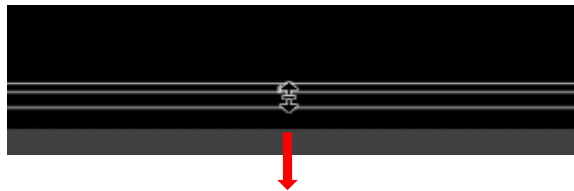
Drag Arrow

4. Now it moves into a process of repeating the same thing over and over. Type the next names in until they go off screen and then hold the Ctrl / cmd key and drag down and let go when you can see all the text.

After Dragging the Handle

Remember
If you want the © symbol on a PC the shortcut is **Alt + 0169** on the main keyboard. For a MAC the shortcut is **Alt + G.**
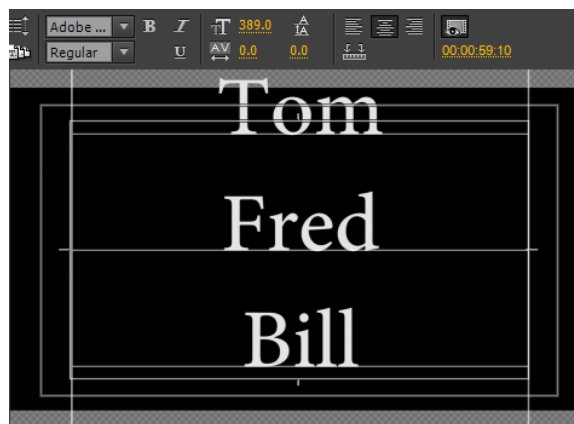
5. Lastly, when you've got all your list of credits into the title, hit return a few time then Ctrl / cmd drag down to a point where the names are off the top of the screen and you can type something like:

Remember
If something looks wrong change it! If a name is still on screen at the top when you get to the end of the scroll – add in another line. If the copyright notice is too low, **Ctrl / Cmd +** drag down just enough to get it in the right place – but be careful not to drag too much!

Copyright 2012 All rights reserved

1.   Now you've set up the title, use that Scroll Bar on the right hand side to preview how your title will look.

2. Click on the Roll / Crawl Options.
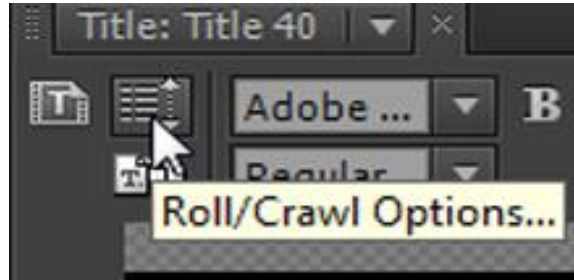
3. Timing (Frames) will open.

Let's have a look at each of these options in detail.
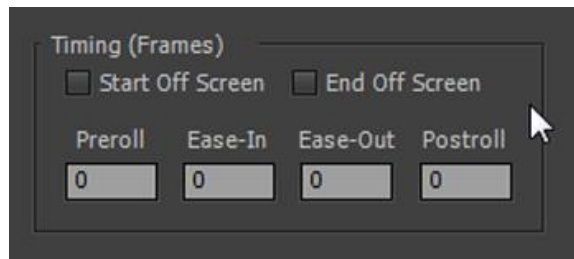
Remember

If you are working with NTSC (US and Japan) that would be 30 frames per second. For PAL (UK, Europe and much of the rest of the world) that would be 25 frames per second.

Reroll

How long after the title appears do you want the title to wait before it starts rolling up the screen?

Choose the **'**Start Off Screen' option and have the title background appear first and then have the text start to roll up from below the bottom.

However, if you want the text to start on the screen and then start to roll up choose a Preroll amount IN FRAMES – not seconds. Thus, if you wanted the text to stay put for 2 seconds before it started to roll you would type 60 (NTSC) or 50 (PAL) into the Preroll box.

Ease-In

How slowly do you want to text to start moving? For example, if you have 0 in this box the text will start to move at once with no 'easing' which can look very amateur!

What you want (if you start with the text on the screen) is the text to smoothly start to scroll up the screen starting very slowly and getting faster. So, if you wanted it to accelerate over say 1 second you would type 30 (NTSC) or 25 (PAL) in the Ease-In box.

End Off Screen means that the text will simply continue up off the screen without stopping at any point. However, for me, I like the copyright notice and any logo that I may have added to stop at the end of the roll and wait for a while before the title ends. To do this, you need to use both the Ease-Out and the Postroll functions.

Ease-Out

Over what time would you like your title to slow down to a complete stop?

You should choose 2 seconds for this which would mean adding 60 (NTSC) or 50 (PAL) into this box.

<table>
<tr><td>

Remember

Title needs 5 seconds to slow down and stop on screen because we chose 2 seconds for ease-out and 3 seconds for postroll. This means that if the title is only 5 seconds long on your timeline that all the names will go through so fast you won't even notice them before the titles slow down and stop! So, trim the length of your title out to the point whereby the names scroll up at the speed you want them to scroll up. You may need 20 – 50 seconds for even a small number of names – so try it out. Trim and have a look to make sure it's what you want.

</td><td>

Postroll

How long do you want this title to stay still for at the end of your title roll? If you have an important notice or a copyright notice or a logo at the end you probably want to have it stay on screen for at least 3 seconds if not more. So in the Postroll box I would type 90 (NTSC) or 75 (PAL).

So, a typical set up for the title starting off the bottom of the screen, then scrolling up and slowing down to a stop and waiting on screen for 3 seconds would look like this:

Once you've made your choices, click OK and then shut down the title creation window. The new rolling title is now sitting in your project panel waiting to be added to your timeline like any other asset.

</td></tr>
</table>
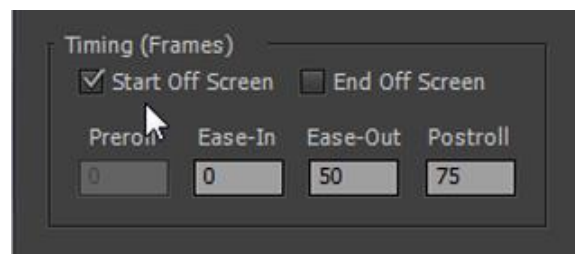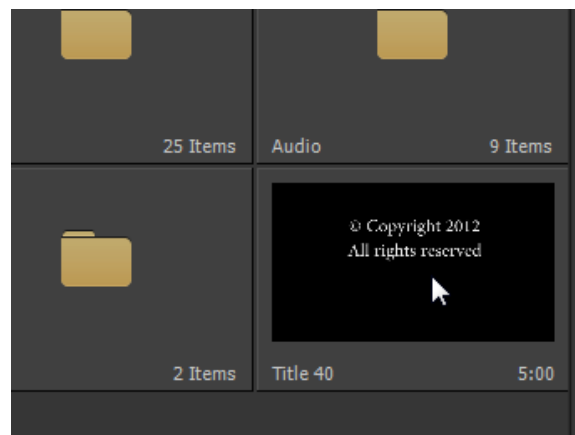
Rolling Title Speed

Now, the speed of your title – how fast it actually scrolls up the screen – is completely in your hands. You can trim the title in the normal way by adjusting the clip length.
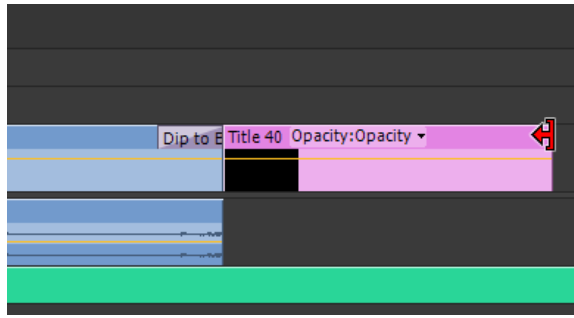
Trimming the Title

Lastly, a couple of quick tips for rolling titles in Premiere Pro:

1. When your titles come to an end, Premiere Pro will want to start from the beginning of your whole timeline which is a bit of a pain. So, trim your work area bar to just the length of your titles plus a little of the previous clip. This will allow you to see the transition for clip to title without having to go back to the start of the timeline.

2. Use a transition – perhaps the default Cross Dissolve – at the start and the end of your title. This will fade it in and fade it out for that professional look you're after.

Learning Unit 3: Embed Video

Overview

In this learning unit, you will learn the techniques of embedding Video. This allows you to take your video. Or someone else's video and post it on a web page outside of online video portal. You can embed a video on your blog and then people can watch your video there without having to visit online video portal.

1. Import Audio Files into PC from Recording Device

After you have recorded you need to transfer the audio files from your digital recorder to your own PC or laptop, where you should store a copy of all the recordings.

The process of transferring files to your computer is the same as you would use to copy files from a data stick / USB

Simply connect the digital recorder to your computer via the built-in USB connector and copy the files to a pre-selected folder on your computer. A detailed description of how to transfer your audio files is given below.

2. Procedure of Importing of Audio Files

The procedure of Importing of audio files has the following steps:

1. Locating your audio files for transfer.
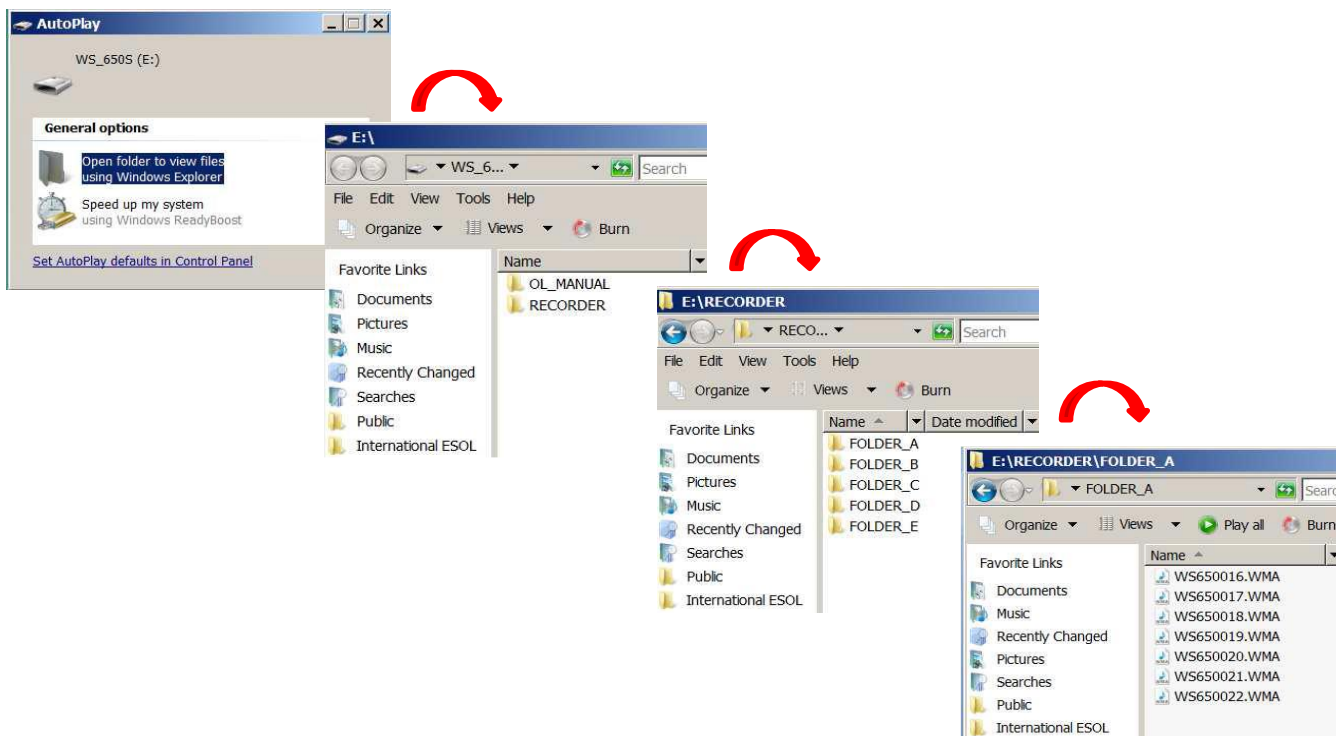
2. Highlighting audio files on your digital recorder.
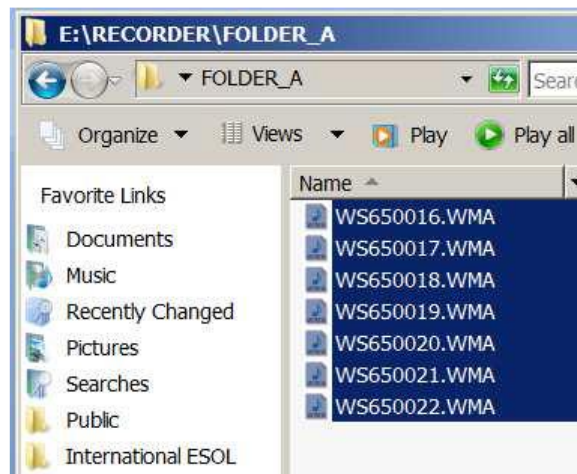
3. Copying audio files to your computer by dragging and dropping highlighted files.
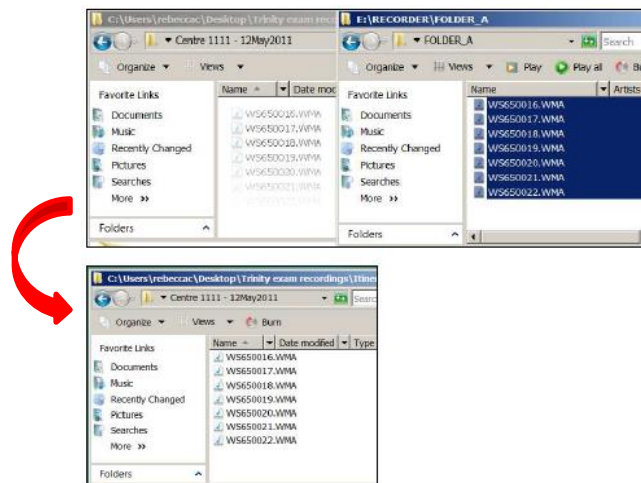
4. Safely removing your digital recorder from your computer.
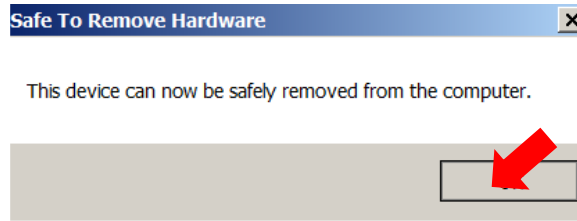
3. Import, Edit & Export Audio File

When you import an audio file, Adobe Premiere *conforms* (converts) the file to the project's audio sample rate at 32-bit quality. This provides maximum quality and editing flexibility, and ensures that all audio in the project is consistent.

4. Procedure of Importing Audio Files into Suitable format for the Project

Remember
It is recommend, that using the same location as the project, to keep all the files together. If you happen to delete or lose the conformed files it doesn't matter — they will be automatically recreated when Premiere realises they are missing.

The procedure of Import audio files into suitable format for the Project has the following steps:

1.   Select File > Import from the main menu.

2.   Locate and select the audio file, then click Open.

The file will be immediately added to the Project window and conforms (converts) the file to the project's audio sample rate at 32-bit quality.
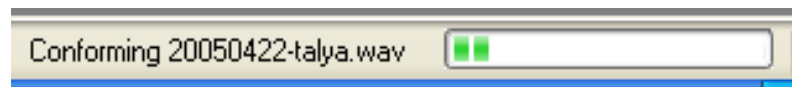
3.   Conformed files are stored in a folder called "Conformed Audio Files".

The folder is located, Edit > Preferences > Scratch Disks.

5. Edit & Export Audio Files into Suitable Format for the Project

Exporting files for Further Editing

You can export editable movie or audio files. Then, you can preview your work with effects and transitions fully rendered. Also, you can continue editing the files in applications other than Premiere Pro. Similarly, you can export a still-image sequence. Also, you can export a still image from a single frame of video for use in a title or graphic.

After editing P2 MXF assets, you can export the sequence back to P2 MXF format. You can continue editing the resulting MXF files on other editing systems that edit MXF.

Premiere Pro supports both direct export and Adobe Media Encoder export. Direct export generates new files directly from Premiere Pro. Adobe Media Encoder export sends files to Adobe Media Encoder for rendering. From Adobe Media Encoder, you can choose whether to render an asset immediately, or to add it to a render queue.

Exporting to Tape

You can export a sequence or clip to videotape in a supported camcorder or VTR. You can use this type of export for archiving a master tape, or for delivering rough edits for screening from VTRs.

Export Project Files for other Systems

You can export project files, not just clips, to standard EDL files. You can import EDL files into various third-party editing systems for finishing. You can trim Premiere Pro projects down to their essentials and ready them, with or without their source media, for archiving.

6. Procedure of Exporting Audio & Video files into suitable format for the Project

The procedure of Exporting Audio & Video Files into suitable format for the Project has the following steps:

Remember

To create PSD files the same pixel size as the Premiere project. The pixel size of the PSD file cannot exceed 4000 x 4000 pixels.

1. In a Project panel, Source Monitor, or bin, select a clip.

2. Choose File > Export > Media. Premiere Pro.

3. Opens the Export Media dialog box.

4. To crop the image, specify cropping options in the Source panel.

5. Select the file format you want for your exported file.

6. To customize the export options, click a tab (e.g., Video, Audio) and specify the appropriate options.

7. Click Export. Adobe Media Encoder renders and exports the item immediately.

7. Import Edited Images and Audio Files into Project

Import Edited Images:

Import PSD (Photoshop) files into Adobe Premiere Pro.

8. Procedure of Import Edited Images into Project

The procedure of Import Edited of Photoshop (psd) Images into Project has the following steps:

1. Select **File > Import** from the main menu. Locate and select the PSD file, then click **Open**.

2. There are three choices to make:

Remember	
Most attributes applied in Photoshop will carry over to Premiere, e.g. position, opacity, visibility, transparency, etc.	**Import Layered File : title-BettyG.psd** Import As: Footage Layer Options ○ Merged Layers ⊙ Choose Layer Layer 1 Footage Dimensions: Document Size OK Cancel
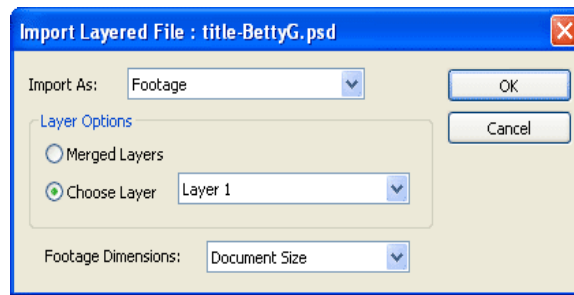
Import As

- *Footage:* A single image repeated for the duration of the clip.

- *Sequence:* The file's layers are converted to a sequence of frames. These appear as separate clips in a new bin.

Layer Options

- *Merged Layers:* All layers are merged into a single image.

- *Choose Layer:* Select the name of a specific layer in the PSD file — only this layer will be imported.

Footage Dimensions

- *Document Size:* Resizes the PSD file to the size of the current project (as specified in **Project > Project Settings**).

- *Layer Size:* Keeps the original size of the PSD file (or selected layer)

9. Learn & Understand the Use of Timeline for Arranging and Placing Media

Customizing the Timeline

Customizing the Timeline and learning its features Ⓐ.
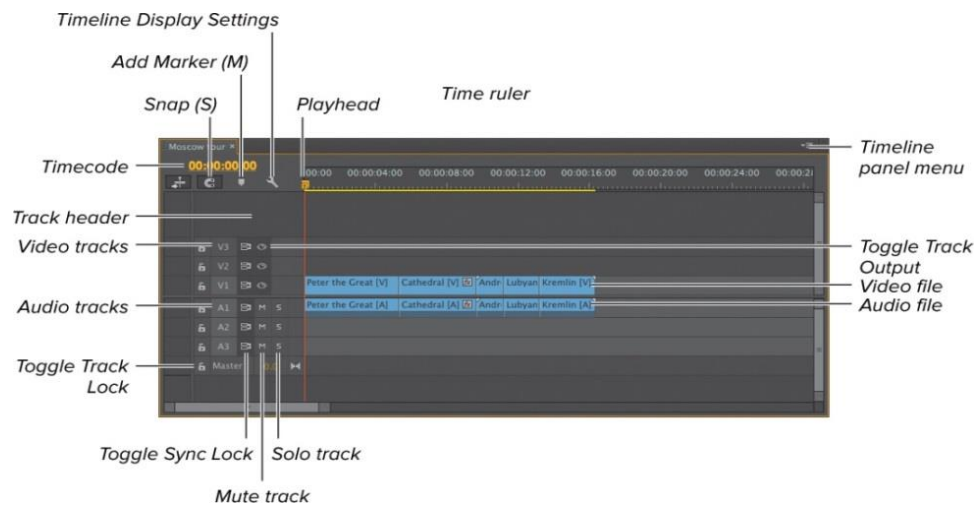
The Premiere Pro Timeline panel.

You'll briefly discuss many of the individual key features of the Timeline.

- Snap (S). Controls whether items in the Timeline snap to each other when moved. Enabled by default.

- Add Marker (M). Click to add a marker to the Timeline.

- Playhead. Marks the current frame of the video shown in the Program Monitor.

- Timecode. Displays the location of the playhead.

- Timeline Display Settings. Opens the Settings menu.

- Time ruler. The time display within the Timeline. Runs from left to right, usually starting at zero.

- Track header. The area to the left of the Timeline track, where many track configuration adjustments are made.

- Toggle Track Output. Turns the track on and off. When a track is off, its content is no longer displayed in the Program Monitor.

- Toggle Track Lock. This button toggles locking on and off. Locking a track makes the content non editable.

- Toggle Sync Lock. This button toggles Sync Lock on and off. Sync Lock keeps tracks in sync when certain edits are performed.

- Mute track. Mutes that track's audio during playback.

- Solo track. Plays only that track's audio during playback.

- Timeline panel menu. Contains multiple configuration options for the Timeline.

Quick View Timeline

The Quick view timeline contains the following tracks:

Video: Edit your video clips and images in this track

Titles: Add text titles to your clips here

Sound: Add background music and other sounds to your movie

Narration: Include recorded narrations for your movie here

- The Quick view timeline displays each clip as a series of frames that span the entire clip length.

- You can trim unwanted portions within individual frames and rearrange them.

- You can also swap the position of a clip with another to make a coherent movie sequence.

Expert View Timeline

For more advanced editing, use the Expert view timeline. The Expert view timeline graphically represents your movie project as video and audio clips arranged in vertically stacked tracks. When you capture video from a digital video device, the clips appear sequentially as they occur.
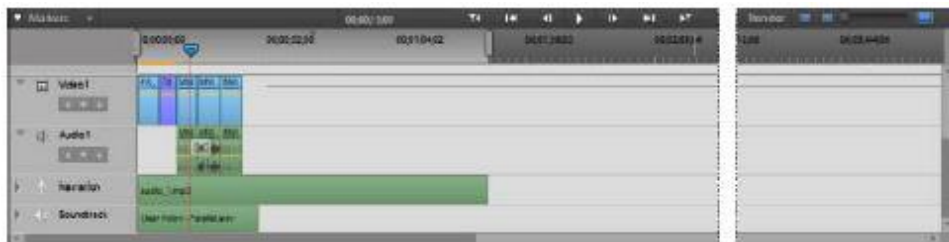
- The **Expert view** timeline uses a time ruler to display the components of your movie and their relationship to each other over time.

- You can trim and add scenes, indicate important frames with markers, add transitions, and control how clips are blended or superimposed.

- Compared to the Quick view, the Expert view timeline has more tracks.

Customize Expert view timeline tracks to suit the needs of your project.

Add a Track to the Expert View Timeline

1. Choose Timeline > Add Tracks.

2. In the Add Tracks dialog box, type the number of tracks you want to add in the Add field for video or audio tracks.

3. To specify the placement of added tracks, choose an option from the Placement pop-up menu for each type of track added, and click OK.

A. *Current-time indicator*   **B.** *Time ruler*   **C.** *Zoom control*

D. *Video track*   **E.** *Audio track*

Default tracks

A. Video 2 track   **B.** Audio 2 track   **C.** Video1 track

D. Audio 1 track   **E.** Narration track   **F.** Soundtrack

10. Knowledge of Various Settings for Importing Different Media Elements

1. Click Add Media, and select Elements Organizer. The Elements Organizer application launches.

2. In the Import panel of the Organizer workspace, locate the album or folder containing your media.

3. From the Media view, drag one or more media files to the Quick view timeline or Expert view timeline in Adobe Premiere Elements. Alternatively, you can drag a media file to the Project Assets panel

Learning Unit 4: Prepare and Publish Artwork

Overview

In this learning unit, you will learn to prepare and publish artwork. After completion of this learning unit, you will be able to create motions in a project.

1. Creation of Motion

You can create animations, insets, and split screens by manipulating a clip directly in the Program Monitor and setting key-frames for the Motion effect. By adjusting a clip's position and scale in the Program Monitor, you reveal clips in the tracks below it and can create interesting compositions.

When you animate a clip's position, the clip's motion is represented by a motion path in the Program Monitor. Small white Xs represent key-framed positions, dotted lines represent positions at interpolated frames.

The circular clip anchor point symbol represents a spot in the clip, its centre by default, at the current frame. The spacing between dots indicates the speed between key-frames……..wide spacing shows fast motion, while tightly spaced dots show slower motion.
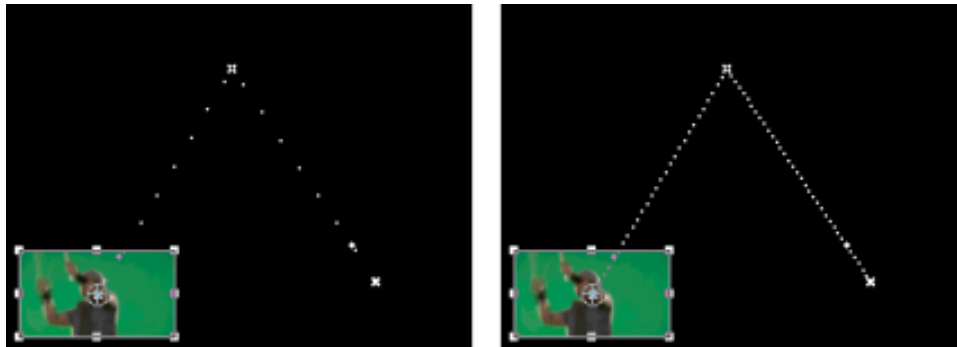
Pictures showing a motion path with fast motion (left) compared to slow motion (right)

- To quickly apply Motion effect changes to a sequence clip.

- Click the image in the Program Monitor and begin manipulation (without first clicking the Transform icon next to the Motion effect in the Effect Controls panel).

- Adjust the position of the image, you can further refine its movement by using the Bezier keyframes.

2. Procedure of Creating Motion

When the Motion effect is selected in the Effect Controls panel, you can manipulate a clip in the Program Monitor. Create an animation by setting key-frames for one or more of the Motion effect's properties (for example, Position).

The procedure of creating motion has the following steps:

1. Select a clip in a Timeline panel.

2. Apply one of the following:

    - Select the Motion effect in the Effect Controls panel.

    - Click the image in the Program Monitor.

    - Click the Transform icon ⬚↖ next to Motion in the Effect Controls panel.

Handles appear around the clip's perimeter in the Program Monitor.

Note: If you don't see the clip handles, change the Zoom Level in the Program Monitor to a smaller percentage so that the grey work area around the video frame appears.

3. Move the current-time indicator to the frame where you want to start the animation—any frame between the clip's current In point to its Out point.

4. In the Effect Controls panel, expand the Motion effect and click the Toggle Animation button ⏱ next to each property you want to define. A Key-frame icon appears at the current-time indicator for that property.

5. In the Program Monitor, change the key-frame value by positioning the pointer near any of the clip's eight square handles to use any of the following pointer tools:

    - The selection pointer ⬚ to set the position value.

    - The rotate pointer ↷ to set the rotation value.

    - The scale pointer ⬚ to set the scale value.

Note: If clip handles disappear, reselect the Motion effect in the Effect Controls panel.

6. Move the current-time indicator in either the Timeline or the Effect Controls panel to the time at which you want to define a new value for the property (and thereby a new key frame).

7. Manipulate the clip in the Program Monitor to set a new value for each property for which you set key frames in step 3. A new Key frame icon appears in the Effect Controls panel at the current-time indicator.

8. Repeat steps 5 and 6 as needed. *When you animate a clip, it can be useful to reduce the Program Monitor's magnification level. This way, you can see more of the pasteboard area outside the visible area of the screen and can use it to position the clip off screen.*

9. In the Effect Controls panel, drag the Bezier handle for a Position, Scale, Rotation, or Anti-flicker Filter property keyframe to control the acceleration of change for that property.

3. Settings and Preferences for Creating Motion

Review Project Pre-sets, Settings and Preferences

When you create a project, you can review the default pre-set and settings by clicking the Change Settings button in the New Project dialog. Adobe Premiere Elements automatically adjusts your project settings based on the type of media you import.

1. In Adobe Premiere Elements, select File > New > Project.

2. Click Change Settings.

Summary of Module

- Knowledge of filters for applying colour correction to videos.

- Knowledge of colour correction in order to convey message, e.g. white balance or unbalance to convey a feeling or emotion.

- Understand the use of built in filters for adding visual effects. Different filters can be used to convey different messages

- Use of built in transition to move from one scene to another. A transition gives the viewer sense of continuality.

- Use of effects to produce results that cannot be achieved by normal techniques. A common effect used in video editing is brightness/ contrast effect to correct the scene.

- Understanding other effects such as deleting unnecessary audio clip, or part of a scene.

- Learn to import audio files, voice over into computer

- from recording device

- Learn and understand the use of timeline for arranging and placing media elements for the project.

- Knowledge of various settings for importing different media elements.

- Understand the creation of motion using video editing software once all media elements are in place on the timeline.

- Understand the settings, properties, preferences for creating motion.

Frequently Asked Questions (FAQs)

FAQ 1:	What is The Fast Colour Correction filter?
Answer	The Fast Colour Correction filter measures the amount of red, green, and blue in an object that is supposed to be grey.
FAQ 2:	What does the change colour effect do?
Answer	A. It adjusts the hue, lightness, and saturation of a range of colours.
FAQ 3:	Which two types of effects, you can give to your video?
Answer	Visual effects as audio effects.
FAQ 4:	What is transition does?
Answer	A transition gives the viewer sense of continuality.
FAQ 5:	Describe the YC Waveform?
Answer	It shows us the brightness of the pixels at their respective location in the frame.
FAQ 6:	Describe the Gamma Correction effect?
Answer	The Gamma Correction effect lightens or darkens a clip without substantially changing the shadows or the highlights.
FAQ 7:	What you call the Titles that move vertically and horizontally over the footage.
Answer	Titles that move vertically over the footage are called *Rolls*. Titles that move horizontally are called *Crawls*.
FAQ 8:	Write down the formats which can be imported directly in Adobe Premiere.
Answer	These formats can be imported directly: AIFF, AVI, MOV, MP3, WAV.

|	
FAQ 9:	What is the recommended pixel size of the PSD file?
Answer	The pixel size of the PSD file cannot exceed 4000 x 4000 pixels.
FAQ 10:	How many tracks the Quick view timeline contains and explain them?
Answer	Video: Edit your video clips and images in this track. Titles: Add text titles to your clips here. Sound: Add background music and other sounds to your movie. Narration: Include recorded narrations for your movie here.

Test Yourself!

Please mark the correct one from the given options. You can check your answer with the Answer Key at the end of this module.

1. **Equal amounts of red, green, and blue equals to …………**

a. Red

b. Black

c. Grey

d. White

2. **Different filters can be used to convey different……**

a. Colours

b. Messages

c. Tones

d. Hues

3. **Gamma Correction controls ………………. adjustments.**

a. Effective & Balanced

b. Balanced & Smooth

c. Attractive & Balanced

d. Plane & Balanced

4. **Rolling titles are …………… for any professional film production.**

a. Must

b. Not require

c. Partially required

d. None of them

5. **The length of the title clip in a Timeline panel determines the speed of the …….**

a. Moving

b. Movie

c. None of them

d. Roll or Crawl

Answer Key

MCQ Number	Correct Answer
1	c
2	b
3	a
4	b
5	a

Module 6: Prepare for Rendering

Learning Outcomes

After completion of this learning module, you will be able to:

- Export final project/ story using Adobe Premiere

- Export final project/ story using Final Cut Pro

Learning Unit 1: Rendering and Exporting the Story in Adobe Premier

Overview

Rendering is the process of generating an image from a model, by means of a software program. It would contain geometry, viewpoint, texture and lighting information. Rendering is also used to describe the process of calculating effects in a video editing file to produce final video output.

In this learning unit you will learn exporting project out of adobe premiere into a format (burning of a project disk for DVD players and a data disc (CD)) that can be viewed through other sources.

> **Remember**
>
> Effects that are not real time must be rendered to play back properly. Once rendered, your sequence can be played in real time.

1. Exporting Adobe Premiere Project

You can export video from a sequence in the form best suited for further editing or for a viewing audience. Premiere Pro supports export in formats for various uses and target devices.

> **Adobe Media Encoder**
>
> It is a transcoding and rendering app that lets you encode audio and video in a variety of formats for delivering video content for web, broadcast and cinema.

1. Exporting Files for Editing

You can export editable movie or audio files. Then, you can preview your work with effects and transitions fully rendered. Also, you can continue editing the files in applications other than Premiere Pro. Premiere Pro supports both direct export and Adobe Media Encoder export. Direct export generates new files directly from Premiere Pro.

Adobe Media Encoder export sends files to Adobe Media Encoder for rendering. From Adobe Media Encoder, you can choose whether to render an asset immediately, or to add it to a render queue.

2. Exporting to tape

You can export a sequence or clip to videotape in a supported camcorder or VTR. You can use this type of export for archiving a master tape, or for delivering rough edits for screening from VTRs.

> **Camcorder**
>
> It is an electronic device combining a video camera and a video recorder.

3. Send to Encore

You can send video from any sequence into Adobe for output to DVD, Blu-ray Disc (Windows only), or a SWF file.

You can send content from Premiere Pro to Adobe Encore for creating an AutoPlay disc without menus. You can quickly create menu-based discs using the professional templates in Adobe Encore.

> **VTR**
>
> A video tape recorder (VTR) is a tape recorder designed to record video material on magnetic tape.

Finally, you can use the deep authoring tools of Adobe Encore, Adobe Photoshop, and other applications, to author professional-quality discs. You can also export in formats appropriate for CD-ROM distribution.

EDL Files

An edit decision list or EDL is used in the post-production process of film editing and video editing. The list contains an ordered list of reel and time code data representing where each video clip can be obtained in order to conform the final cut.

4. Export project files for other systems

You can export project files, not just clips, to standard EDL files. You can import EDL files into various third-party editing systems for finishing. You can trim Premiere Pro projects down to their essentials and ready them, with or without their source media, for archiving.

5. Export formats

Finally, using the Adobe Media Encoder, you can export video in formats suitable for devices ranging from professional tape decks to DVD players to video-sharing web sites to mobile phones to portable media players to standard- and high-definition TV sets.

2. Exporting video from Adobe Premier Pro

The procedure of exporting your video from Adobe Premier Pro has the following steps:

1.   To export your video click on File →Export→ Media.
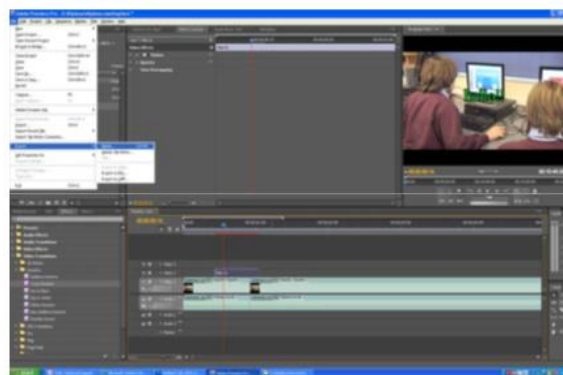
Export Video
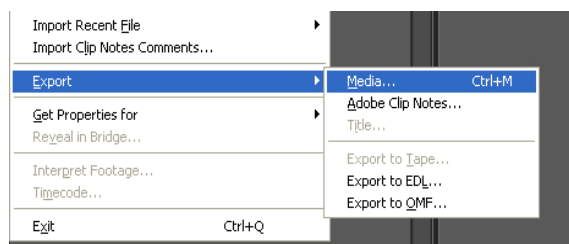
2.   A new window will open up.
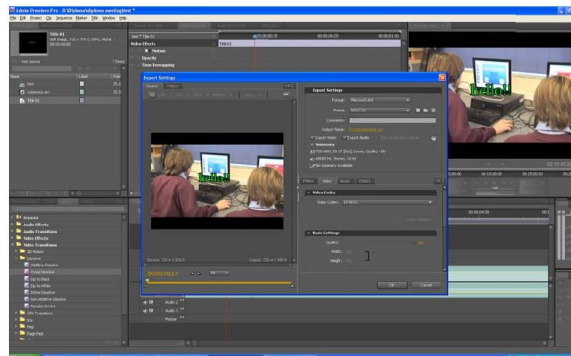
3.   From here you need to select the export settings.
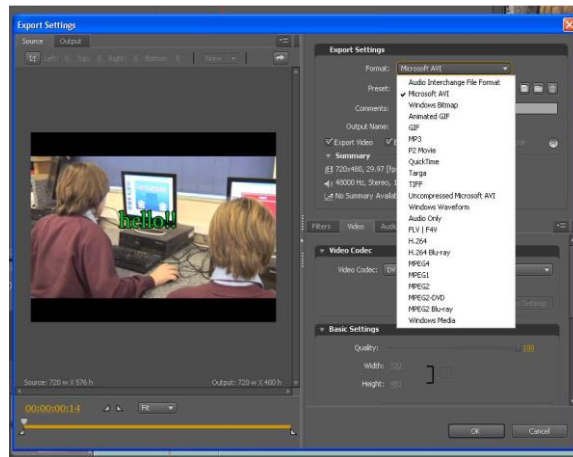
4.   Once you have settled on the correct settings click "Ok" and a new window will open up where you can set the name and destination of your output file. Once you have set the destination click "Start Queue" and the file will begin Exporting.
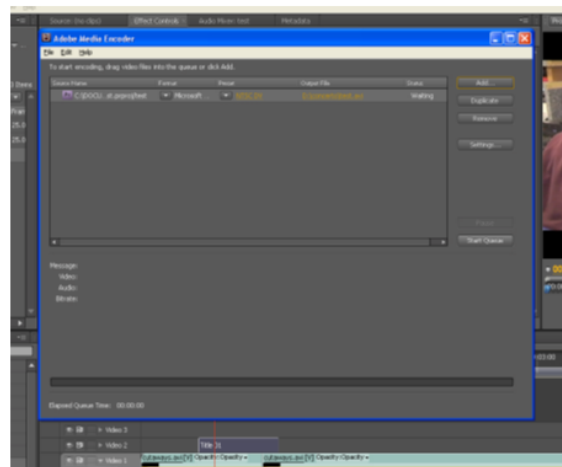
Exporting Process

Do you know!

Nero is probably the most popular DVD burning program that will give you even more control over the burning speed.

Once the loading bar has finished and disappeared your file is now exported and ready to watch from the destination folder you set it to.

3. Burning a DVD-Video Disc

The procedure of burning a DVD-Video Disc with Nero Burning ROM has the following steps:

1.   Download and install Nero burning software. Official download link is http://www.nero.com/eng/downloads/

2.   Open Nero. This is the default window when Nero starts, if it doesn't come up just go to new button in the top left corner.

Do you know!

You can use other software to burn CD/DVD e.g Power ISO etc.
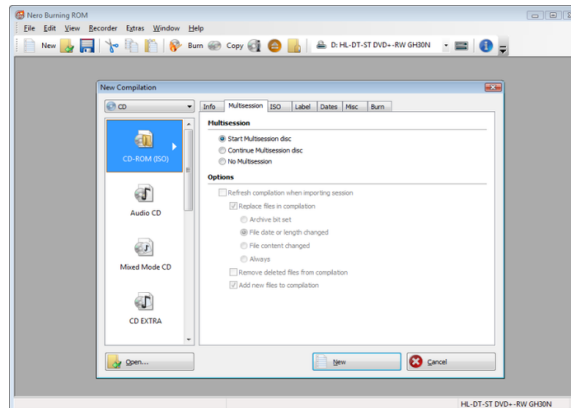
3.   Here select DVD as the type of media you want to burn and then DVD-Video

Remember

Select a low burning speed like 4x for DVD video discs especially if your standalone player is a bit old.

4.   Select a speed for DVD video discs and click new.

5.   Here just find the files that you want to burn in the DVD, select them all and drag them in the *VIDEO_TS folder* .It is important that you put all the files inside the VIDEO_TS folder and not in the DVD root. Then make sure DVD5 is selected and click *Burn.*
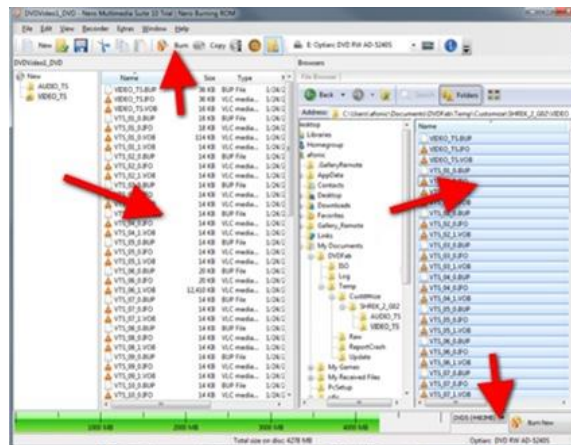
6.   You can optionally select verify the disc after it is burned. It will take more time, but you are sure that you have a correct copy before you delete that DVD files off your hard disk. Remember about write speed in earlier step. When you are ready add a blank DVD and click *burn*.
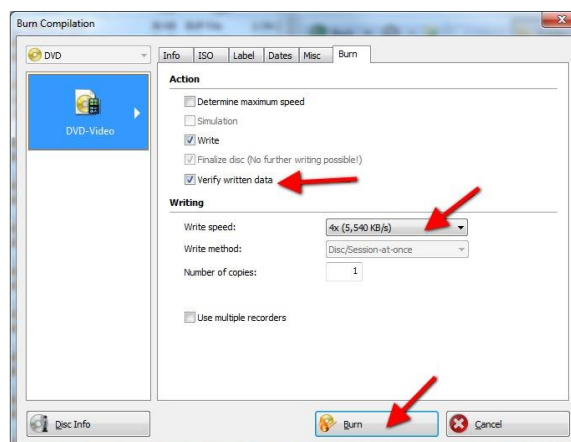
That's all! Now just wait a few minutes and your DVD will be ready.
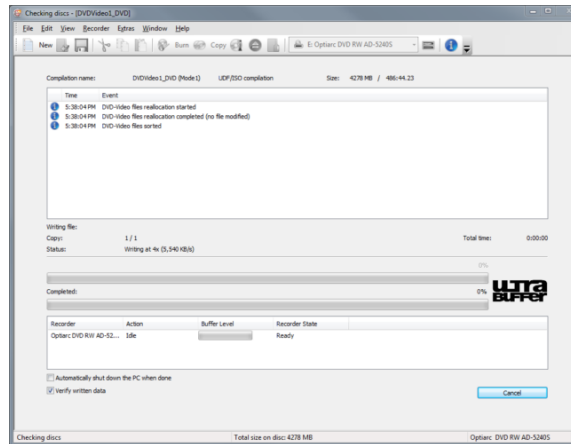
4. Burning of a Data Disk

The procedure of preparation and burning of a data disk (CD) to store all source files has the following steps:

1. Place an empty disc into your CD/DVD writable drive tray, face up.

2. Go to computer and double click at CD/DVD drive or wait for the dialogue box that appears automatically after inserting CD/DVD.

3.   In the Disc Name field, type a name for the disc and click at Next.

4.   Your disc will be formatted for burning. When finished formatting, an empty disc folder will open.

5.   Drag or copy the source files of the project into the empty disc folder. The files are copied as you drag them.
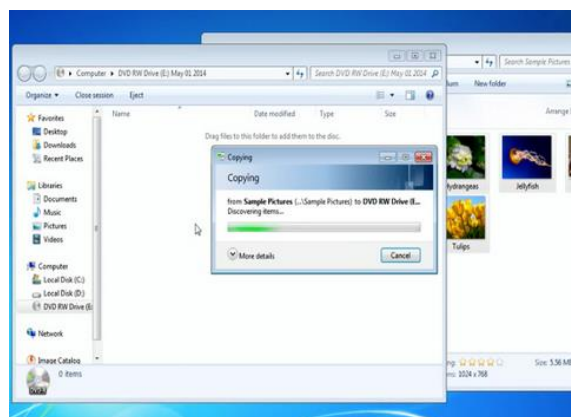
6.   Click at close session that will make the CD/DVD ready for use on other computers.

Learning Activity

Export a project out of Adobe Premiere

Description: This activity consists of an interactive session in the class about exporting project out of Adobe Premiere.

Time Guideline: 30 min

Purpose: To be able to export a video out of Adobe Premiere.

Presentation:

1. Divide the class into groups.
2. Brief the groups about the activity that each group will create and export a video out of Adobe Premiere.
3. Groups will practice these tasks.
4. Each group will present its task.

Learning Unit 2: Rendering and Exporting the Story in Final Cut Pro

Overview

In this learning unit, you will learn exporting project out of Final Cut pro. You have already learnt burning of a project disk for DVD players and a data disk (CD) to store all source in previous unit. On completion of this learning unit you will be able to export projects out of Final Cut Pro.

1. Exporting Project Out of Final Cut Pro

In Final Cut Pro you can export video in a variety of functionalities. You can export video at normal resolution which is a simple method, a low resolution video for YouTube and a high resolution video for a DVD.

2. Procedure of Exporting Video in Final Cut Pro

The procedure of exporting video in Final Cut Pro has the following steps:

1. After completing your video, in FINAL CUT PRO X.

    Go to FILE and then to SHARE. Then to MASTER FILE.
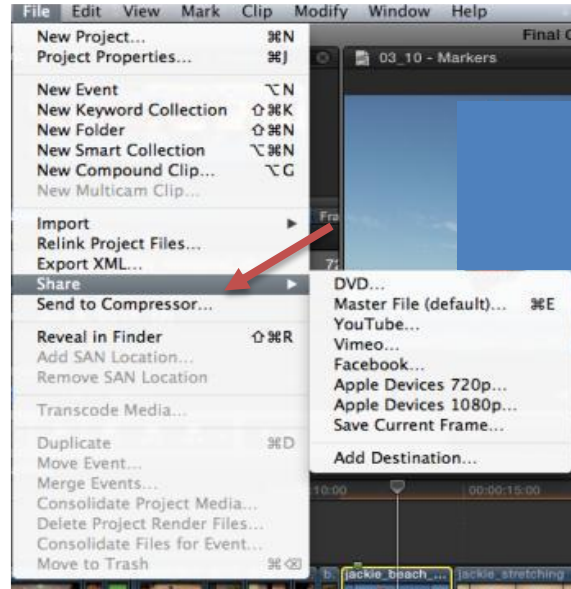
Do you know!

Final Cut Pro is a simplest way of exporting video but it might take you longer to export the video.

Remember

Make sure that you are in the TIMELINE window. If you're not, the menu boxes that you will need to share your video will be grayed out.

2. Once you click on SETTINGS, you will then see a menu that allows you to select many different formats for your video. Select the one that is best for you.
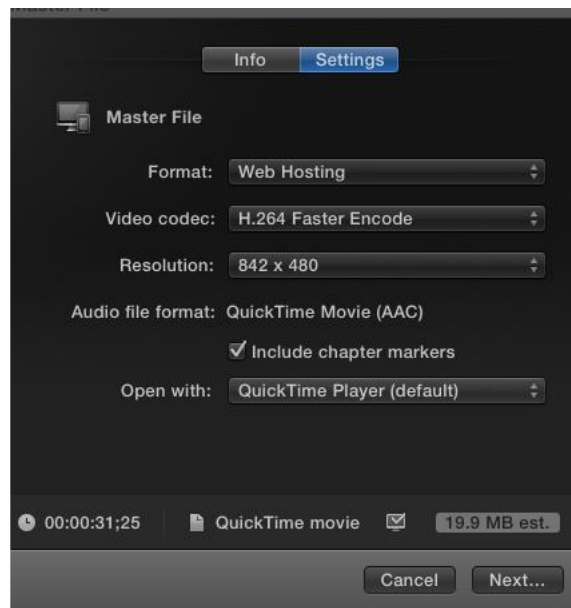
Small format, for the smallest video size:

FORMAT: Web Hosting.

VIDEO CODEC: H.264 Faster Encode

RESOLUTION: 842X480

(Rest of stuff doesn't matter).

High-Res:

FORMAT: Video and Audio

VIDEO CODEC: Apple Pro-Res 422

RESOLUTION: Whatever your video is shot at will show under "Resolution."

(Rest of the stuff doesn't matter.)

3. Exporting Video from Final Cut Pro X to be made into a DVD (HIGH-RES)

The procedure of exporting video from Final Cut Pro X to be made into a DVD (HIGH-RES) has the following steps:

1. Go to FILE and then to SHARE. Then, go to ADD DESTINATION.
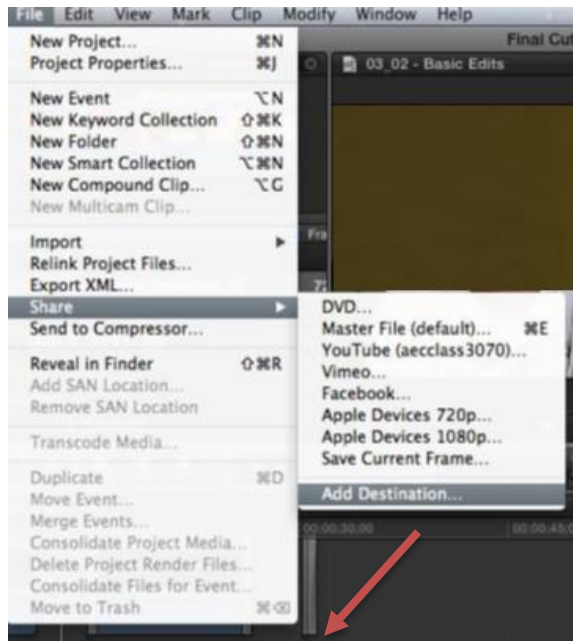
2.   Once you see the menu (on the right) appear, double-click on COMPRESSOR SETTINGS.
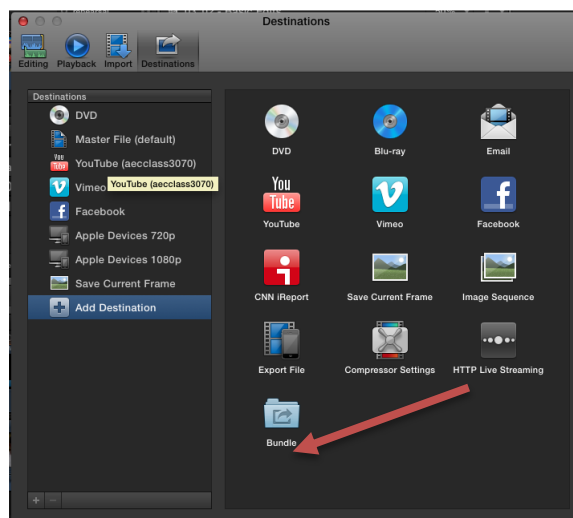
3.   You will get this menu. Select the APPLE folder.
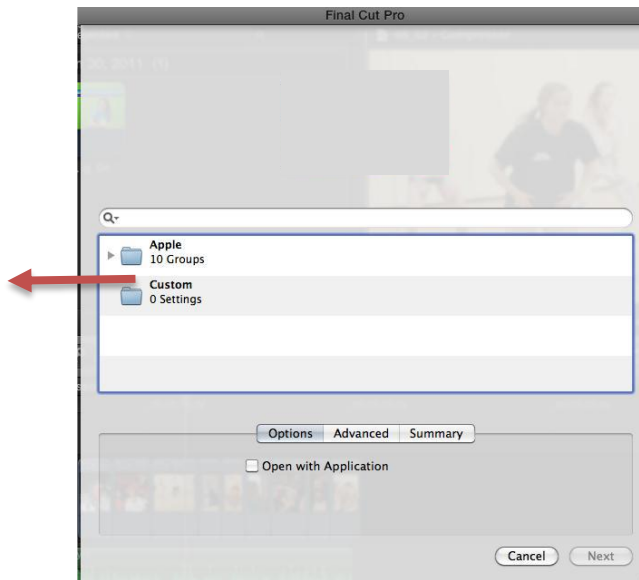
4.   Then scroll to the ProRES folder. Open it up. Click on the FIRST setting – Apple ProRes 422. Do not use the other Apple ProRes 422 settings (HQ, Proxy). Use the FIRST ONE.
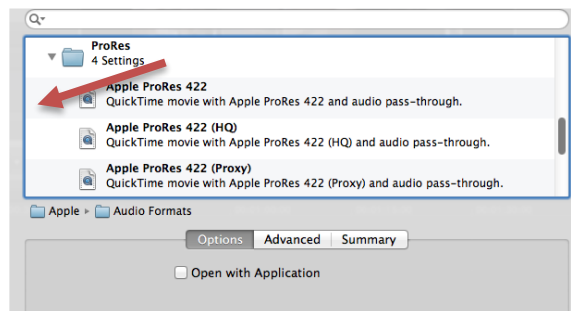
5.   This will add a new destination to the list in the SHARE.
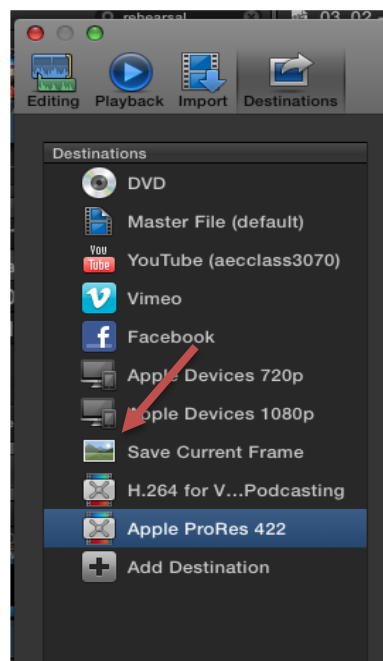
6.   Then go back to FILE → SHARE → Apple Pro-Res.
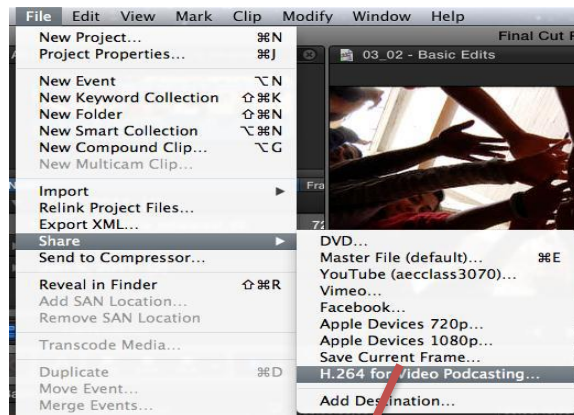
7.   Click on NEXT, give your file a new name, and then save it to your desktop or to a folder on your desktop.
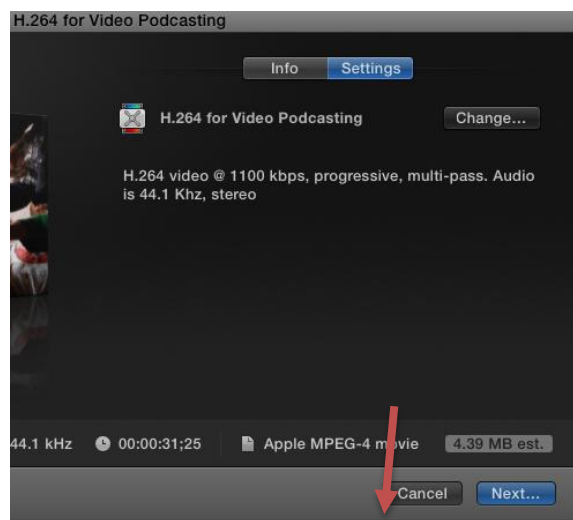
Then click "Next" on bottom right. This will create a .MOV file of a HUGE size.

8.   Give your file a name – PREFERABLY WITH YOUR NAME IN THE FILE NAME – and save it to the desktop.
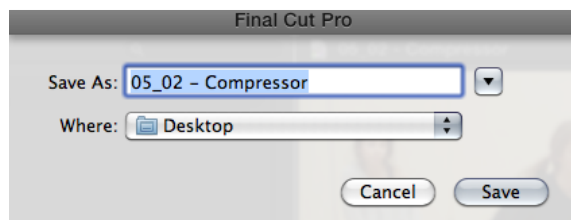
After the video has been made, insert the finished video into DVD burning software to make a DVD.

Learning Activity

Export a project out of Final Cut Pro (Low Resolution)

Description: This activity consists of an interactive session in the class about exporting project out of Final Cut Pro.

Time Guideline: 30 min

Purpose: To be able to export a video for YouTube.

Presentation:
1. Divide the class into two groups.
2. Brief the groups about the activity that each group will create and export a video out of Final Cut Pro.
3. Groups will practice these tasks.
4. Each group will present its task.

Learning Unit 3: Animation Using Adobe Flash Professional

Overview

In this learning unit, you will learn motion graphics designing using Adobe Flash. On completion of this learning unit you will be able to create motions, shapes and text animations.

1. Adobe Flash Professional

Adobe Flash (formerly Macromedia Flash) is a multimedia platform used to add animation, video, and interactivity to web pages. Flash is frequently used for advertisements and games. More recently, it has been positioned as a tool for "Rich Internet Applications" ("RIAs").

2. The Interface (Workspace)
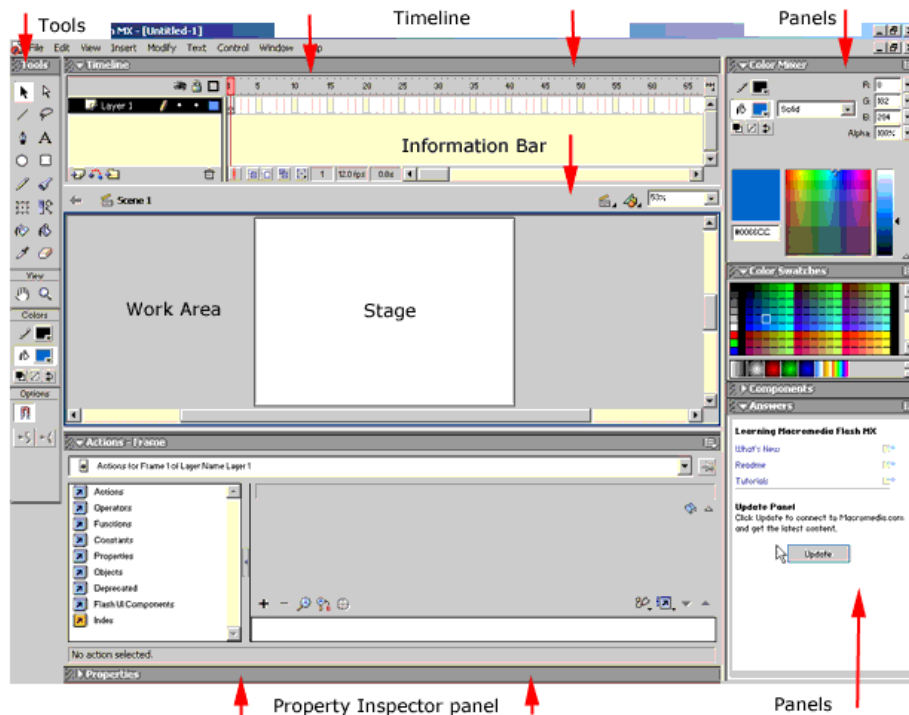
Do you know!

Originally developed by Macromedia, Flash was introduced in 1996, and is currently developed and distributed by Adobe Systems.

Remember

In 1996, Future Splash was acquired by Macromedia and released as Flash, contracting "Future" and "Splash

The TimeLine

1. The Timeline controls and shows all of the elements of your project over time. It uses Frames and Layers to organize your work.

2. The Playhead tells you which frame is currently displayed on the Stage Layer controls allow you to control your layers. You will learn about layers in more detail later in this tutorial

3. Status Bar gives you information about the current frame, the number of frames per second (fps) and the elapsed time of your movie

4. The Frame View is a drop down menu that lets you control the appearance of the Timeline.

A. Playhead	**B.** Empty keyframe
C. Timeline header	**D.** Guide layer icon
E. Frame View pop-up menu	**F.** Frame-by-frame animation
G. Tweened animation	**H.** Scroll To Playhead button
I. Onion-skinning buttons	**J.** Current Frame indicator
K. Frame Rate indicator	**L.** Elapsed Time indicator
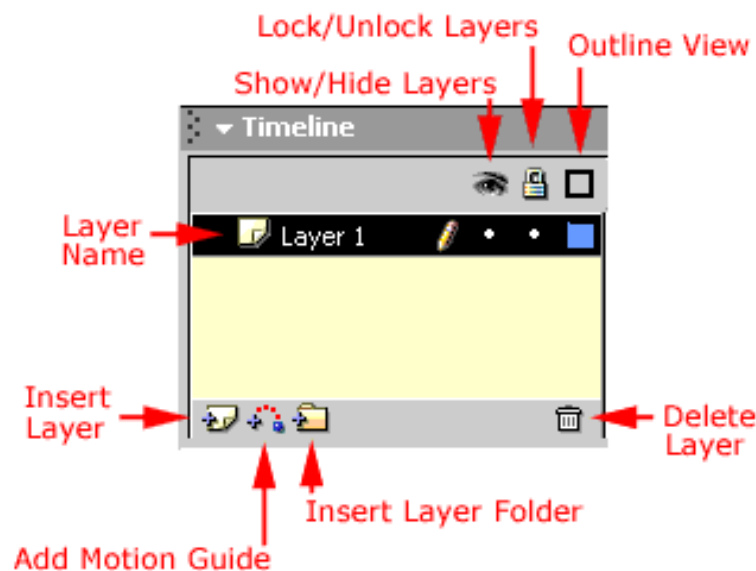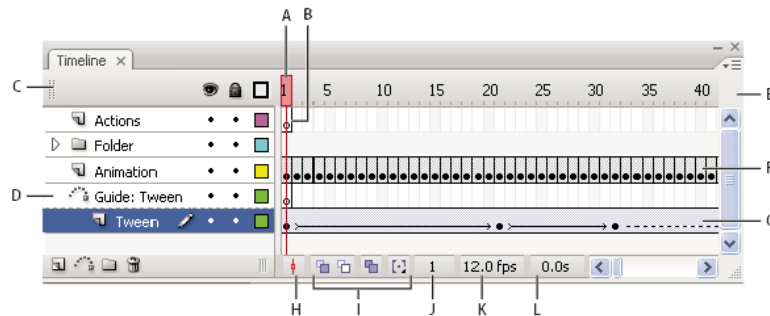
Layers allow you to organize your work.

1. Layer name - the default is Layer 1, Layer 2 etc

2. Insert layer - click to add a new layer

3. Add motion guide - by clicking this you add a guide layer on top of your current one

4. Insert Layer Folder - this adds a folder that can store other layers, this is useful in complicated projects to help organize your work

5. Delete Layer - to remove a layer, drag it to the trash
   Show/Hide all layers - can hide a layer while you are working

6. Lock/unlock all Layers - by clicking this it's impossible to edit a layer

7. Outline view - displays solid shapes as outlines with no fill

3. Flash Drawing and Painting Tool

The line tool creates straight lines. Try holding down the Shift key and you'll get lines that are at a 45 degree angle. Lines can be modified with the Ink Bottle

The lasso tool allows you to select an object or a piece of an object by drawing around it

The pen tool creates a straight or a curved line

The text tool allows you to add text fields to your movie

The oval tool creates circles and ovals. Hold down the shift key and you can create a perfect circle

The rectangle tool creates squares and rectangles. Hold down the shift key and you can create a perfect square

The pencil tool draws lines in three different modes: straighten; smooth; ink. Hold down the shift key and you can create perfect horizontal and vertical lines.

The brush tool creates shapes with fills only.

The free transform tool allows you to modify objects. You can scale, rotate; flip, skew.

The fill transform tool allows you to change the size, direction or center of a gradient or bitmap fill

The ink bottle tool can be used to change the color or width of a line or to add a stroke to a shape. It will not change the fill of a shape

The paint bucket tool adds a fill inside of a shape or to change to color of a fill.

The eye dropper tool is used to copy the fill or stroke attributes of an object and apply it to another object

The eraser tool is used to remove unwanted areas on the Stage

Scene
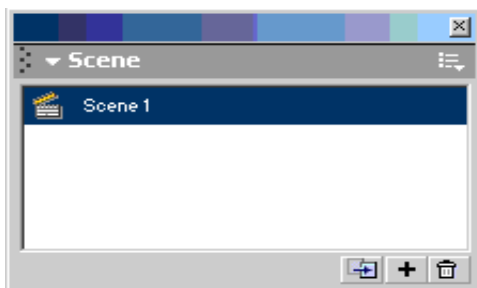
Transform

Scene displays a list of all the scenes in your movie. You can add, delete, duplicate, name, or rename scenes in this panel
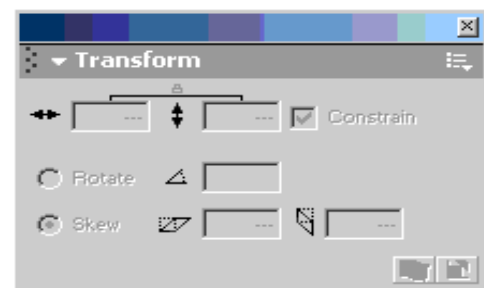
The Transform panel allows you to rotate, scale and skew an object numerically

Align
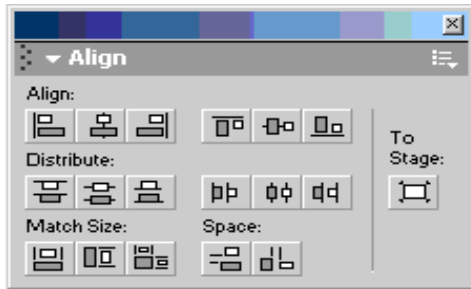
The Align panel allows you to align objects

Info
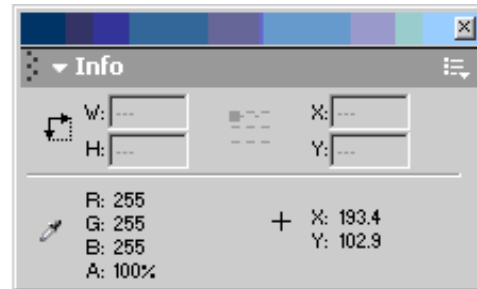
The Info panel gives you numerical information about the size, position and color of the selected object.

Color Mixer
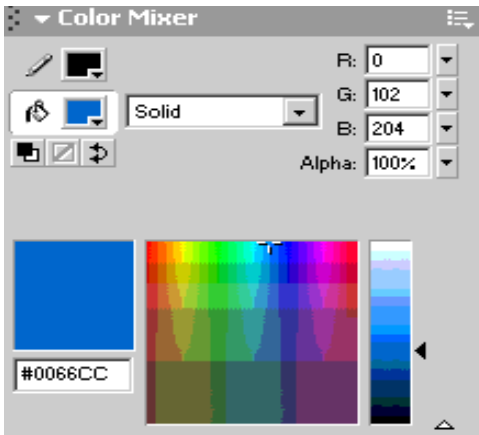
The Color Mixer allows you to create new colors in either: RGB; HSB; or HEX

Color Swatches
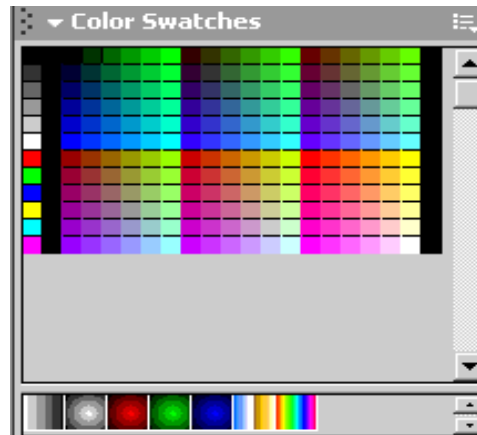
Color Swatches are the 216 Web safe colors

Flash Animation

Macromedia Flash is known as an animation tool. This tutorial will introduce you to the basics of Flash animation.
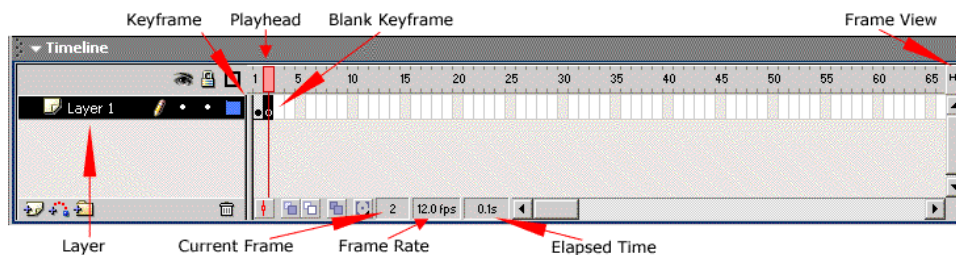
Keyframe

Keyframes define the moment in the timeline where actions or animations occur.

Layers

Layers organize your work from back to front on the stage so that one object can move in front of another one.

Blank Keyframe

A blank keyframe is an empty location on the timeline that is ready to have content placed.

Frame Rate

This shows the number of frames per second (fps) your animation will play in the browser

Playhead

The playhead shows the current frame that you are viewing in the timeline.

Current Frame

This displays the current position of the playhead

Frame View

The Frame View allows you to change how the timeline is displayed.

Elapsed time

Shows the time elapsed from Frame 1 to your current position at the selected fps

Representations of Animation in the Timeline

Flash distinguishes tweened animation from frame-by-frame animation in the Timeline as follows:

- A black dot at the beginning keyframe indicates motion tweens; a black arrow with a light blue background indicates intermediate tweened frames.

- A black dot at the beginning keyframe indicates shape tweens; a black arrow with a light green background indicates intermediate frames.

- A dashed line indicates that the tween is broken or incomplete, such as when the final keyframe is missing.

- A black dot indicates a single keyframe. Light gray frames after a single keyframe contain the same content with no changes and have a black line with a hollow rectangle at the last frame of the span.

- A small **a** indicates that the frame is assigned a frame action with the Actions panel.

- A red flag indicates that the frame contains a label.

- A green double slash indicates that the frame contains a comment.
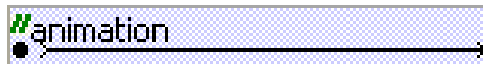
- A gold anchor indicates that the frame is a named anchor.

Tweened Animation

Flash can create two types of tweened animation:

- In motion tweening, properties are defined such as position, size, and rotation for an instance, group, or text block at one specific time, and change those properties at another specific time. A motion tween can also be applied along a path.

- In shape tweening, a shape is drawn at one specific time, or it can be changed or another shape is drawn another specific time. Flash interpolates the values or shapes for the frames in between, creating the animation

Motion Tween

- Open a new flash file (Ctrl+N)

- New Document window will appear

- Select General panel and choose Type: Flash Document. Press OK.

- If your timeline window is not open, press (Ctrl+Alt+T).

- Now you can see a single Layer called "Layer1" in your timeline Window.
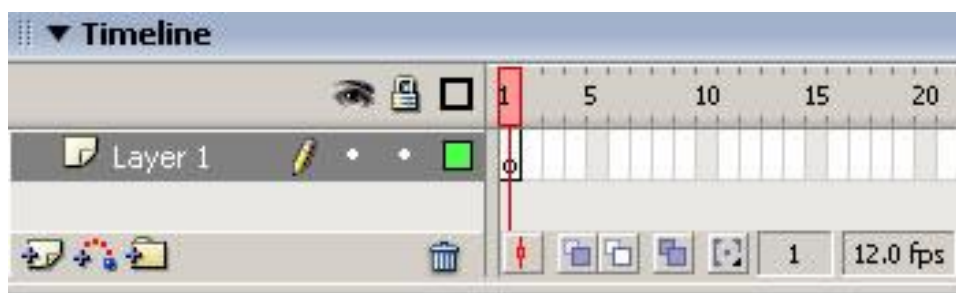
- Select the first frame. Import your image onto stage, upon which you would want to implement motion tween.

- File→ Import→Import to Stage, or just press (Ctrl+R). Or you can even draw your own object; you can either choose Rectangular tool or Oval tool from the tool box or draw your desired shape.
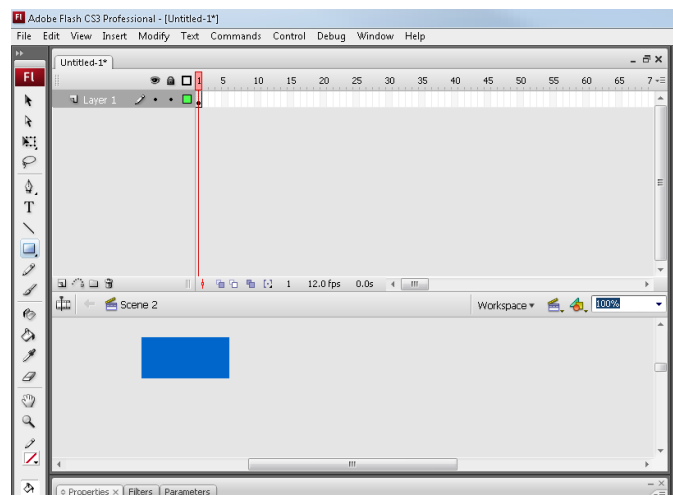
- Now select your object on the stage and press F8 to convert this image to a Symbol. Convert to Symbol window will pop-up.
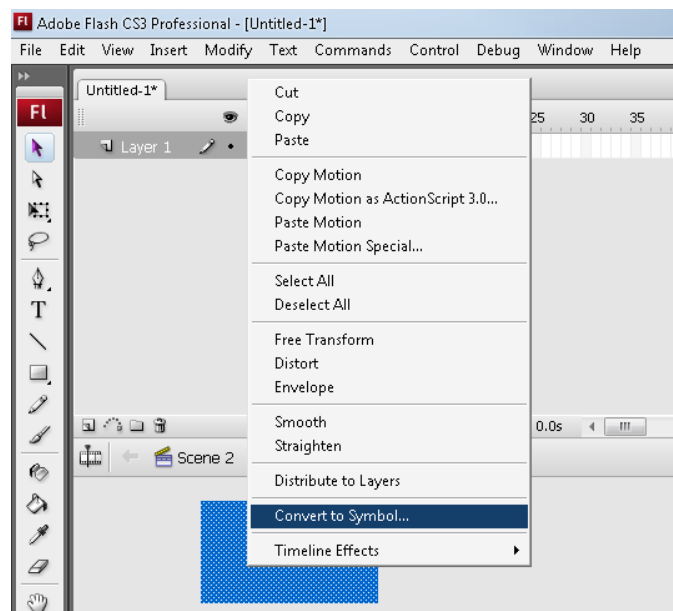
Name your Symbol whatever you like. Then select Graphic behavior and press OK
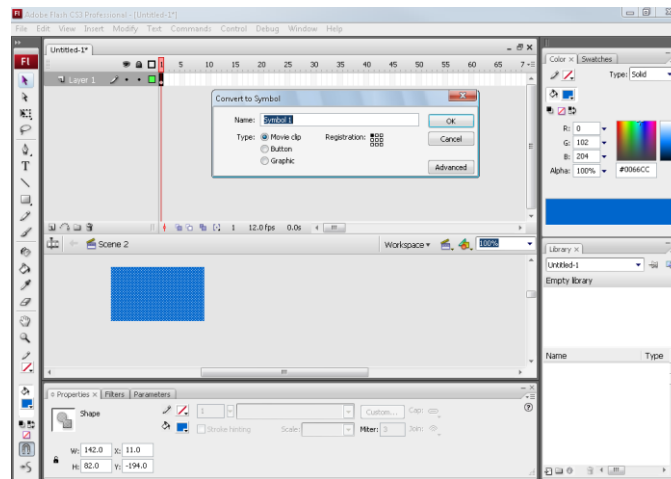
Note: You can create motion tween only on symbols. So any object upon which you would want to implement motion tween, First convert the object to a Symbol.

- Right now your Symbol is in frame1 of Layer1. Select frame 20 and press F6 to insert a new keyframe.
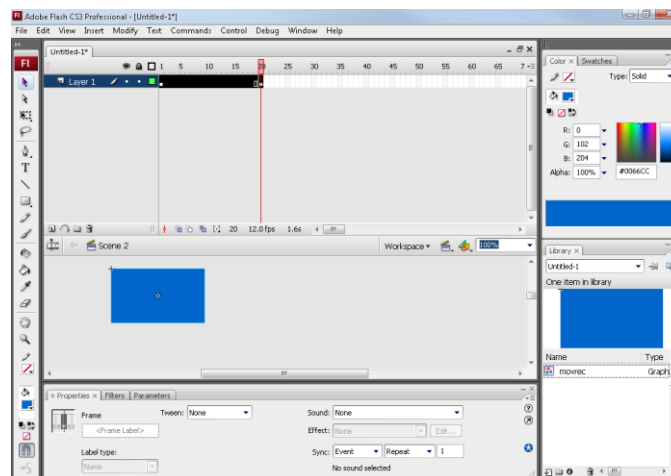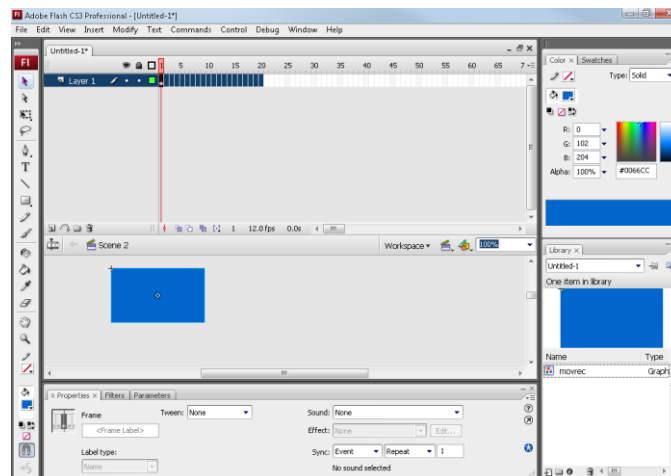
- Still keeping playhead on frame 20, move your Symbol to any other position other than the present one.

- Select any frame between, 2 to 19 and select Motion from the tween pop-up menu in the Property inspector. Now your Layer will look something like the one shown below.
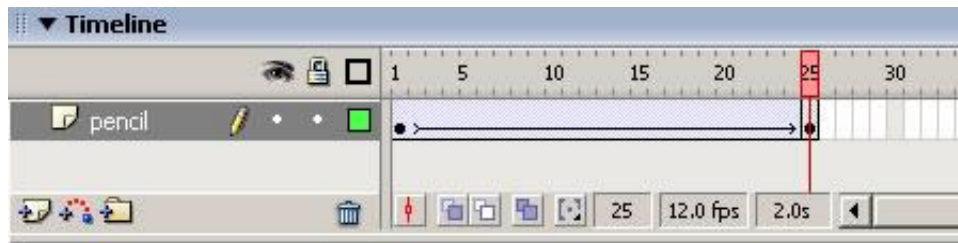
- **Now press** (Ctrl+Enter) to view your motion tween.

Shape Tween

- Open a new flash file (Ctrl+N). A new Document window will appear. Then, select General panel and choose Type: Flash Document and Press OK.

- If your timeline window is not open, press (Ctrl+Alt+T).

- Now you can see a single Layer called "Layer1" in your timeline Window.
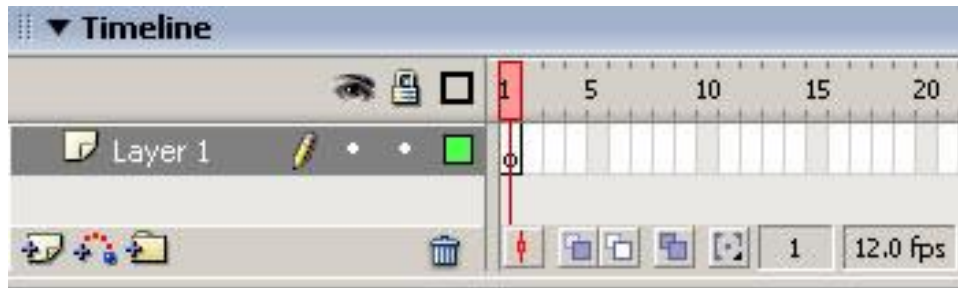
- Select the first frame. Now go to your working area and draw initially a short line.

- Select frame 20 and press F6 to insert a new keyframe.

- Still keeping playhead on frame 20, delete the object present in your working area. Now drawn a long line.

- Select any frame between, 2 to 19 and select Shape from the tween pop-up menu in the Property inspector. Now your Layer will look something like the one shown below.
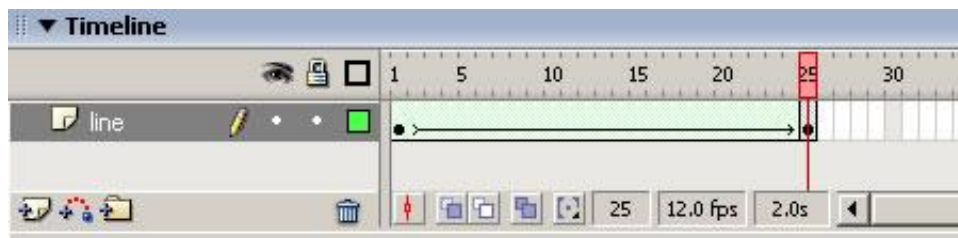
- Now press (Ctrl+Enter) to view your motion tween.

Example for Motion & Shape Tween Together with Multi Layers

- Open a new flash file (Ctrl+N). A New Document window will appear. Then, select General panel and choose Type: Flash Document. Press OK.

- If your timeline window is not open, press (Ctrl+Alt+T).

- Now you can see a single Layer called "Layer1" in your timeline Window.
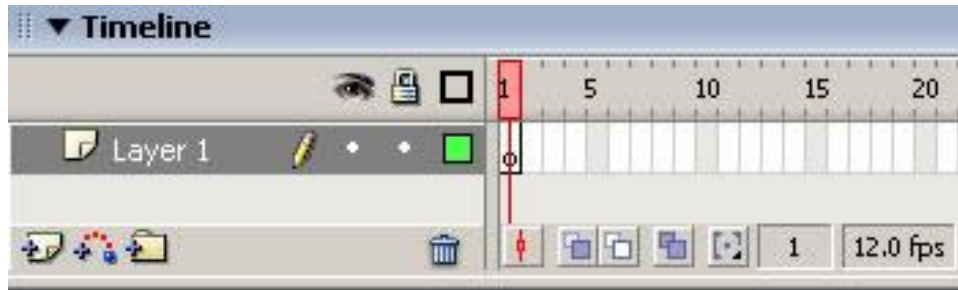
- Create a Shape Tween on Layer1.
- Single click on add new layer button.

- A new layer gets added. By default it will be named "Layer 2".
- Create a Motion Tween on Layer 2. After creating two layers, your timeline will look something like the one shown below.
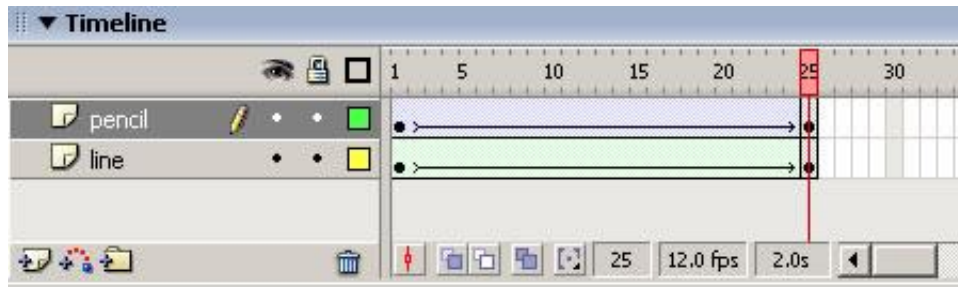
- Now press (Ctrl+Enter) to view your motion tween.

Fade in Effect Example

1. Open a new file. Go to File >New. A Screen called New Document will appear. Select Flash Document and click on OK.

2. Go to Modify→Document and give a file size of 300px by 200px. This is the same size as the Bitmap pictures we required.

3. Select the Bitmap pictures that you want to Fade in and Fade out from your picture file and bring it to the Flash Library. Select File>Import to Library from the Menu Bar.

Tweening- Motion Text
In tweening motion text can be added using the following steps:

1. Create a new file. On the Stage with the text tool write the phrase: My frog movie

2. Select the text and choose: **Modify → Break apart**

3. With all the text boxes selected choose **Modify →Distribute to Layers.** This puts each letter on a different layer. With the arrow tool click on the M and in the Properties Inspector convert it to a Symbol with a Graphic Behavior. Name this M and click OK. Repeat this with all the letters.
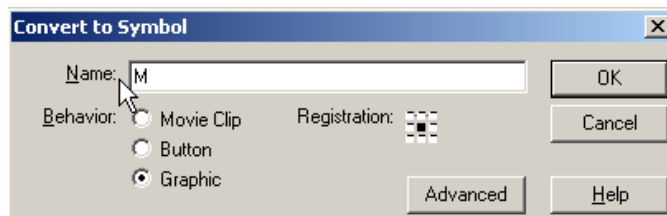
4. On the Timeline click on frame 20 and drag down all the layers that you've placed a symbol, now add a Keyframe. Notice how you've now added a keyframe to all the layers? Add an additional keyframe at frame 40 for all layers. Make sure that all your letters are deselected and with the Framehead on frame 40, drag the letters M and Y (the word My) off the Stage to the work area.

5. In the Toolbox select the Free Transform and change the scale and rotation of the letters M and Y. In the Properties Inspector change the Alpha to zero. This will have these letters fade out.

6. Change the position and scale of each of the letters in My Frog Movie.

7. Click on a frame between your two keyframes and drag down to select all your layers. Add a motion tween. In the Properties Inspector add a Ease of 80 out.

8. Test your movie.

Teaching and Learning Material: Information Technology (Computer Graphics - Motion)
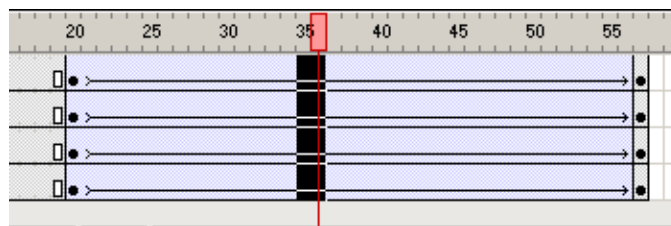
Summary of Module

- Rendering is the process of generating an image from a model, by means of a software program. It would contain geometry, viewpoint, texture and lighting information. Rendering is also used to describe the process of calculating effects in a video editing file to produce final video output.

- Final project can be exported out of Adobe Premiere into a format that can be viewed by others i.e. exporting files for further editing, exporting to tape, sending to Encore for DVD, Blu-ray Disc, or SWF file creation, exporting project files for other systems, and exporting formats for various devices and web sites.

- Nero Burning ROM is used to prepare and burn a project disk which allows playback on regular DVD players.

- A data disk (CD) is used to prepared and burned to store source files.

- Export project out of Final Cut Pro into a format that can be viewed by others, with low resolution file for YouTube and a high resolution file for DVD.

Frequently Asked Questions (FAQs)

FAQ 1:	Define Rendering?
Answer	Rendering is to process video and audio with any applied filters or transitions, and store the result on disk as a render file.
FAQ 2:	What's the best export format or codec for Adobe Premiere?
Answer	There is no best export format for premiere pro rather best format depends upon your situation. To decide format there are few things which you should need to know like how well the movie you are exporting will be used, what kind of device will be played on etc.
FAQ 3:	What is VTR?
Answer	A video tape recorder (VTR) is a tape recorder designed to record video material on magnetic tape.
FAQ 4:	Why low resolution video formats are used?
Answer	Low resolution videos formats are used for you tube.
FAQ 5:	Why high resolution video formats are used?
Answer	High resolution videos formats are used for DVD.

Test Yourself!

Please mark the correct one from the given options. You can check your answer with the Answer Key at the end of this module.

1. **_____ is/are an electronic device combining a video camera and a video recorder.**

a. VTR   b. TV

c. Camcorder   d. All of the above.

2. **A high resolution file can be exported out of Final Cut Pro for _____.**

a. CD   b. DVD

c. YouTube   d. Mobile playback

3. **A low resolution file can be exported out of Final Cut Pro for _____.**

a. DVD   b. YouTube

c. TV Transmission   d. None Of the above.

4. **_____ is a tape recorder designed to record video material on magnetic tape.**

a. Camcorder   b. Media Player

c. VTR   d. None.

5. **_____ is used in the post-production process of film editing and video editing.**

a. .swf   b. story

c. project   d. EDL

6. **In Adobe Premiere a _____burning speed is used for DVD video discs if your standalone player is a bit old.**

a. Low   b. High

c. Medium   d. None Of the above.

7.   _____ **is to process video and audio with any applied filters or transitions, and store the result on disk as a render file.**

a.   Transitioning   b.   Color Correction

c.   Rendering   d.   None of the above.

8.   **---------------------- is a transcoding and rendering application that encode audio and video in a variety of formats.**

a.   Adobe Premiere   b.   Final Cut Pro

c.   Adobe Media Encoder   d.   None Of the above.

Answer Key

MCQ Number	Correct Answer
1	c
2	b
3	b
4	c
5	d
6	a
7	c
8	c

Module 7: Perform Software and Hardware Maintenance

Learning Outcomes

After completion of this learning module, you will be able to:

- Install relevant graphics software

- Uninstall relevant graphics software

- Install relevant Operating System (Windows and Mac OS)

- Uninstall relevant Operating System (Windows and Mac OS)

- Install and configure required driver

- Install and configure input/output devices

- Connect various devices using appropriate ports and cables

Learning Unit 1: Install and Upgrade Operating System

Overview

In this learning unit, you will learn the procedure of installation, uninstallation and up gradation of operating system. After completion of this unit you will be able to install/uninstall and upgrade operating system.

1. Installing Windows 07 Operating System

Following is the method of Windows installation using DVD:

1. Turn on the computer

2. Insert Windows 7 DVD in DVD Drive

3. Press **"F12"** to launch boot menu

4. Select CD/DVD-Rom drive as 1ˢᵗ boot device and press enter key (to boot from CD)
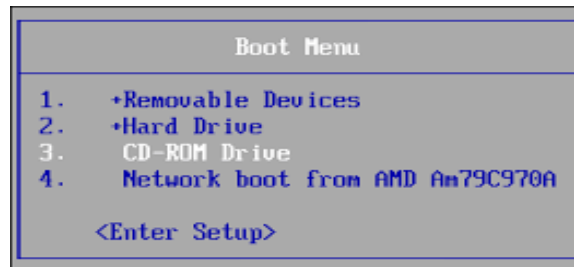
Boot Menu

5. Wait for setup to initialize and load installation files

Loading Setup File

6. Select Language, Time, Currency format, Keyboard layout and click **"Next"**

> **Operating System**
>
> Operating system is system software that manages computer hardware and software resources and provides common services for computer programs.

> **Remember**
>
> F12 and delete keys are mostly used to launch boot menu in many computers, but it can be different in some machine, Press on screen given key of your computer for boot menu

> **Do you know!**
>
> You can press F2 (or delete) key to enter setup, there also you can change boot order to cd rom

Language and Keyboard Layout Setting

7. Click "Install Now"

Initializing Installation

8. Check the **"**I accept license term" and click "Next"
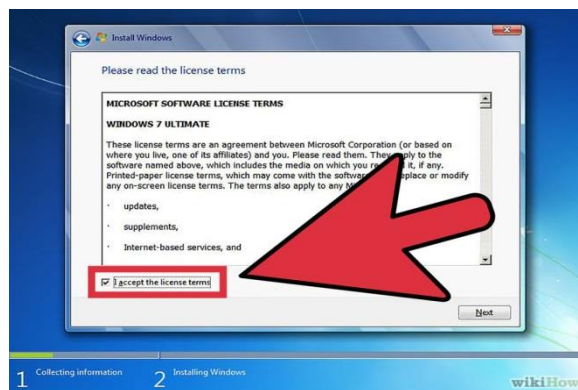
License Terms

9. Select **"**Custom installation" and click "Next"

Upgrade/Custom Choise Window

10. Select the partition where you want your OS to install and click on "Drive option"
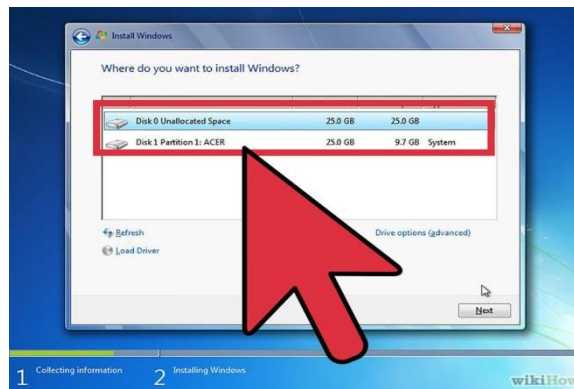
Partition Selection Window

11. Select "Format" and than click "Next" (it will format the drive)

Format Drive Option

12. Setup will start copying files for windows setup.

Remember

Upgrade option will upgrade your current installed OS, So click on custom installation if you are willing to install a new window
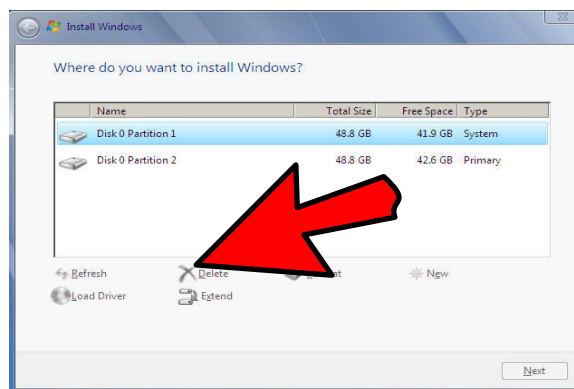
Remember

Format will erase all stored data in your hard disk

Do you know!

You can choose other options like delete in the drive options to recreate a partition.
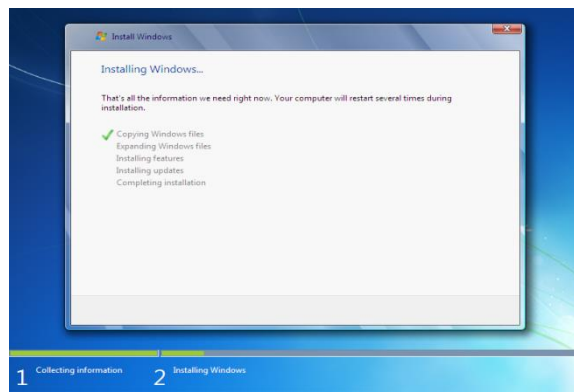
Copying Windows Files

13. Setup will install other features and updates.
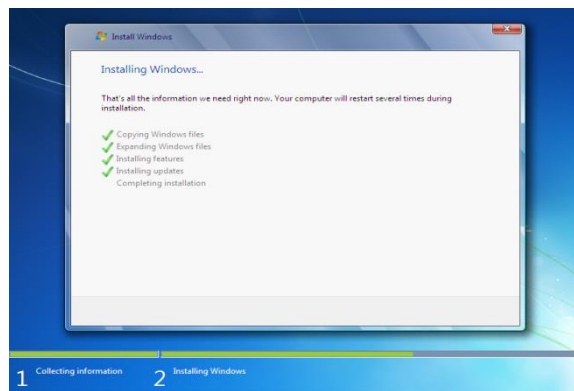
Installing Windows

14. Computer will restart automatically or click on **"**Restart now" to avoid further delay.
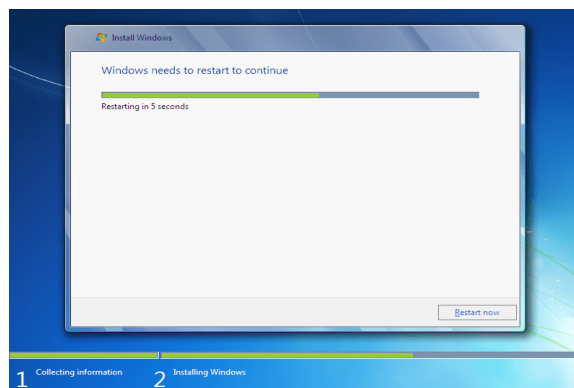
Restarting Computer

15. After restart setup will complete the installation and will restart your system again
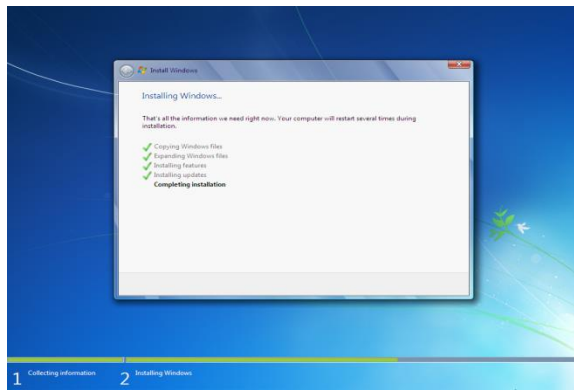
Completing Setup

16. Setup will prepare computer for first use of windows.

17. Setup will check video performance.

18. Type any user name and click "Next"

User Name Window

19. Set a password for your account if you want and click "Next"
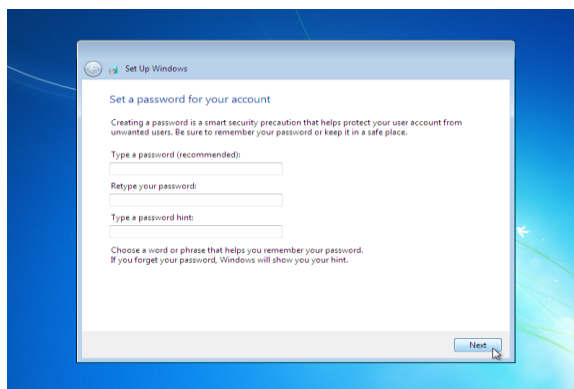
Password Window

20. Type windows product key if you have or click **"**Next" without typing the key.
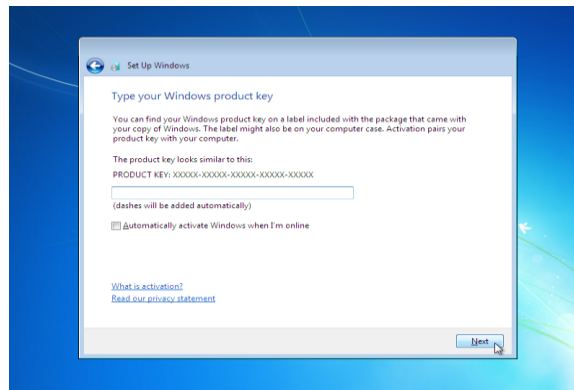
Product Key Window

21. Select your desired option for windows update.
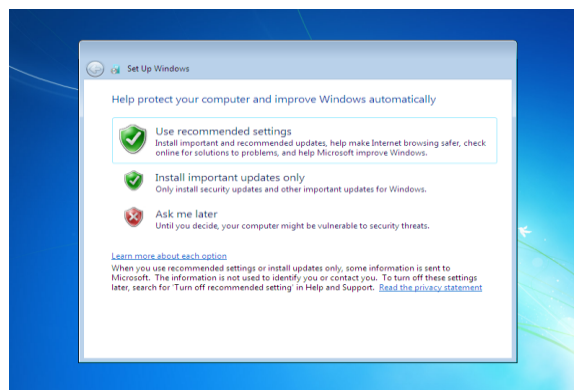
Upgrade Options

22. Set your country time and click "Next"
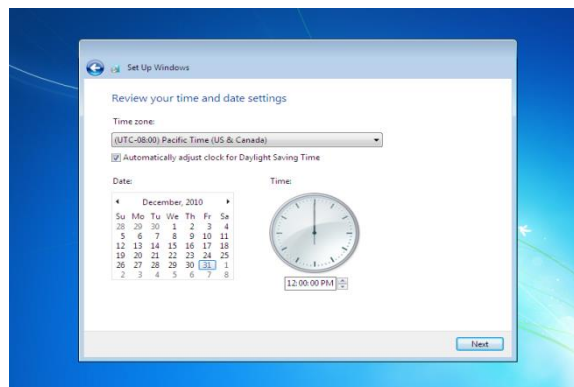
Date and Time Setting

23. If you are connected to any network than select its type or just click on "Home network"
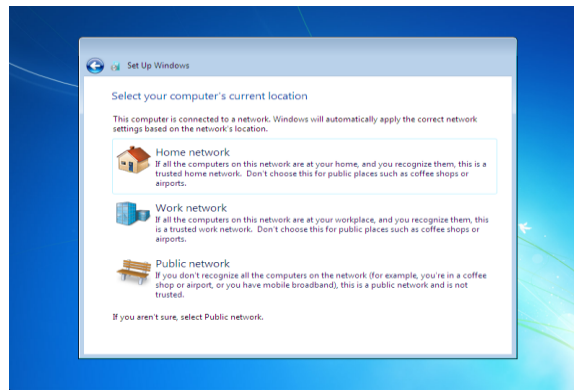
Network Setting

24. Setup will finalize your setting and will prepare your desktop.
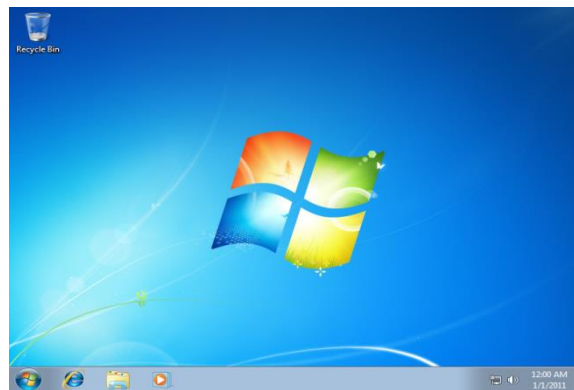
Windows 7 Desktop

And there you have Windows 7 installed!

2. Upgrade and Configuration of Operating System

Following is the method of Upgrading Windows 7 to Windows 8:

Upgrade

It is one of the most common methods to move from one version of windows to another, new version will replace the older and you do not need to format the disk too, all other important files and software will remain same.

1. Insert the Windows 8 Installation Disk in your DVD Rom.

2. Wait for the AutoPlay windows to appear.

3. Click Run **"Setup.exe"** to continue.

4. Windows 8 installation will be prepared.

Preparing Installation

5. Type the windows 8 product key if you have or click "Next" without typing it.

6. Check "I accept the license term" and click "Accept".

Remember

Before upgrading windows, update your current windows programs from the control panel (using internet connection)
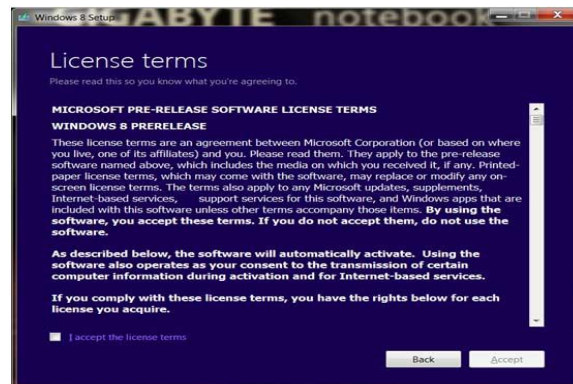
License Terms

7. Choose what kind of upgrade you want and click "Next".
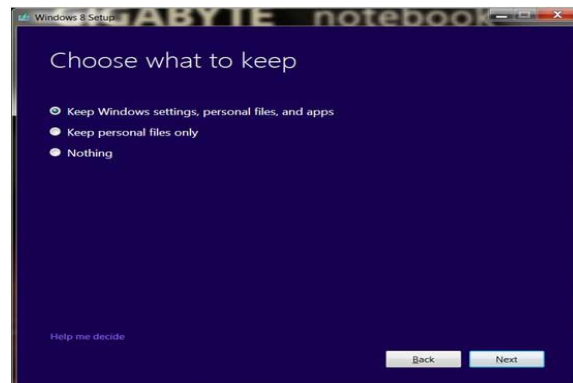
Choose Files to Keep

8. Windows will check if your system is ready to upgrade.

9. Windows will notify you if any Microsoft program is not yet compatible with Windows 8.
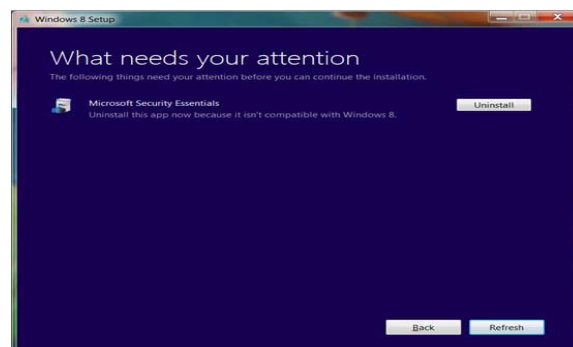
Incompatible Applications

10. Uninstall the incompatible program (if any) and follow windows 8 setup instructions.

Initalizing Setup

11. Personalize setup (if prompted).
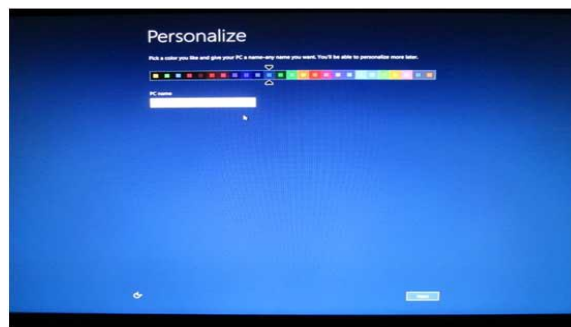
Personalization

12. Your upgrade is completed as the Windows 8 desktop appears.

Windows 8 Desktop

3. Un-Installing an Operating System

You may want to uninstall an operating system for any reason or when you have a dual boot on the hard drive and you want to remove the only one operating system on the hard drive and reuse it in future.

Following is the method of uninstalling window 8

1. Turn on your computer.

2. Insert the windows CD/DVD, as required.

3. Press **"F12"** or **"Delete"** or the key shown on the first screen of computer for boot menu.

4. Select CD/DVD ROM as 1st boot device in the boot menu.

5. Wait for setup to initialize.

6. Follow on screen instructions.

7. When hard disk partition windows appear, select the partition that contains the operating system which you want to uninstall.

8. Click Drive Option.

Remember

If you have only one OS running in your PC and you are practicing of installation, than after uninstalling, reinstall an Operating system.
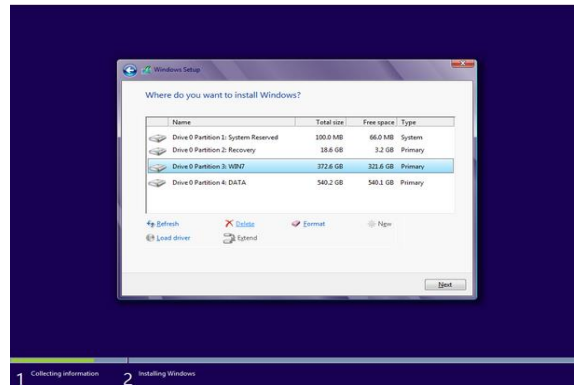
Drive Options

9. Click **"Format"** (Warning dialog box will appear).
10. Click **"Yes"** to confirm (format process will start and uninstall your operating system).
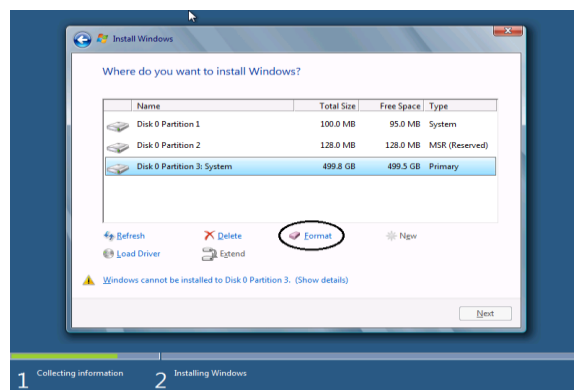
Format Drive

11. Now you can reuse this partition for any other Operating system.

Learning Unit 2: Install Graphics Software

Overview

In this leaning unit, you will learn the installation process of various graphics software. After the completion of this learning unit, you will be able to install, configure and familiar with the work environment of Adobe Photoshop, Corel Draw, Adobe Illustrator, Adobe InDesign.

1. Installation of Graphics Software

Installation of Adobe Photoshop

Following is the method of Adobe Photoshop Installation:

Adobe Photoshop
Adobe Photoshop is a raster based graphics editor. Developed and published by Adobe Systems for Windows and OS X.

1. Insert the Adobe Photoshop CD in CD drive and open the folder containing the Setup.exe file.
2. Right click at setup and then click at Run as administrator.
3. Wait for setup to initialize.
4. There are 3 options: 1. Install with serial number, 2.start my subscription and 3. Install a trail.
   You can install a trial to use 30 days free. After that you can buy license and add key to active product. If you have a key, you should choose Install with serial number.
5. Click **"Accept"** to agree the software license agreement.
6. Select the Language and click **"Install"**. (Installation process will start).
7. Click **"Close"** in new window after the installation is completed.
8. To open adobe Photoshop, click **"Start"** button, navigate to **"All Programs"** and click **"Adobe Photoshop"**.

Installation of Corel Draw

Following is the method of Corel Draw Installation:

CorelDraw
CorelDraw is vector based graphics design software, developed and marketed by Corel Corporation of Ottawa, Canada.

1. Insert Corel Draw disc in your CD/DVD drive. (autoplay windows will appear).
2. Double Click **"Open folder to view files"** (new window will appear).
3. Double click on **"Setup"** file
4. Setup will initialize the installation wizard.
5. Accept the license terms and click **"Next"**.
6. Type the user name (your name) and enter the serail key, (given in the installation folder.
7. Click **"Next"**
8. Select Typical installation and click **"Next"** (Installation process will start)
9. Click **"Finish"** after the installation is completed
10. To open CorelDraw, Click the **"Start"** menu button, navigate to **"All programs"** and click **"CorelDraw"**

Installation of Adobe Illustration

Following is the method of Adobe Illustration Installation:

1. Insert Adobe Illustration CD in your CD/DVD drive. (autoplay windows will appear).

Adobe Illustration

Adobe Illustrator is a program to create vector images. These images can be used for company logos, promotional uses or even personal work, both in print and digital form

2.   Double Click **"Setup.exe"** file (new dialog box will appear).
3.   Click **"Run"** in dialog box.
4.   Click **"Install"** in welcome windows.
5.   Click **"Accept"** to agree the license agreement.
6.   Enter the serail number (provided in your installation folder).
7.   Click **"Next".**
8.   Click "Sign in Later".
9.   Set Language and Click "Install" (Installation process will start).
10.   Click "Close" after the installation is completed.
11.   To open adobe Illustration Click "Start" button, Navigate to "Áll Programs", and Click "Adobe Illustration".

Installation of Adobe InDesign

Adobe InDesign

Adobe InDesign is desktop publishing software that can be used to create works such as posters, flyers, brochures, magazines, newspapers, and books.

Following is the method of Adobe InDesign Installation:

1.   Insert Adobe InDesign CD in your CD/DVD drive. (autoplay windows will appear).
2.   Double Click **"Setup.exe"** file (new dialog box will appear).
3.   Click **"Run"**.
4.   Click **"Install"** In welcome dialog box.
5.   Click **"Accept"** to agree license agreement.
6.   Enter Serail Number (provided in your setup folder).
7.   Click "Sign in Later" (in next windows).
8.   Select Components and language, and click **"Install"** (Installation process will start), if prompted for user account control, click **"Yes".**
9.   Click **"Close"** after the installation is completed.
10.   To open Adobe InDesign, click "Start" menu button, navigate to **"All** Programs" and click **"Adobe InDesign"**.

Final Cut Pro

Final Cut Pro is the name given to a series of non-linear video editing software programs.

Installation of Final Cut Pro

Following is the method of Final Cut Pro Installation:

1.   Insert the **"Final Cut Pro 5"** installation disc into your computer's DVD drive.
2.   Double-click the **"Install Final Cut Pro 5"** icon, then follow the onscreen instructions.
3.   The Installer package runs a program to determine if Final Cut Pro can be installed.
4.   Click **"Continue"**.

Remember

Be sure that the serial number is accurately typed. You can find Serial Number from the installation disk.

5.   Read the Welcome information, then click **"Continue"**.
6.   Read the Software Licensing Agreement, click **"Continue"**,
7.   In the Licensing dialog, enter your first and last name. Entering an organization is optional and then click **"Agree"**.
8.   In the Serial Number field, enter the Final Cut Pro serial number then click **"OK"**.
9.   Select the startup disk, then click **"Continue"**. Your startup disk must have the latest version of Panther installed.
10. Do one of the following:

- To perform an easy installation, click **"Install"**.

- To perform a custom installation, click the **"Customize"** button; select the optional items you want to install, and then click **"Install"** or **"Upgrade"**.

11. A dialog appears requiring you to authenticate yourself, type "your name and password". Click **"OK"** when finished.
12. The Installer displays a progress bar to indicate its status.
    A dialog appears once the installation is complete.

> **Do you know!**
>
> You can uninstall all other unwanted software from your computer by following the same steps mentioned in **"Uninstalling software"** section.

2. Uninstalling Software from Computer

The method of uninstalling software from computer is given below:

1. Click "Start**"** menu button.

2. Type **"Remove"** in search box ("Add or Remove program" will appear in search list).

3. Click "Add ore Remove" Program (Add or Remove Program Windows will be displayed).

4. Select and right click on the "Desired Software**"** which you to remove (popup menu will appear).

5. Click **"Uninstall"** from the popup menu (wizard will start) OR

6. Click "remove**"** button on the wizard window (uninstall process will start).

7. Click "Finish**"** as the process completes uninstallation.

3. System Configuration Required by Software

System Configuration Required for Adobe Photoshop

- Intel® Core 2 or AMD Athlon® 64 processor; 2 GHz or faster processor

- Microsoft Windows 7 with Service Pack 1, Windows 8.1, or Windows 10

- 2 GB of RAM (8 GB recommended)

- 2 GB of available hard-disk space for 32-bit installation; 2.1 GB of available hard-disk space for 64-bit installation; additional free space required during installation (cannot install on removable flash storage devices)

- 1024x768 display (1280x800 recommended) with 16-bit color and 512 MB of VRAM (1 GB recommended)*

- Internet connection and registration are necessary for required software activation, validation of subscriptions, and access to online services.

System configuration required by Adobe Illustrator

- Intel Pentium 4 or AMD Athlon 64 processor

- Microsoft Windows 7 with Service Pack 1, Windows 8, or Windows 8.1

> **Do you know!**
>
> **System requirement** are the necessary specifications your computer must have in order to use the software or hardware.

> **Remember**
>
> GPU-accelerated computing is the use of a graphics processing unit (GPU) together with a CPU to accelerate scientific, analytics, engineering, consumer, and enterprise applications.

- 1 GB of RAM (3 GB recommended) for 32 bit; 2 GB of RAM (8 GB recommended) for 64 bit

- 2 GB of available hard-disk space for installation; additional free space required during installation (cannot install on removable flash storage devices)

- 1024 x 768 display (1280 x 800 recommended)

- To view Illustrator in HiDPI mode, your monitor must support a resolution of 1920 x 1080 or more.

- To use the new Touch workspace in Illustrator, you must have a touch screen enabled tablet/monitor running Windows 8.1. (Microsoft Surface Pro 3 recommended).

System configuration required by CorelDraw

- Microsoft Windows 8/8.1 (32-bit or 64-bit editions), Windows 7 (32-bit or 64-bit editions), all with latest service packs installed.

- Intel Core 2 Duo or AMD Athlon 64.

- 2 GB RAM.

- 1 GB hard disk space (for installation without content).

- Mouse, tablet or multi-touch screen.

- 1280 x 768 screen resolution.

- DVD drive (required for box installation).

- Microsoft Internet Explorer 8 or higher.

- Internet connection required for Membership and Subscription services, installing updates and access to some features, including the Content Exchange, QR code tools and Concept Share.

System configuration required by Adobe InDesign

- Intel Pentium 4 or AMD Athlon 64 processor

- Microsoft Windows 7 with Service Pack 1, Windows 8, or Windows 8.1

- 2 GB of RAM (8 GB recommended)

- 2.6 GB of available hard-disk space for installation; additional free space required during installation (cannot install on removable flash storage devices)

- 1024 x 768 display (1280 x 800 recommended) with 32-bit video card; supports HiDPI display

- Adobe® Flash® Player 10 software required to export SWF files

- Internet connection and registration are necessary for required software activation, validation of subscriptions, and access to online services.

System configuration required by Front Cut Pro

- Intel Core 2 Duo (Apple)

- Mac OS X v10.6.8 or OS X v10.7.5 or OS X v10.8.3 or later

- 2 GB of RAM (8 GB recommended)

- 2.6 GB of available hard-disk space for installation.

- OpenCL-capable graphics card or Intel HD Graphics 3000 or later with 256 MB of Video Memory

- Internet connection and registration are necessary for required software activation, validation of subscriptions, and access to online services.

Other Requirements

- Broadcast quality monitoring requires OS X v10.7.5 or later and compatible third-party device.
- Some features require Internet access; additional fees may apply. Blu-ray recorder required for burning Blu-ray discs.

4. Work Environment of Graphics Software

Adobe Photoshop Work Environment
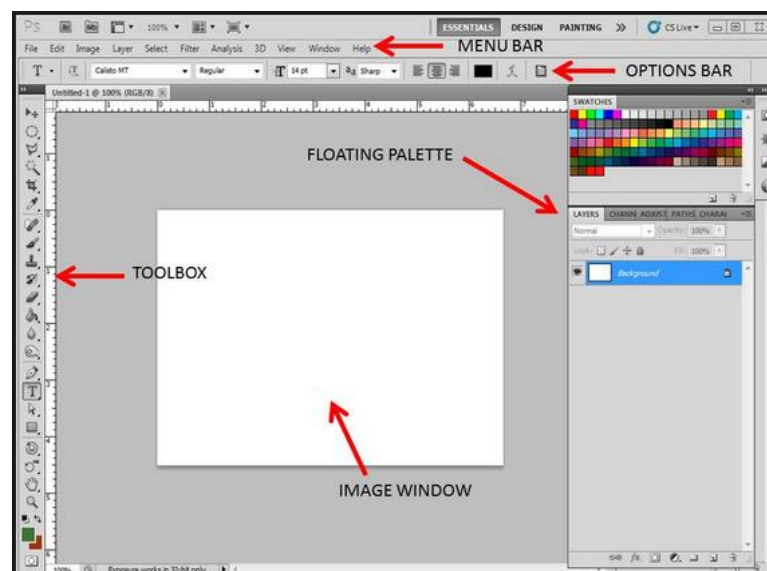
Work Environment of Adobe Photoshop

1. Tool Box

Tool box contains the tools that we use for our activity in Photoshop; we can see tools like brush, move tool, rectangular marquee, quick selection tools, magic erase tools and others.

2. Menu Bar

Menu bar contains the different menus like you can see file, edit, image, and other menus.

3. Option Bar

The options in the option bar change when you select a tool from the tool box. It contains the options and settings for the selected tool.

4. Palettes

A Palette shows you the information about a particular part of your image and helps you to modify that part.

5. Image Window

Image window contains your actual image. You can create and make changes to your image in this window.

Adobe Illustration Work Environment
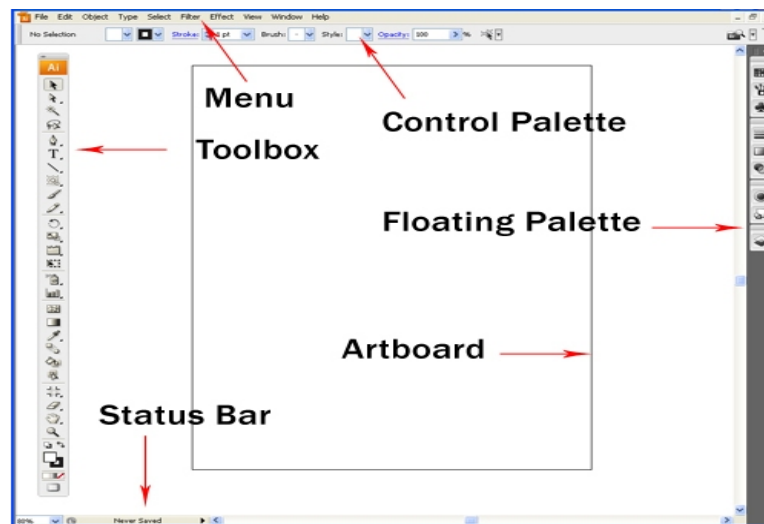
Work Environment of Adobe Illustrtion

1. Toolbox

Toolbox contains different tool to be applied at the image like brush, move tool, pen, quick selection tools, magic erase tools and others.

2. Menu Bar

Menu bar contains the different menus like you can see file, edit, image, and other menus.

3. Control Palette

Control palette controls the performance of a tool selected from the toolbox.

4. Palettes

Palettes in Illustrator tell you what is going on with specific parts of artwork you have created and help you to make changes to that artwork.

5. Art Board

Art board is your work space in Adobe illustrator; it contains your image or the illustration you can work upon.

6. Status bar

Status bar shows information and statistics about your document for example saving status, pages etc.

Adobe InDesign Work Environment
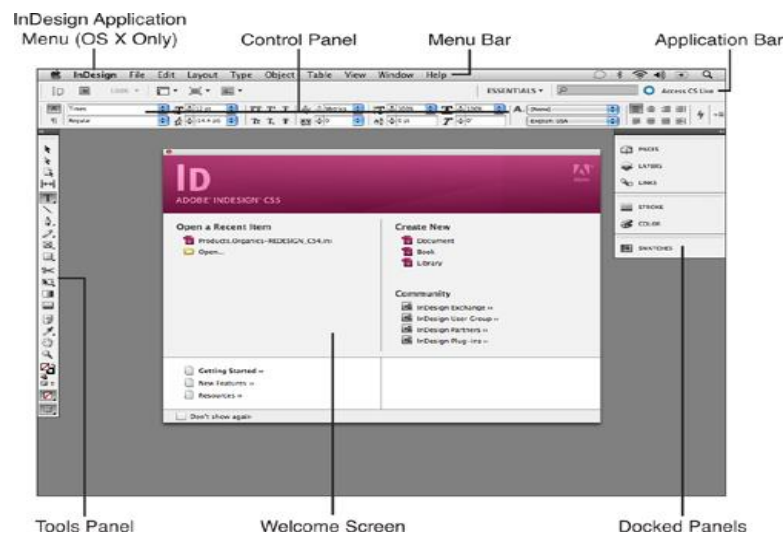
Work Environment of Adobe InDesign

1. Menu Bar

You can access any of the menu list options by clicking any of the word headings in the menu bar for example file, edit, layout etc.

2. Application Bar

View options, zoom percentage, screen mode, and arrange options are all available from the Application Bar drop-down lists.

3. Control Panel

Options for the tool you currently have selected in the Tools panel always appear here.

4. Tools Panel

You can access any of the InDesign tools by clicking one of the icons shown in the Tools panel.

5. Panels

Panels can be accessed from the window menu in the menu bar. When you click at some panel it appears in the docked on the right side of your screen.

6. Welcome Screen

This dialog box appears only when you first launch InDesign. It contains links for opening recent documents, creating new documents, and accessing the InDesign community via the Internet.

Adobe Premiere Work Environment

Work Environment of Adobe Premiere

Each workspace item appears in its own panel, and multiple panels can be combined into a single frame. Some items with common industry terms stand alone, such as Timeline, Audio Mixer, and Program Monitor. The main user interface elements are as follows:

1. Timeline panel

This is where you'll do most of your actual editing. You view and work on *sequences* (the term for edited video segments or entire projects) in the Timeline panel.

2. Tracks

You can layer or composite video clips, images, graphics, and titles on an unlimited number of tracks. Video clips on upper video tracks cover whatever is directly below them on the Timeline. Therefore, you need to give clips on higher tracks some kind of transparency or reduce their size if you want clips on lower tracks to show through.

3. Monitor panels

You use the Source Monitor (on the left) to view and trim raw clips (your original footage). To view a clip in the Source Monitor, double-click it in the Project panel. The Program Monitor (on the right) is for viewing your sequence.

4. Project panel

This is where you place links to your project's media files: video clips, audio files, graphics, still images, and sequences.

5. Media Browser

This panel helps you browse your hard drive to find footage. It's especially useful for file-based camera media.

6. Effects panel

This panel contains all the clip effects, you will use in your sequences, including video filters, audio effects, and transitions (docked, by default, with the Project panel). Effects are grouped by type to make them easier to find.

Effect Panel

7. Audio Mixer

This panel (docked, by default, with the Source and Effect Controls panels) is based on audio production studio hardware, with volume sliders and panning knobs. There is one set of controls for each audio track on the Timeline, plus a master track.

Audio Mixer

8. Effect Controls panel

This panel (docked, by default, with the Source and Audio Mixer panels, or accessible via the Window menu) displays the controls for any effects applied to a clip you select in a sequence. Motion, Opacity, and Time Remapping controls are always available for visual clips. Most effect parameters are adjustable over time, allowing you to animate effects.

Effect Control Panel

9. Tools panel

 Each icon in this panel represents a tool that performs a specific function, typically a type of edit in a sequence.

10. Info panel

The Info panel presents information about any asset you select in the Project panel or any clip or transition selected in a sequence.

11. History panel

This panel tracks the steps you take and lets you back up easily. It is a kind of visual Undo list. When you select a previous step, all steps that came after it are also undone.

Sound Forge Pro for Designing Art Work

Sound Forge Pro is the application of choice for a generation of creative and prolific artists, producers, and editors. Record audio quickly on a rock-solid platform, address sophisticated audio processing tasks with surgical precision, and render top-notch master files with ease

Work Environment of Sound Forge Pro

1. **Menu bar**

Displays the menu headings for the available functions.

2. **Standard toolbar**

Provides quick access to some of the most common tasks in the application.

3. **Transport bar**

Provides quick access to basic audio transport functions.

4. **Status bar**

Help and processing information is displayed on the left side. The boxes on the right side display the playback sample rate, bit de path, channel configuration, length of the active data window, CD time remaining, and total free storage space.

5. **Workspace**

This is the area located behind the data windows. Audio selections dragged to the workspace automatically become new data windows. Windows such as the Regions List and Playlist can be docked along the edges of the workspace or in floating window docks.

6. **Channel Meters**

Displays the level of the output audio signal. These meters can be toggled on/off by choosing Channel Meters from the View menu. Right-clicking the channel meters displays a shortcut menu that allows you to precisely configure the appearance of the meter.

Learning Unit 3: Install/ Configure Drivers, Input/ Output Devices

Overview

In this leaning unit, you will be introduced to device drivers, installation and configuration of device drivers and input output devices. After the completion of this unit, you will be able to install and configure device drivers.

1. Installation and Configuration of Drivers

Device Driver
Device driver is a type of system software that controls a particular type of **device** that is attached to your computer. There are **device driver**s for printers, scanners, CD-ROM readers and so on.

Following are the different methods of Device Driver Installation:

1.   Through Operating System Installation

Drivers are automatically installed for all detected devices during installation of Windows in your computer.

2.   Windows startup

Whenever the computer is started and window's' desktop appears, new devices are detected and their device drivers are automatically installed.

3.   Scanning for new hardware

a.   Click **"**Start**"** menu button and select Control Panel from the right panel of start menu.
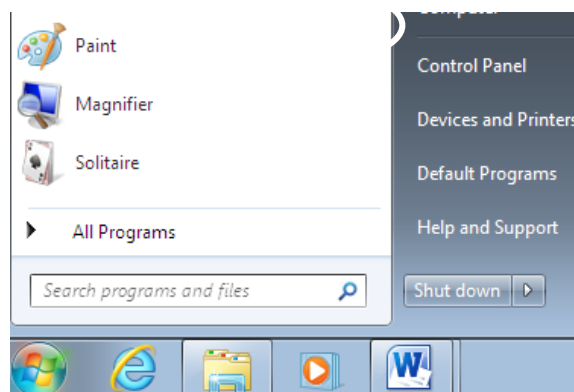
Start Menu

b.   Click **"**Add a Device" in the Control panel.
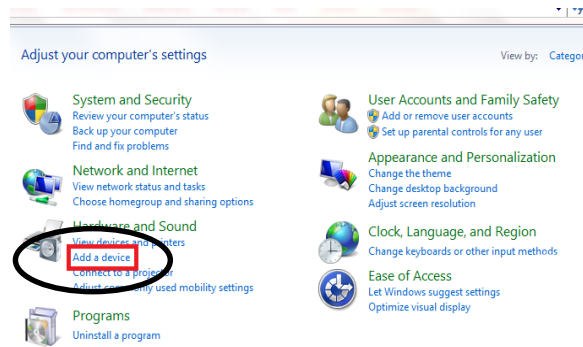
Control Panel

(Wizard will start searching new devices and create a list of drivers which can be installed)

    c. Select desired device from the list

Add a Device

> **Remember**
>
> You must have administrative permissions on the computer to install device drivers.
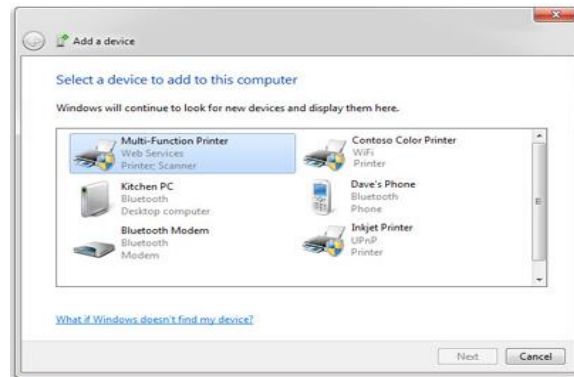
    d. Click next. (wizard will start installing device driver from the windows driver folder).

4. Manual Installation of a device driver.

    a. Insert the CD/DVD containing the device driver or USB flash drive or open folder containing driver setup.

    b. Double click **"**Driver setup file**"** and follow the wizard's instructions to install the driver.

> **Do you know!**
>
> There are many disks available named **Auto Driver**, which are also used to install different device drivers.

5. Auto Drivers

    a. Insert **"Auto Driver"** disk in CD/DVD rom

    b. Open "My Computer"

    c. Right Click on CD/DVD icon and select "Auto Play"

    d. Wizard will automatic detect and display the list of drivers to be installed

    e. Check required drivers to install and click "Install"

2. Configuring devices in Device Manager

Device Manager

Device Manager shows status of all devices installed in your computer. It shows a list of devices that were either detected and which drivers are installed.

In Device Manage (DM) there are some icons which indicate the status of devices before configuring any device you must have knowledge of those icons.

Indicator Icons are as follows:

- Normal device icon indicates that the device driver has initialized successfully

- Device icon having **"Exclamation point"** ⚠ on means that, this device is incorrectly configured

- Device icon having **"Stop sign"** ❌ on means that, this device could not be initialized due to hardware conflicts.

3. Resolving Hardware Conflicts

Installation

Installation of a computer program (including device drivers and software), is the act of making the program ready for execution.

Follow the steps given below to resolve hardware conflicts:

1. Click on **"Start"** menu button.

2. Type **"Device"** in Search box (device manager will appear in the list).

3. Click on **"Device Manager"** (from the program's list).
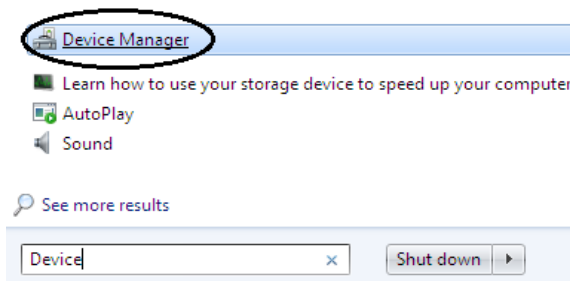
Start Menu

4. Right click the device which you want to configure and select Properties from the popup list.

5. Click the **"Resources"** tab on the Properties dialog box.

6. Click the **"Resource"** to be changed and then clear the "Use automatic settings" checkbox.

7. Click **"Change Setting"** and then change the value of the setting to the desired value.

4. Updating Device Drivers

Following is the method of updating a device driver:

1. Insert device driver cd in CD/DVD rom (if your device has).

2. Open "Device Manager" (to open DM follow same steps
                            Which you leaned in last section)

3. Right click on the device which you want to update and select Update Driver Software (wizard will start) click any of the following option where you want to search driver.

→ Search automatically for updated driver software
Windows will search your computer and the Internet for the latest driver software for your device, unless you've disabled this feature in your device installation settings.

→ Browse my computer for driver software
Locate and install driver software manually.
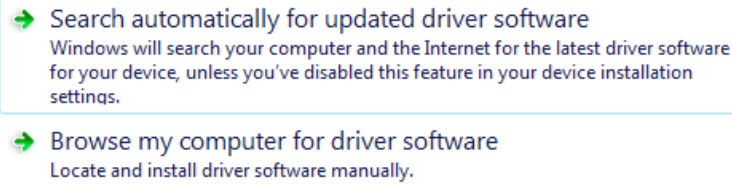
Device Update Wizard

4. Driver's update wizard will start searching for updated driver file from the cd or on those locations which you will mention and will upgrade your current device driver or if your device already has upgraded driver installed it will display following message
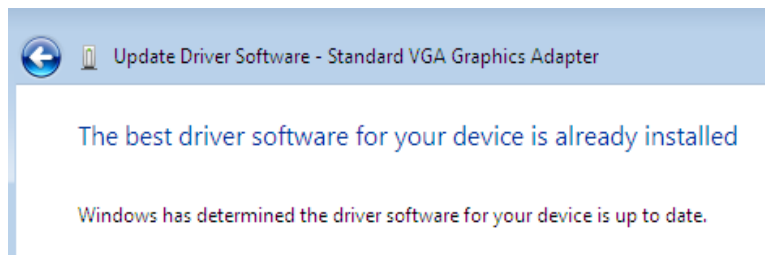
Remember

If your driver update fails, you can roll back your driver to discard the changes made.

← 🔲 Update Driver Software - Standard VGA Graphics Adapter

The best driver software for your device is already installed

Windows has determined the driver software for your device is up to date.

Updated Status

5. Removing Device Driver

The method of removing device driver is as under:

1. Open Device Manager.
2. Right click the device which you want to remove.
3. Click Uninstall (from the right click popup list).
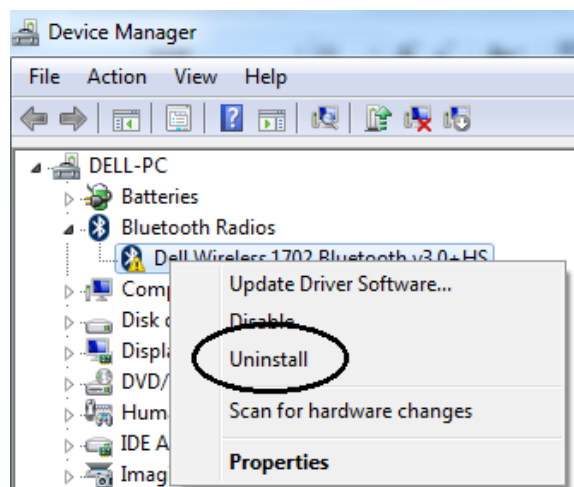
Device Manager

6. Installation and Configuration of Input / Output Devices

Input Devices

Those devices which are used by a user to input data and instructions to the computer are called input devices. Examples are Keyboard, Mouse, scanner etc.

Installation of Input Devices

Input devices like keyboard, mouse are automatically installed when you connect those devices to your computer.

Installing a Scanner

Most scanners today connect to your computer with a universal serial bus (USB) cable. But don't plug it in yet! Some scanners require you to install driver software before connecting the USB cable, so always follow the setup instructions that came with your device.

If your USB scanner didn't come with specific setup instructions, plug it in to your computer and Windows should automatically install it. If it's an older model, you might have to install it manually as:

1. Connect the scanner to power supply and the computer

2. Insert the CD/DVD containing the scanner driver that comes from manufacturer. Or download the driver from manufacturer website and open the folder.

3. Double click at the setup file.

4. Follow the instruction while installing.

5. Now you will be able to use the scanner.

Installation of Output Devices

Output devices like monitor, speakers etc. are automatically detected and installed by the operating system. If your output device is not automatically detected you need to install that manually.

Installing Printer

The most common way to install a printer is to connect it directly to your computer. This is known as a local printer. If your printer is a universal serial bus (USB) model, Windows should automatically detect it and begin installation when you plug it in. If it's an older model that connects using the serial or parallel port, you might have to install it manually as:

Remember

You can get the device driver either in the CD/DVD came with the device or can download from manufacturer website.

1. Connect the printer to power supply and computer.

2. Click "Start**"** menu button.

3. Click **"**Device and Printer" from the right panel of menu

(Device and Printer window will open).

4. Click **"**Add a Printer" on the top left corner of the window

(installation wizard will start.)

5. Click **"Add a Local Printer"** (in next window).

6. Click **"Next"** (wizard automatic detect and set printer port).

7. Select Printer Manufacturer and model from the list or click **"Have a Disk"** option (if you have printer device driver CD).

8. Click **"Next"** (in upcoming windows, wizard will start installing printer).

9. Click **"Finish"** (when the installation is completed)

7. Plug and Play Devices

The user does not have to manually install drivers for the plug and play device or even tell the computer that a new device has been connected. Instead the computer automatically recognizes the device, loads new drivers for the hardware if needed, and begins to work with the newly connected device.

For example, if you connect a Plug-and-Play mouse to the USB port in your computer, it will begin to work within a few seconds of being plugged in. A non-plug and play device would require you to go through several steps of installing drivers and setting up the device before it would work.

Plug and Play (PnP) Devices
Those devices which are plugin and computer recognize that the **device** is there. The user does not need to manually install any driver for it.

Learning Unit 4: Connecting Devices to Ports using Appropriate Cables

Overview

In this leaning unit you will be introduced to various types of ports and cables used to connect different devices to the computer. After the completion of this unit, you will be able to recognize different types of connectors and will be able to differentiate between cables and port which connect the devices to the computer.

1. Types of Connector

Connectors

Connectors normally called "input-output connectors are interfaces for connecting devices by using cables.

Connectors generally have a male end with pins projecting from it. This plug is inserted into a female part also called a socket, which includes holes for accommodating the pins. However, there are "hermaphroditic" plugs which can act as either male or female plugs, and can be inserted into either one.

Monitor Connectors

Dot/ Point

Dot/ Point are the smallest and most basic element.

HD15

15 pins in three rows, pins are skinnier than a usual "DB" connector, thus it's got an "H" for High Density. Used for PC's SVGA video cards and monitor cables.

Line

A line is a mark between two points

DB15

15 pins in two rows, pins are just like a DB9 or DB25. Used for Mac monitors.

DB9

9 pins in two rows, used on older monitors, and VGA's. PS/2 style Serial ports also use DB9

Parallel/Printer Connectors

CN36 *(male)*

This is the connector used by most printer cables.

Teaching and Learning Material: Information Technology (Computer Graphics - Motion)

DB25 *(male)*

This is used for parallel printers (and other parallel port devices) as well as SCSI and serial ports. If you see a male on the back of your computer, it is usually your COM2 serial port.

Firewire Connectors

4-pin.i.Link connector

This is basically a 4-pin Firewire/i.link/ connector.

Do you know!

Fire-wire connectors were developed for high speed data transfer between computer and other devices.

IEEE-1394 connector

This is a 6-pin Firewire/IEEE-1394 connector.

USB Connectors

USB type "A" connector

USB type "A" connector connects to computer or USB Hub.

USB type "B" connector

USB type "B" connector connects to peripheral or to USB Hub.

Mini USB 2.0 Connector

Mini USB 2.0 connector used on many new USB digital cameras.

Audio/Video Connectors

S-Video Connector

S-Video connector sometimes called S-VHS or Y/C video. There are 4 little pins in it, it is called a DIN4.

Standard Stereo Connector

RCA (above) connector. Standard stereo connector.

Fiber Optics Connectors

ST connector

SC connector, fiber optic network connector.

ST connector, fiber optic network connector.

MTRJ connector

MTRJ fiber optic network connector

2. Differentiate Between Different Types of Cables

It is important for you to know about the difference between cables used in computer in order to make right decisions when choosing a cable for your computer. Following is the list of most commonly used computer cables.

Video Graphics Array (VGA)

VGA Cable

VGA connection cable was the standard cable used to connect a computer to a monitor. VGA cable has 15 pins arranged in 3 row having 5 pins each. Each row represents one of three basic colors used in display: red. Blue, green.

Digital Visual Interface (DVI)

DVI Cable

The DVI connections have replaced VGA as technology moved away from analog towards digital. Digital displays, like LCD, proved to be higher quality, which soon became the market standard for home pictures.

High Definition Multimedia Interface (HDMI)

HDMI Cable

Unlike VGA and DVI, HDMI sends both video and audio signals together. The signals are digital only thus, HDMI is only compatible with newer devices.

Universal Serial Bus (USB)

From left to right: micro USB, mini USB, type B standard USB, and type A standard USB (both female and male)

USB cable is most commonly used cable today. There are multiple versions of USB available:

1. USB 1.0/1.1 can transmit data at speeds up to 12 Mbps.

2. USB 2.0 can transmit data at speeds up to 480 Mbps and is compatible with older versions of USB. At the time of this article, USB 2.0 is the most common type found in the market.

3. USB 3.0 can transmit data at speeds up to 4.8 Gbps. It is compatible with previous versions of USB.

IDE (Integrated Drive Electronics)

IDE Cable

IDE cables were used to connect storage devices to a motherboard. The connectors on an IDE cable have 40 pins; the smaller 2.5" drive variety uses a form-factor version of the IDE that has 44 pins.

SATA (Serial Advanced Technology Attachment)

SATA Cable

Newer hard drives will likely use SATA ports over IDE ports. Compared to IDE, SATA provides higher data transfer speeds. A standard SATA

cable can be identified by two connectors, each having 7 pins and an empty notch. It looks like a subtle L-shape.

FireWire

FireWire Cable

The purpose of FireWire is similar to that of USB: high speed data transfer for computer peripherals.

Ethernet

Ethernet Cable

Ethernet cables are used to set up local area networks. In most cases, they're used to connect routers to modems and computers.

3. Ports Used for Connection of Various Devices

Port

Port is computer is a physical docking point using which an external device can be connected to the computer.

Characteristics of Port

A port has the following characteristics:

1. External devices are connected to a computer using cables and ports.

2. Ports are slots on the motherboard into which a cable of external device is plugged in.

Examples of external devices attached via ports are mouse, keyboard, monitor, microphone, speakers etc.

Following are some important types of ports:

Ports in Computer

1	PS/2 Mouse Port (Green)	9	Microphone (Pink)
* 2	LAN RJ-45 Port	10	USB 3.0 Port (USB01)
3	USB 2.0 Ports (USB23)	*** 11	eSATA3 Connector
4	Side Speaker (Gray)	12	USB 2.0 Ports (USB01)
5	Rear Speaker (Black)	13	Optical SPDIF Out Port
6	Central / Bass (Orange)	14	Coaxial SPDIF Out Port
7	Line In (Light Blue)	15	PS/2 Keyboard Port (Purple)
** 8	Front Speaker (Lime)		
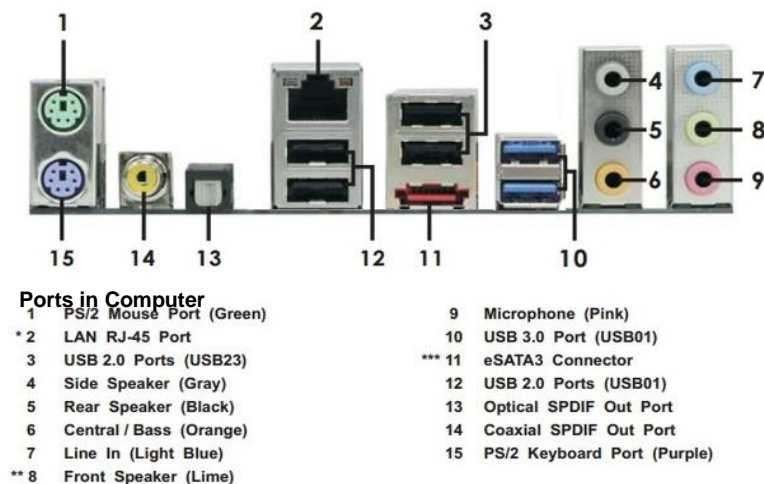
Serial Port

Serial Port is used for external modems and older computer mouse. It has two versions: 9 pin, 25 pin model. Data travels at 115 kilobits per second.

Parallel Port

Parallel Port is used for scanners and printers. It is also called printer port. It is a 25 pin model.

PS/2 Port

It is used for old computer keyboard and mouse. It is also called mouse port. Most of the old computers provide two PS/2 port, each for mouse and keyboard.

Universal Serial Bus (or USB) Port

It can connect all kinds of external USB devices such as external hard disk, printer, scanner, mouse, keyboard etc. It was introduced in 1997. Most of the computers provide two USB ports as minimum. Data travels at 12 megabits per seconds. USB compliant devices can get power from a USB port.

VGA Port

It connects monitor to a computer's video card. It has 15 holes. Similar to serial port connector but serial port connector has pins, it has holes.

Power Connector

It is a three-pronged plug which connects to the computer's power cable that plugs into a power bar or wall socket.

Firewire Port

It transfers large amount of data at very fast speed. It connects camcorders and video equipment to the computer. Data travels at 400 to 800 megabits per seconds. It is found in three variants: 4-Pin FireWire 400 connector, 6-Pin FireWire 400 connector and 9-Pin FireWire 800 connector.

Modem Port

It connects a PC's modem to the telephone network.

Ethernet Port

It connects to a network and high speed Internet. It Connect network cable to a computer. This port resides on an Ethernet Card. Data travels at 10 megabits to 1000 megabits per seconds depending upon the network bandwidth.

Game Port

It connects a joystick to a PC. Now replaced by USB.

Digital Video Interface, DVI Port

It connects Flat panel LCD monitor to the computer's high end video graphic cards. It is very popular among video card manufacturers.

> **Do you know!**
>
> Almost every form of computer peripheral devices like keyboards, mice, headsets, flash drives, wireless adapters, etc. can be connected to your computer through a USB port.

Sockets

Connects microphone, speakers to sound card of the computer.

4. Procedure of Installing a Printer with Computer

The procedure of Installing a printer has the following steps:

1. Connect the printer to power supply and computer.
2. Click "Start" menu button.
3. Click "Device and Printer" from the right panel of menu (Device and Printer window will open).
4. Click "Add a Printer" on the top left corner of the window (installation wizard will start).
5. Click "Add a Local Printer" (in next window).
6. Click "Next" (wizard automatic detect and set printer port).
7. Select Printer Manufacturer and model from the list or click "Have a Disk" option (if you have printer device driver CD).
8. Click "Next" (in upcoming windows, wizard will start installing printer).
9. Click "Finish" (when the installation is completed).

Summary of Module

- You can install operating system in the computer by using Bootable CD/DVD, Bootable USB Flash Drive or Ethernet.

- You may want to uninstall an operating system when you have a dual boot on the hard drive or when you want to remove the only operating system on the hard drive and reuse it in future.

- Upgrading your operating system is useful when you want keep your application software and personal files and upgrade only the operating system.

- In order to have good system configuration for graphics software like Adobe Photoshop, Adobe Illustrator, Adobe InDesign and CorelDraw, you can extend RAM, use GPU performance using 1 GB of VRAM and higher resolution for monitor.

- A palette in Adobe Photoshop and Adobe illustrator show you the information about a particular part of your image and helps you to modify that part.

- Art board, Work space or image window is the space where you can create, edit and modify your image in graphic software

- CorelDraw is a vector based drawing program or software that makes it easy to develop professional artwork from simple logos to complex technical illustrations.

- A device driver is a program that controls a particular type of device that is attached to your computer. Device drivers can be configured, updated and removed in device manager.

- The term Plug and Play, sometimes abbreviated as PnP is used to describe devices that start working with a computer system as soon as they are connected.

- Connectors normally called "input-output connectors are interfaces for connecting devices by using cables. Port is computer is a physical docking point using which an external device can be connected to the computer.

Frequently Asked Questions (FAQs)

FAQ 1:	What is dual boot?
Answer	Dual boot means having multiple operating systems installed on different partitions.

FAQ 2:	What is operating system upgrade?
Answer	Upgrading means the new operating system will simply replace your previous installation, and you'll be able to keep all of your files and programs.

FAQ 3:	What are Plug n Play devices?
Answer	These are the devices that start working with a computer system as soon as they are connected. The user does not have to manually install drivers for the device

FAQ 4:	Why drawings of CorelDraw called vector based?
Answer	Drawings in Corel Draw are vector based because objects drawn are defined mathematically as a series of points (dots) joined by lines. Graphical elements in a vector file called objects.

FAQ 5:	Which processor required for most of the graphic software?
Answer	Intel® Core 2 or AMD Athlon® 64 processor; 2 GHz or faster processor

FAQ 6:	What is Tool Box in graphic software?
Answer	Tool box contains the tools that we use for our activity in graphic software; we can see tools like brush, move tool, rectangular marquee, quick selection tools, magic erase tools and others.

FAQ 7:	What is status bar?
Answer	Status bar shows information and statistics about your document for example saving status, pages etc.

FAQ 8:	What are connectors?
Answer	Connectors normally called "input-output connectors are interfaces for connecting devices by using cables. They generally have a male end with pins projecting from it.

FAQ 9:	What is the use of DVI (Digital Visual Interface)?
Answer	The DVI connections have replaced VGA as technology moved away from analog towards digital. Digital displays, like LCD, proved to be higher quality, which soon became the market standard for home pictures
FAQ 10:	Which port is used to connect a network cable?
Answer	Use ehernal port to connect a network cable

Test Yourself!

Please mark the correct one from the given options. You can check your answer with the Answer Key at the end of this module.

1.   To Install an operating system using disk, 1ˢᵗ boot device must be set to _____.

a.   Network

b.   CD/DVD

c.   USB Drive

d.   Hard Disk

2.   Disk Partition is used for: _____.

a.   Formatting Drive

b.   Dividing disk space

c.   Deleting Disk

d.   None of these

3.   Upgrading Operating system means_____.

a.   To upgrade older operating system with new one

b.   To install dual operating system

c.   To remove Operating system

d.   None of these

4.   Dual Operating system means _____.

a.   Installing a new operating system

b.   Having more than one operating system

c.   Uninstalling operating system

d.   All of these

5.   The user does not have to manually install drivers for _____.

a.   Input Devices

b.   Output Devices

c.   Plug and Play Devices

d.   None of these

6.   Corel Draw is a _____ graphics software.

a.   Raster Based

b.   Vector Based

c.   Both of these

d.   None of these

7.   VGA cable is used to connect _____.

a.   Computer Network   b.   Power Supply

c.   Connect Printers   d.   A monitor to a computer

8.   HDMI cable sends _____.

a.   Audio Signal   b.   Video Signal

c.   Both Audio and Video Signal   d.   None of above

9.   Device icon having "Exclamation point" ⚠ on means _____.

a.   Device is not installed   b.   Device is working properly

c.   Hardware conflict   d.   Device is incorrectly configured

10.   Ethernet port connects _____.

a.   Printer to computer   b.   Joy stick

c.   Network cable to computer   d.   All of these

Answer Key

MCQ number	Correct Answer
1	b
2	b
3	a
4	b
5	c
6	b
7	d
8	c
9	d
10	c

Module 8: Communicating with Others

Learning Outcomes

After completion of this learning module, you will be able to:

- Communicate with client, business owner and supervisor, and synthesize relevant information about all problems and understanding of their product/ service required

- Develop a strategy for using communication skills

- Interact with other professionals involved in design development through effective teamwork

Learning Unit 1: Communicate with Others

Overview

In this learning unit, you will learn different concepts involved in communicating with clients, business owners and other stakeholders. After completion of this learning unit, you will be able to demonstrate effective dealings with clients, business owner or supervisor and synthesize relevant information about all problems and understanding of their product/ service required.

1. Communication and Interpersonal Communication

The process of conveying your idea or thought to the audience in such a way; that is comprehensive is called communication. It can be one way process where information flows in one direction only for example lecture in the class, or a two way process of mutual understanding in which the participants share information, ideas, and new thoughts etc. with each other. Communication is the key element for a business.

Medium

Medium is the channel or means of transmitting the message to the receiver.

Remember

A stakeholder is an individual or group who has an interest in the outcome of body of work.
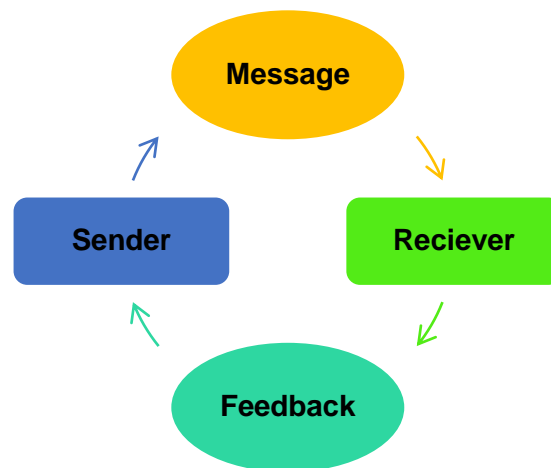
Illustration Showing Flow of Communication Process

Interpersonal Communication

Interpersonal communication is the process by which people exchange information, feelings, and meaning through verbal and non-verbal messages: it is face-to-face communication.

Interpersonal Communication

Interpersonal communication refers to the communication we do in our daily life at personal levels.

Importance of Communication

Communication plays a vital role in everyday life whether it is personal or business. In the business world, good communication is important for the daily operation of the company, but can also affect sales and profitability. Without good business communication, there will be no mutual exchange of thoughts, ideas, news and the internal and external structure of a business can face numerous challenges that can ultimately lead to its demise.

2. Skills Needed to Interact in a Social Environment

Following are the skills we use to communicate and interact with each other in the social environment both verbally and non-verbally through gestures, body language and personal appearance.
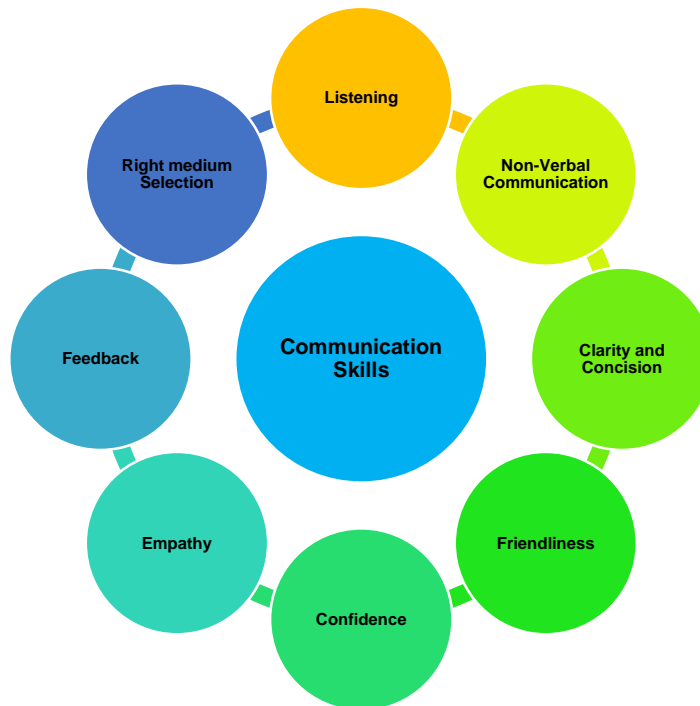
Skills Used for Interacting with Society

1. Listening

For a good communication, you need to be a good listener first. Active listening means paying close attention that what the other person is saying, asking question for clarification, and rephrase what the person says to ensure understanding.

2. Non-Verbal Communication

Non-verbal communication is a communication without words such as your body language, eye contact, hand gestures, and tone of voice which convey a clear message to receiver or listener.

3. Clarity and Concision

Try to convey a concise message as possible. Say what you want to say clearly and directly, whether you are talking to someone directly face to face, through phone or via email.

4. Friendliness

In friendly communication, you can encourage other persons to talk and share their information with you easily and freely which improve your knowledge and skills.

5. Confidence

You should be confident in all communication and interactions with your colleagues. It also makes your communication credible.

6. Empathy

Always respect the other people's point of view even when you disagree with an employer, co-worker, or employee.

7. Feedback

The final step of communication process is feedback. Feedback means receiver's response to sender's message. It increases the effectiveness of communication. It ensures that the receiver has correctly understood the message. Feedback is the essence of two-way communication. manager and supervisor should continuous take and provide a constructive feedback through phone, E-mail on weekly and monthly basis

8. Picking the Right Medium

Selection of a right medium to communicate with others is very important. Direct face to face and telephonic conversation is an appropriate communication but when you need to communicate with a busy person such as your boss, then you can email him without disturbing him.

3. Gathering Requirements

Gathering requirements is an essential part of any business provides offering a product or service to customers. A poor requirement gathering results in a situation that doesn't meet customer's requirements. In order to communicate attentively, you need to follow these rules.

> **Remember**
>
> After finalizing the required documents, get it signed by the customer that will save you and your company from many troubles.

- Don't assume you know what the customer wants, always ask him about his requirement.

- Get user involved from the start.

- Define the scope of project and ensure customer is agreed.

- Clarify if there is any doubt.

- Create a document that describes all the requirements clearly, concisely and thoroughly as acquired from the client. Share that document with the customer.

- Confirm your gathered requirement from the customer by playing them back to him.

- Don't move ahead in the project until requirements are fully understood.

- Create a prototype if necessary to confirm or refine the customers' requirements.

4. Applying of Communication Skills

The department/organization comes into daily contact with external stakeholders. It is vital to use your communication skills to have stakeholders a better understandability and enable them to take decision as partner.

The following rules should help you in understanding the difference and mutual benefits of yours and the stakeholders.

- Significance: Deal with issues of significance to stakeholders and the agency.

- Completeness: Understand the concerns, views, needs and expectations.

- Responsiveness: Respond coherently and appropriately

- Communication: open and effective communication means listening and talking.

- Transparency: Clear and agreed information and feedback processes.

- Collaboration: Work to seek mutually beneficial outcomes where feasible.

- Inclusiveness: Recognize, understand and involve stakeholders in the process.

- Integrity: Conduct engagement in a manner that develops mutual respect and trust.

In that way stakeholders will develop a sense of trust in organization that will enable him to make decision as partner with you.

5. Oral and Written Communication

Communication can be done in two ways, these have been described below:

1. Oral Communication

Oral Communication	Oral communication is the process of verbally transmitting information and ideas from one individual or group to another. Oral communication can be either Formal or Informal. Example of Formal oral communication include:
Oral communication is the process of expressing information or ideas by word of mouth.	• Presentations at business meetings

• Classroom lectures

• Commencement speech given at a graduation ceremony |

Examples of informal oral communication include:
- Face-to-face conversations

- Telephone conversations

- Discussions that take place at business meetings

For an effective oral communication, you need to follow following rules:

- Words should be selected and framed properly and are delivered in the right pitch and tone.

- Clarity, and right perception on the other hand are mandatory features of an effective oral communication system. Sentences used in communication should be clear in meaning and easy to understand.

2. Written Communication

Any communication that involves written or documented material from sender to receiver is called written communication. For example, letters, memos, research papers, reports, etc.

It is a very concrete form of documentary evidence and can also be used for future reference purposes. As the information is written, it can be easily distributed to many people thus making it a bulk communication method. As the information does not change from person to person, the accuracy of the information conveyed is same across the entire audience.

For effective written communication you need to keep the following rules in mind:

> **Written Communication**
>
> A communication in which some written or documented text is exchanged between sender and receiver is called written communication.

- There must be completeness, clarity and correctness in your writing.

- As there is no immediate feedback that can be received, it is important that written communication is detailed and accurate to ensure that the write message is communicated.

- Also remember to keep the communication simple and without any errors.

- Replace Negative Words with Neutral or Positive Words. For example replace "*Your argument that…"* with "*in your email you mentioned that …"* etc.

Using an active voice will strengthen your writing. Sentences that are written in the active voice will flow better and are easier to understand. Long, complicated sentences will slow the reader down.

6. Synthesis and Presentation of Information

Once all the information is gathered from client, it is then arranged in such a way that it can be presented and process further. Following steps help to leads gathered information towards the final product specifications:

1. Verification of Information

All the information gathered from customer is rephrased and rechecked by the customer if it matches his needs. All the confusions are made clear. Corrections are made in case of any tweaks. This verification is very important because any loose end in the requirement gathering can lead to a product that doesn't match customer's need.

Goals/Objectives

A specific result that a person or system aims to achieve within a time frame and with available resources.

2. User Requirement Document

After customer verifies all the requirements and makes corrections where necessary, the gathered information is documented into user requirement document (URD) which is meant to spell out exactly what specification the product will have and becomes part of the contractual agreement. A customer cannot demand features not in the URD, while the developer cannot claim the product is ready if it does not meet an item of the URD.

3. Setting Goals and Objectives

From user requirement document, the objectives/goals are defined. Goals are the aims that need to be achieved for the completion of your project. The objectives defined should be clear and contain all the necessary details for what needs to be done within the available time and resources.A goal should be SMART:

Remember

Sometimes people set a range of values as successful performance instead of a specific target. This is a wrong approach. An object should always be an exact and discrete target.

- Specific
- Measureable
- Achievable
- Relevant
- Time bound

Feasibility Study

Feasibility study is an analysis of the viability of an idea.

4. Feasibility Study

After defining goals and objectives, feasibility study of objectives is done to know if objectives have ability to compete successfully taking into account, legal, economic, technological, scheduling and other factors.

5. Final Product or Service

As all the objective/ goals are finalized along with the details about resources used to complete the objectives and the time frame available to get it done. You will now be able to present the specification and final outcome of the product or services. This product will meet the customer requirements in all aspects.

Learning Activities

Understanding the Concept of Communication

Description: This activity consists of an interactive session in the class about the importance of communication and encouraging the learner to communicate in his own way.

Time Guideline: 30 min

Purpose: To highlight the importance of communication in personal life and business environment.

Presentation:
1- Ask learners if they agree or disagree to the statement (purpose).
2- Ask learners why they agree that communication is important.
3- Ask learners to select a topic from daily life and try to communicate their ideas to the class.
4- Encourage the learners for their try.

Requirement Gathering through Communication

Description: This activity consists of an interactive session in the class about how to interview a customer with effective communication to gather all the requirements.

Time Guideline: 30 min

Purpose: To highlight the importance of communication for gathering requirements in a project.

Presentation:
1- Select a volunteer in the class who can act as customer.
2- Brief the volunteer about the requirement of the project
3- Interview the customer utilizing all the communication skills.
4- Present to the class all the collected information that can be used in future activities.

Learning Unit 2: Communicating with Seniors, Peers and Subordinates

Overview

In this learning you will learn importance and different skills and techniques used to communicate with colleagues, seniors, junior, peers etc. After the completion of this unit, you will be able to demonstrate effective communication with your colleagues and Interact with other professionals involved in design development through effective teamwork.

1. Communicating Effectively

Communicating effectively with your colleagues decreases misunderstandings and increases work efficiency as much as possible. Effective communication also produces healthy working relationships, and allows you and your colleagues to resolve issues in a collaborative manner. Below are some ways to communicate better with your colleagues at work:

> **Do you know!**
>
> Arms crossed and shoulders hunched, on the other hand, suggest disinterest in conversation or unwillingness to communicate.

> **Remember**
>
> People will judge your competency through your vocabulary. If you aren't sure of how to say a word, don't use it.

> **Remember**
>
> People will perceive you as nervous and unsure of yourself if you talk fast.

Listen Actively

Listening actively shows that you're interested in what your colleague has to say and that you respect them. Listen to them closely, orienting your body towards them, and look at them directly as they speak.

Speak with Discretion and Talk Face to Face

Face to face communication helps through building trust and openness, and it enables you to sense and understand someone's viewpoint and feelings.

Offer Constructive Criticism

When giving feedback, leave your personal feelings out of it and make sure your workmate fully understands what you're telling them.

Build and Earn Trust

For effective communication, everyone must trust and respect each other. To build trust with your colleagues, it's important that you act consistently and with integrity. To earn their trust, communicate clearly, collaboratively and confidentially with them while showing them respect.

Get Personal but Don't be too Casual

Get to know your colleagues better by talking about your personal lives during breaks or after work. This is also a good way to build trust. However, it's important that you don't get too casual in your conversations, especially in the office, as it might make the other person uncomfortable.

Communication Preference and Technology Etiquette

Some people like communicating via email while others prefer talking on the phone, texting, or using social media or instant messaging. Use the method of contact that the other person prefers.

Make your Message More Listenable and Relevant to Listeners

Your communication is only relevant if it's related to what the other person wants, needs, fears or desires.

2. Monitor and Reflect Communication Skills Critically

For effective monitoring of communication, it is a good practice to take leading role during discussions and emphasis on key points. Once you get the desired information about your work, you need to evaluate it to make a decision about your work. Your communication strategy should include the following:

Monitoring
Observe and check the progress or quality of (something) over a period of time.

- Organise and clearly present relevant information, including your outcomes, illustrating what you say by making comparisons, providing examples that relate to the interests of the audience and using a range of methods to illustrate complex points.

- Vary use of vocabulary and grammatical expression to convey particular effects, enable fine distinctions to be made and engage your audience.

- Assess the effectiveness of your strategy, identifying factors that had an impact on the outcomes.

- Identify ways of further developing your communication skills.

Learning Activity

Understanding the Importance of Communication with
Team Members and Colleagues

Description: This activity consists of a group assignment where class is divided into groups and groups are assigned some problems. The group members work together as a team and solve the problem.

Time Guideline: 30 min

Purpose: To highlight the importance of team collaboration.

Presentation:
1- Divide the class into groups of five.
2- Assign each group some graphic work like logo for institute on paper etc. and some time limitation.
3- Ask learners to share ideas with group members and utilize your combined ideas to solve the problem.

Summary of Module

- The process of exchanging information, thoughts and ideas is called communication. Interpersonal communication means interacting with people at personal level.

- In order to interact with the social environment, one needs to learn skills like listening, non-verbal communication, clarity and concision, friendliness, confidence, empathy, feedback and the selection of right medium for communication.

- Requirement gathering is an essential step in every project. Through effective communication, requirements are gathered from the customer. Clearer the requirements, finer will be the product.

- Every department is dealing with the stakeholders. Negotiating with stakeholders and letting them know about mutual benefits enables them to undertake decision as partners.

- Communication can be performed in two ways, oral and written; oral communication is easy and has in-time response. Written communication contains concrete document that can be used for future reference.

- All the gathered information from the customer is then documented, objectives are defined and final product specifications are developed.

- It is important to use your communication skills to exchange ideas and collect information from your colleagues, seniors and juniors. It will develop healthy working relationships, and allows you and your colleagues to resolve issues in a collaborative manner.

- Organize and clearly present the outcomes giving relevant examples which are in the interest of the audience.

Frequently Asked Questions (FAQs)

FAQ 1:	Why is communication important for an organization?
Answer	Communication is important for an organization because without effective communication, there will be no mutual sharing of thoughts, ideas, news etc.
FAQ 2:	What is the difference between communication and interpersonal communication?
Answer	The process of exchanging information or news etc. is called communication. Interpersonal communication refer to the communication we do in our daily life at personal levels.
FAQ 3:	What does the communication skill empathy means?
Answer	Empathy means always respecting other people's point of view even when you disagree with an employer, coworker, or employee.
FAQ 4:	Why is requirement gathering important?
Answer	Requirement gathering is one of the most important task in deciding the success of a project because, a poor requirement gathering will result in a poor outcome thus useless.
FAQ 5:	What are useful skills for exact requirement gathering?
Answer	Involve the customer form start, clarify the doubts, confirm gathered material by playing them back, and create a prototype to confirm the requirements.
FAQ 6:	Who are stakeholders?
Answer	A stakeholder is an individual or group who has an interest in the outcome of body of work.
FAQ 7:	What is goal or objective?
Answer	A specific result that a person or system aims to achieve within a time frame and with available resources.
FAQ 8:	What is feasibility study?
Answer	Feasibility study is an analysis of the achievability of an idea keeping in view the resources and time available.
FAQ 9:	What is the purpose of effective communication with colleagues?
Answer	Communicating effectively with your colleagues decreases misunderstandings and increases work efficiency as much as possible.
FAQ 10:	How can you present your point clearly?
Answer	By making comparisons, providing examples that relate to the interests of the audience and using a range of methods to illustrate complex points.

Test Yourself!

Please mark the correct one from the given options. You can check your answer with the Answer Key at the end of this module.

1.   **Select the non-verbal type of communication from the following:**

a.   Oral   b.   Written

c.   Gestures   d.   Clues

2.   **Requirement are gathered through _____.**

a.   User involvement.   b.   Pre assumption

c.   Your perception   d.   Documentation

3.   **Stakeholders are facilitated to increase understandability as _____.**

a.   Showing them documentation   b.   Presenting project specifications

c.   Accepting their terms   d.   Telling them mutual benefits and negotiating.

4.   **Advantage of written communication is _____.**

a.   A written document that can be used for future reference   b.   Writing a document is easy

c.   Consumes less time in communication   d.   Increases understandability of the document.

5.   **Select the INCORRECT option, A goal set should be _____.**

a.   Relevant   b.   Broad

c.   Achievable   d.   Time Bound

6. **Feasibility study keeps in account_____.**

a.   Time, resources, orders

b.   Resources, legalities, stakeholders

c.   Time, resources, legalities

d.   Stakeholders, orders, time

7. **Constructive criticism means _____.**

a.   Appreciate all type of work.

b.   Point out the negative points.

c.   Keep your personal feeling out while giving feedback.

d.   Keep yourself out of other's work.

8. **You can monitor and reflect on your use of communication skills including _____.**

a.   Obtaining feedback from others

b.   Making changes yourself

c.   Updating according to latest trends

d.   Developing good relation with other

9. **Assess the effectiveness of your strategy by _____.**

a.   Looking at audience expressions

b.   Identifying the factors that had an Impact on outcomes

c.   From the evaluation results

d.   Reviewing the planning

10. **Final product requirements that meets customer needs depends upon _____.**

a.   The resources

b.   Requirement gathering

c.   Customer behavior

d.   Times available

Answer Key

MCQ Number	Correct Answer
1	c
2	a
3	d
4	a
5	b
6	c
7	c
8	a
9	b
10	b

Teaching and Learning Material: Information Technology (Computer Graphics - Motion)

Module 9: Duties and Rights at a Work Place

Learning Outcomes

After completion of this learning module, you will be able to:

- Understand and perform the mandatory standard for Responsibility, Respect, Fairness and Honesty

- Identify tasks, their scheduling, define milestones, and learn optimal utilization of resources

- Recognize the aspirational requirements of human rights in employment context

- Understand the legal right granted to an author, composer, publisher, production, or any other artist's work

- Understand that unauthorized use or reproduction of copyright or patented material is illegal

- Understand that you can't give the design made for and sold to one client to the others

Learning Unit 1: Ethics and Professional Conduct

Overview

In this leaning unit, you will learn the four values that serve as the foundation for decision making and guidance to the action of the employees i.e. Responsibility, Respect, Fairness, and Honesty. After the completion of this learning unit, you will be able to identify and practice the mandatory standards for these four pillars.

1. Responsibility

"Responsibility" is our duty to take ownership for the decisions we make or fail to make, the actions we take or fail to take, and the consequences of those decisions and actions. The responsibility involves two types of standards working in a work place. These are described below:

Responsibility
The state or fact of having a duty to deal with something or of having control over someone.

Aspirational Standards

Working in an organization, following aspirational standards need to be followed.

- Take decisions and perform actions which are in the best interests of the society, are not a risk for public safety, and beneficial for the environment.
- Accept only those assignments that are consistent with your background, experience, skills, and qualifications so that you can fulfill the assignment with professional conduct.
- Always fulfill the commitments that you undertake, you should do what you say you will do.
- If you make errors or omissions, take responsibility and make corrections instantly. If you come to know that the errors or omissions were caused by others, communicate them to the appropriate person as soon they are discovered. Accept accountability for any issues resulting from your errors or omissions.
- Protect proprietary or confidential information shared with you by the customer as a result of trust on you.

Mandatory Standards

Requirement standards that all the employees must fulfill include:

- You should know and maintain the policies, rules, regulations and laws that control your work, professional behavior, and volunteer activities.
- Report unethical or illegal behavior to appropriate management and, if necessary, to those affected by the manner.
- Bring violations to these standards to the attention of the suitable body for resolution.
- Only those ethics complaints should be filed which are validated by facts.
- Follow disciplinary action against an individual who reacts against a person raising ethics concerns.

2. Respect

Respect refers to show a high regard for ourselves, others, and the resources assigned to us. Resources entrusted to us may include people, money, reputation, the safety of others, and natural or environmental resources.

An environment of respect creates trust, confidence, and performance excellence by raising mutual cooperation.

Aspirational Standards

The aspirational standards of respect include

- Should inform ourselves about the rules and traditions of others and avoid engaging in behaviors they might consider disrespectful.
- Listen to others' points of view, in order to understand them.
- Approach directly those persons with whom you have a conflict or disagreement.
- Conduct in a professional manner, even when it is not replied the same way.

Mandatory Standards

The mandatory standards of respect are as follows

- Negotiate in good faith.
- Do not exercise the power of your expertise or position to influence the decisions or actions of others in orders to get benefit personally at their expense.
- Do not act in a rude manner towards others.
- Respect the property rights of others.

3. Fairness

> **Remember**
>
> In the workplace, perceived injustice has been directly linked to burnout and job dissatisfaction.

Fairness is our duty to make decisions and act neutrally and objectively. Our conduct must be free from competing self-interest, bias, and favoritism.

Aspirational Standards

The aspirational standards for fairness are:

- Always demonstrate transparency in your decision-making process.
- Constantly re-examine your neutrality and objectivity, taking corrective action if necessary.
- Provide equal access to information to those who are authorized to have that information.
- Make opportunities equally available to qualified candidates.

Mandatory Standards

The mandatory standards for fairness are as under:

- Fully disclose any real or potential conflicts of interest to the appropriate stakeholders.

- If you realize that you have a real or potential conflict of interest, avoid engaging in the decision making process or otherwise attempting to influence outcomes until you have made full disclosure to the affected stakeholders.
- Never hire or fire, reward or punish, or award or deny contracts based on personal considerations, bias, or favoritism.
- Never discriminate against others based on gender, race, age, religion, disability, nationality, or sexual orientation.
- Apply the rules of the organization (employer, Project Management Institute, or other group) without favoritism or prejudice.

4. Honesty

Honesty is our duty to understand the truth and act in a truthful manner both in our communications and in our conduct.

Aspirational Standards

Aspirational standards for honesty includes:

- Sincerely try to understand the truth.
- Always be truthful in your communications and in your conduct.
- Provide accurate information in a timely manner.
- Always make commitments and promises, unspoken or clear, in good faith.
- Should strive to create an environment in which others feel safe and comfortable to tell the truth.

Mandatory Standards

Mandatory standards for honesty include:

- Do not engage in or ignore behavior that is designed to deceive others, making misleading or false statements, stating half-truths, providing information out of context or withholding information that, if known, would render your statements as misleading or incomplete.
- Do not engage in dishonest behavior with the intention of personal gain at the expense of another

Learning Activity

Taking ownership of decisions made

Description: This activity requires all the students to plan a role play that will depict the importance of taking responsibility of decision made and their consequences.

Time Guideline: 30 min

Purpose: To highlight the importance of responsibility

Presentation:

1- Call two volunteers from the class one who will act as customer and other as employee.

2- Brief them about the role play that the employee will confess about a decision that caused some loss at client side and now he is ready to take the responsibility and make up for the loss.
3- Encourage the students to give suggestions.
4- Have a discussion with students, what did they learn from this activity.

Learning Unit 2: Plan the Business Process Activities

Overview

In this learning unit, you will learn about different concepts and activities involved in the planning of the business process activities. After the completion of this learning unit, you will be able to assist the in-line managers, define activities like specific life cycle methodologies, estimate time for activities, and perform breakdowns of the work and leveling the resources.

1. Provide due Assistance to In-Line Manager

While working at a workplace, it is important and adds to good list that you provide assistance to the managers. You can provide assistance in the following tasks.

Coordinating Recurring Meetings

It is important that every meeting run as smoothly as it can. But this is especially important for recurring meetings when the same group of people regularly gather to accomplish the same goal.

- Schedule recurring meetings properly using software like outlook calendar, or some other good schedule software so that can be kept informed about schedule every time.
- Organize the meeting venue
- Inform the attendees about the schedule and make the agenda of the meeting clear to them.
- Make sure that documents to be used and other equipment like computer etc. are ready to use.

> **Do you know!**
>
> The agenda of recurring meeting depends upon the management decision. It may be to present status report to attendees or to plan for the next phase.

Intimate Resource Availability

A project plan is considered to be good if tasks are as clearer as possible and resources needed to accomplish those tasks are readily available. Before assigning individuals to tasks, associate a task with a resource type. Then enter the expected duration of that task based on the resource chosen. This ensure the intimate resource availability.

> **Remember**
>
> Resources needed to be available can be machinery, equipment, human or time

Create and Keep Documentation

You can assist in-line managers by maintaining the documents about meetings, resource assignments, project assignments and completion status, client history etc. This involves the creation and updating of documentation. Documentation provides a great help as a written proof and for future consultations.

Validate Applicable Company Defined Standards

It is definitely important to validate and follow established company standards for the duration of your employment. Be honest to yourself about your conduct and make adjustments where necessary. You should be informed and understand all the company standards but pay particular attention to the ones that are specific to your job role in the company. Try to help other employees to understand and follow the company applicable standards.

2. Define Activities

In order to perform good project management, you should be able to apply specific life cycle methodology to the project development. During a project development, the undergone activities belong to some specific phase. It is necessary to define what phase an activiy belongs to. Application of life cycle methodology help a company to deliver projects effectively. The different phases of life cycle are:

Requirement Gathering

Requirement gathering is the first and the most important phase of any project development. The specifications of the project results are an outcome of requirements gathered. The acivities involved in this phase include interviewing the potential users or employees of the company about their needs for the final product (in case of new system replacing an old one, interviewing them about the problems they face in the existing system), verfication of the gathered information, documentation of information for further development.

Design Solution

During this phase, the gathered requirements are analysed and assesed to find out the problem. The activities in this phase include plans are laid out concerning the physical construction, hardware, operating systems, programming, communications, and security issues.

Prototype
A prototype is an instance of a working product, representing all the specification of final project.

Prototype

At this phase, instead of freezing the requirements before a design or coding can proceed, a prototype is built to understand the requirements. This prototype is developed based on the currently known requirements. By using this prototype, the client can get an "actual feel" of the system, since the interactions with prototype can enable the client to better understand the requirements of the desired system.

Testing

After the prototype is approved, the life cycle proceeds to the final product that fulfills the gathered requirements. This product is then tested throughly using series of testing techniques. Product should be tested from every aspect and in all the possible conditions and audience. If any problem arise during testing, should be corrected.

Documentation

In this phase, the activities performed include, preparing documentation of the various area that need to be documented. This documentation can be used as written proof, can be used as a help for future consultation if some problem arises.

3. Estimate Time

Whether you bill clients hourly or on a per project basis, a necessary step of all projects is estimating the time it will take. You need to estimate time accurately if you're going to deliver your project on time and on budget. Without this skill, you won't know how long your project will take, and you won't be able to get commitment from the people required to help you achieve your objective. Not only does the client want to have an idea of how much money they will be spending, but they also need to plan around an estimated timeline. And you need to be able to ensure you have the time and resources necessary to complete the project.

> **Remember**
>
> Time estimation depends on a number of factors, including how much experience you have with the type of work you're doing.

Time estimation depends on a number of factors, including how much experience you have with the type of work you're doing.

Identify the Product Deliverables

The first step is to identify the main project (i.e. Website Redesign), and then pinpoint the specific deliverables associated with the project. For example, upon completion of the redesign, you will be providing the client with a newly designed website by transferring the site files and sending the client a CD or USB drive with the working files.

Breaking the Project in Sub Tasks

Next, take the project and break it down into simple tasks. At the end of this step, you will have a list of activities that will take us to the deliverables. Now, list all of the activities you identified in the order in which they need to happen.

Estimate Time for Each Step

The next step is to estimate time in hour for each task or activity, rounding up. To begin with, estimate the time needed for each task rather than for the project as a whole. Then take the total time for all of the tasks and add in a buffer. The buffer can be anything, although I usually stick with a 10-25% addition. This helps to deal with any unexpected situations or challenges that arise.

Things to Keep in Mind

Following points need to be kept in mind while calculating total time required by a project

- Project management time
- All the constraints that are relevant, it will help to identify risks.
- Consider calendar year official leaves,
  Work timings of the company.
- Debugging

4. Level Resource due to Work Load

Research indicates that it is not just the amount of work that makes a difference in employee satisfaction and success, but also the extent to which employees have the resources (time, equipment and support) to do the work well.

Resource leveling is a technique in project management that deals with resource allocation and resolves any possible conflict that can arise from wrong allocation. When project managers take a project, they need to plan their resources accordingly. This helps an organization to avoid any conflicts and being able to deliver the project on time. Resource leveling is considered one of the key elements to resource management in the organization.

An organization starts to face problems if resources are not allocated properly i.e., some resource may be over-allocated whilst others will be under-allocated. Both will bring about a financial risk to the organization.

Key Elements of Resource Leveling

The main aim of resource leveling is to allocate resource efficiently, so that the project can be completed in the given time period. Resource leveling can be broken down into two main areas.

- Projects that can be completed by using up all resources, which are available and projects that can be completed with limited resources.
- Projects, which use limited resources can be extended for over a period of time until the resources required are available.

Process of Resource Leveling

Resource leveling helps an organization to make use of the available resources to the maximum. The idea behind resource leveling is to reduce wastage of resources i.e. to stop over-allocation of resources.

Project manager will identify time that is unused by a resource and will take measures to prevent it or making an advantage out of it.

By resource conflicts, there are numerous disadvantages suffered by the organization, such as:

- Delay in certain tasks being completed
- Difficulty in assigning a different resource
- Unable to change task dependencies
- To remove certain tasks
- To add more tasks
- Overall delays and budget overruns of projects

Learning Activity

Proactive Approach

Description:	This activity depicts the importance of taking extra responsibility to help others.
	The supervisor is busy doing a task with a tight deadline, and the employee finishes the assignment the supervisor had given.
	Instead of sitting and waiting for the supervisor to come and assign more work, employee finds something that needs to be done around the workplace and proactively completes the task.
Time Guideline:	30 min
Purpose:	To highlight the importance of proactive approach.
Presentation:	1. Call two volunteers from the class one who will act as supervisor and second as employee.
	2. Brief them about the role play that the employee finishes the assignment the supervisor had given, Instead of sitting and waiting for the supervisor to come and assign more work, employee finds something that needs to be done around the workplace.
	3. Encourage the students to step up to go beyond their assigned tasks.

Learning Unit 3: Awareness to Rights

Overview

In this learning unit, you will learn about their rights at the workplace. After the completion of this module, you will be able to define and know the importance of the policies, rules and regulations that administer the work and workplace, reporting the illegal conduct or illegitimate action to appropriate management and the importance of protecting the propriety or confidential information.

1. Inform Ourselves and Uphold the Policies

Policy

A policy is a statement which explains how human resource management issues will be dealt with in an organization.

Policies, rules or regulations communicate an organization's values and the organization's expectations of employee behaviors and performance. Workplace policies support and clarify standard operating procedure in a workplace. They help organization to manage staff more effectively by clearly defining acceptable and unacceptable behavior in the workplace, and define the effects of not complying with those policies.

A policy may also be required where there is a large number of interests and preferences, which could result in unclear and conflicting objectives among those who are directly involved.

They set rules and guidelines for decision-making in routine situations so that employees and managers do not need to continually ask senior managers what to do. They help you to adopt a consistent and clear response across the company to continually refer to situations involving employee interaction.

We should understand well and support these policies, rules, regulations and laws that govern our work, professional, and volunteer activities. These rules, regulation and policies protect business and workers and if correctly implemented and executed, create and maintain a better work environment for all.

2. Report Illegal Conduct

Whistleblower

In an organization a whistleblower is a person who raises a concern about a wrong doing in their workplace.

From time to time, workers may violate the policies or laws established for a business or company. Even if an employee breaks the rules with the best of intentions, the flow of the workplace can be impacted negatively.

It is the responsibility of a worker to report illegal or illegitimate action to appropriate management. That needs to encourage employees to bring ethical and legal violations they are aware of to an internal or responsible authority so that action can be taken immediately to resolve the problem.

It important to minimize the exposure of organization to the damage that can occur when employees circumvent internal mechanisms. For this purpose organization should let employees know the organization is serious about adherence to codes of conduct.

The main barriers to lack of confidence in employees to report illegitimate conduct can be

- A lack of trust in the internal system
- Unwillingness of employees to be "informers"

- Misguided union solidarity
- Belief that management is not held to the same standard
- Fear of revenge
- Fear of isolation from peers

It is the moral and social responsibility of the employees to report unethical or illegal conduct to appropriate management and if necessary to those affected by the conduct. If he sees any illegal behavior including but not limited to theft, fraud, corruption or bribery. Furthermore someone taking or abusing the property of others including intellectual property.

Do you know!

It is unlawful to terminate an employee who reported, complains about some illegal or fraudulent conduct by an employer or co-workers.

3. Protect Propriety or Confidential Information

Protecting confidential and proprietary business information, good will and relationships with clients, customers and key employees are matters of most important concern to any successful business. Theft of trade secrets, harassment of clients and customers, raiding of key employees, employee disloyalty and violations of trusty duties can cause irreparable loss. The Company's confidential information falls into two main categories:

Remember

All key staff members should read and become familiar with the guide.

a) Information developed and owned by Company.
b) Information temporarily given to Company by its customers, collaborators and others.

Every Company team member, whether a manager, employee or contractor, has a key role in maintaining the Company's confidential information. Following policies can help to protect the company's proprietary and secrets

Peers

Peer is someone at your own level. Peer comes from letin word "par" which means equal. When you are on par with some on you are peer.

1- The Company should establish a written confidentiality protection guide and share it with all staff who interact with confidential information related to the Company.
2- Upon hiring, each Company staff member should sign a contract that must include a confidentiality provision about their confidentiality promises.
3- The staff member should refrain from disclosing a confidential information until management has provided clarification.
4- A staff member should not disclose confidential information unless the staff member obtains authorization from management and the receiving party has signed a confidentiality agreement.
5- Staff members should not store or keep open the confidential information on desktop or computer screen exposed to view when not actively used.
6- A staff member should only share confidential information with only those staff members of other Company who need to know the information.
7- The Company should prevent unauthorized user access to any electronic and physical areas containing confidential information. For computers, staff members should password protect screensavers and password protect files. For hardcopy documents, staff members should limit the physical access to the document by locking the office door, locking a desk drawer, locking a filing cabinet, and / or restricting room access.
8- A sender of an email should assume unauthorized readers will view the text and files contained in an unencrypted email. A sender should not send sensitive data in an unencrypted email or file.

Do you know!

Encryption is the conversion of data into a form that cannot be easily understood by unauthorized people.

Learning Unit 4: Copyrights and Piracy

Overview

In this learning unit, you will learn about the concepts of copyright material, royalty free contents and things that can be used and that cannot be used. After the completion of this unit, you will be able to adapt and purchase copyright material and royal free contents and will develop a sense about what can be used and what cannot be used from internet or other resources.

1. Purchasing Copyrighted Material

There are many "authorized" services on the Internet that provide you the facility to purchase copyrighted material present online including music, ebooks, or motion pictures. By purchasing material through authorized services, you can avoid the risks of infringement liability. This will also help to avoid your exposure to other potential risks, such as viruses, unexpected material, or spyware, which are common in file sharing networks.

Legitimate Providers of Copyrighted Material

There are many Internet-based services that provide legal access to copyrighted material. They have contracted with the copyright holders to allow them to provide the material at a discounted or per piece price. Many of the services are also based on monthly subscriptions. It is the responsibility of the user to identify the legitimacy of a service.

Using Copyrighted Material

Many a times it becomes necessary for you to use copyrighted materials. You must assure permission in written to use the material from the copyright holder. If you know the copyright holder, you may contact them directly to get his permission for using his work. If you are not sure about the owner of the copyrighted material, you can request the information from the United States Copyright Office.

2. Royalty Free Contents

Royalty-free, means the right to use copyrighted material or intellectual property without paying the royalties or license fees for each use or per volume sold, or some time period of use or sales. In photography and the illustration industry, it means a copyright license where the user has the right to use the picture without restrictions based on one-time payment to the licensor. It doesn't mean that you have bought the file outright. The user will pay for license once and use the image in many projects without a need to purchase additional licenses. Royalty Free licenses cannot be given on private basis. In stock photography, RF is one of the common licenses.

A photo that is royalty-free might have licensed hundreds or even thousands of times, it might have appeared in different projects from major advertising campaigns to homemade postcards.

Advantages of Royalty Free License

A royalty-free license helps you to:

- To buy licensed contents, relatively inexpensive as compared to content shot expensive for your project.
- Keep using the content again and again with no time limit.
- Use the content in many different ways (i.e.: print, video, or on the web).

Thing you can do with Royalty Free Files

- Publish photos or text on websites or in web ads.
- Use photos in print ads
- Use these contents in printed promotional projects
- Add video footage to commercial film and video
- In books or on book covers, on CD and DVD covers, and in editorial content

3. What to use and what not to use from Internet

The biggest advantage of using the Internet as a research tool is the ease with which you can find information. The biggest disadvantage, then, is going through the crowd of information to find credible, reliable, accurate information.

It is essential to evaluate online and other sources to assure that the material you take from them is credible, reliable, and accurate.

Following points can help you to decide what is reliable at internet or other resources

Remember
The objective and subjective components of the believability of a source or message is called *credibility*.

- If you fail to accurately evaluate your Internet and other information sources, it will question the credibility of your speech subject and require its intense scrutiny.
- Consider the "age, depth, author and money" of every source you use from the Internet.
- Top-level domain of a website can give you clues about the reliability of its contents. Generally, it's safe to trust information from sites with domain names that end in .edu, .gov and .ngo and sometimes .org.
- While using and evaluating social media sources, you should be aware of sites that have a poor reputation for checking facts or moderating content.

Social Media and Multimedia Sources

The rapid growth of social media and its ability to distribute relevant information to multiple users based on shared interests and relationships has increased its importance in the world of Internet research. Wikipedia, one of the most popular research websites in the world, relies on scholarly material and is providing accurate, targeted, and comprehensive information to the users.

Self-published media like e-books, newsletters, open wikis, blogs, social networking pages, Internet forum postings, or tweets should be used with caution. Self-published material may be acceptable when it has been produced by an established expert on the topic he has a good command on, and whose work in the relevant field has been previously published by reliable third-party publications and proved itself.

Summary of Module

- If you make errors or omissions, take responsibility and make corrections instantly. If you come to know that the errors or omissions were caused by others, communicate them to the appropriate person as soon they are discovered.

- Should inform ourselves about the rules and traditions of others and avoid engaging in behaviors they might consider disrespectful.

- If you realize that you have a real or potential conflict of interest, avoid engaging in the decision making process or otherwise attempting to influence outcomes until you have made full disclosure to the affected stakeholders.

- Do not engage in or ignore behavior that is designed to deceive others, making misleading or false statements, stating half-truths, providing information out of context or withholding information that, if known, would render your statements as misleading or incomplete.

- You can provide assistance to the manager by coordinating meetings, intimate resource availability, creating and keeping documentation, validating company's defined standards.

- It is a professional approach to apply life cycle methodology to project and define its activities as phase like requirement gathering, planning design, prototype, testing and documentation.

- You need to estimate time accurately if you're going to deliver your project on time and on budget. The first step is to identify the main project, take the project and break it down into simple tasks, estimate time in hour for each task or activity, then take the total time for all of the tasks and add.

- Resource leveling is a technique in project management that deals with resource allocation and resolves any possible conflict that can arise from wrong allocation.

- We should understand well and support these policies, rules, regulations and laws that govern our work, professional, and volunteer activities.

- It is the moral and social responsibility of the employees to report unethical or illegal conduct to appropriate management and if necessary to those affected by the conduct.

Frequently Asked Questions (FAQs)

FAQ 1:	What are the four values that serve as the foundation of ethical and professional conduct?
Answer	These are Responsibility, Honesty, Fairness and Respect.
FAQ 2:	What is meant by fairness?
Answer	Fairness is, our duty to make decisions and act neutrally and objectively. Our conduct must be free from competing self-interest, bias, and favoritism.
FAQ 3:	What is recurring meeting?
Answer	Recurring meetings are where the same group of people regularly gather to accomplish the same goal. Its agenda may depend upon the company's policy.
FAQ 4:	What are the phases of life cycle?
Answer	The main phases of a life cycle are requirement gathering, design solution, prototype, testing and documentation.
FAQ 5:	What is prototype?
Answer	A prototype is an instance of a working product, representing all the specification of final project. Prototype is developed to verify and asses customer's needs about the final product.
FAQ 6:	What is buffer in time estimate?
Answer	The buffer can be anything, although I usually stick with a 10-25% addition. This helps to deal with any unexpected situations or challenges that arise.
FAQ 7:	What rule is used for work breakdown?
Answer	There is no hard and fast rule on how you should breakdown a task in work breakdown structure. Rather, the level of breakdown is a matter of the project type and the management style followed for the project
FAQ 8:	What is meant by resource leveling?
Answer	Resource leveling is a technique in project management that deals with resource allocation and resolves any possible conflict that can arise from wrong allocation
FAQ 9:	Why are policy important for an organization?
Answer	Workplace policies help organization to manage staff more effectively by clearly defining acceptable and unacceptable behavior in the workplace, and define the effects of not complying with those policies.
FAQ 10:	What is copyright law?
Answer	Copyright is a law that protects any original creation, and grants the holder of the copyright exclusive control over when, how, and by whom their work may be copied, distributed, or exhibited.

Test Yourself!

Please mark the correct one from the given options. You can check your answer with the Answer Key at the end of this module.

1. **_____ is our duty to take ownership for the decisions we make.**

a.   Respect   b.   Honesty

c.   Responsibility   d.   Fairness

2. **_____ refers to show a high regard for ourselves, others, and the resources assigned to us.**

a.   Respect   b.   Honesty

c.   Responsibility   d.   Fairness

3. **First step of life cycle methodology is _____.**

a.   Design Solution   b.   Requirement gathering

c.   Testing   d.   Prototype

4. **Goal of work breakdown is _____.**

a.   Giving visibility to important work efforts.   b.   Giving visibility to risky work efforts

c.   Show clear ownership by task leaders   d.   All of them

5. **The idea behind resource leveling is _____.**

a.   Reduce wastage of resources   b.   Purchase resources

c.   Assign resources permanently   d.   Estimate time for resources

6. **Buffer in time estimate adds _____ to time estimate.**

a.   30 – 40 %   b.   25 – 35 %

c.   5 – 10 %   d.   10 – 25 %

7. **Select the INCORRECT option: reasons to achieve work breakdown are:**

a.   Accurate and readable project organization   b.   Point out the negative points in project.

c.   Indicates the project milestones and control points   d.   Helps to estimate the cost, time and risk.

8. **A policy is _____.**

a. A statement which explains how human resource management issues will be dealt with in an organization.

b. A rule that helps in estimating the time for project.

c. A statement that describes the history concerns of the organization.

d. All of them

9. **The unauthorized use or reproduction of another's work is called _____.**

a. Copyright

b. Royalty Free content

c. Piracy

d. Trade Mark

10. **Royal Free allows you to _____.**

a. Purchase contents

b. Change contents

c. Purchase license

d. Both A and B

Answer Key

MCQ Number	Correct Answer
1	c
2	a
3	b
4	d
5	a
6	d
7	b
8	a
9	c
10	c

National Vocational and Technical Training Commission (NAVTTC)

5th Floor Evacuee Trust Complex Sector F-5/1, Islamabad.

+92 51 9044 04

+92 51 9044 04

info@navttc.org

www.navttc.org