COMPUTER GRAPHICS - PRINT

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LEARNING GUIDE

National Vocational Certificate Level 3

Version 1 - July 2013

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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-3 in Information Technology (Computer Graphics – Print)* 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 Print is an area in *Information Technology* that helps in producing colorful cards, advertisements, logos, illustrations, charts, banners and other printable items. A Computer Graphic Designer can be employed in government and non-government organizations dealing with printing especially the print media.

The National Vocational & Technical Training Commission (NAVTTC) has developed a national qualification entitled, "National Vocational Certificate Level-3 in Information Technology (Computer Graphics - Print)". 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 (Print) national qualification. It carries a learning volume of 80 credits and includes eight learning modules which are as under:

Module 1: Familiarization with Terminologies & Tools
Module 2: Develop Design Concepts
Module 3: Analyse Cost Effective Solution
Module 4: Editing of Photos and Development of Graphics
Module 5: Prepare Pre-Press Job
Module 6: Perform Software/ Hardware Maintenance
Module 7: Communicate with Others
Module 8: 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: Familiarization with Terminologies and Tools

Learning Outcomes

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

- Describe the elements of design

- Understand the principles of design

- Understand the concept of perspective

- Explain the color theory, and its relevance in design

- Describe typography

- Demonstrate the usage of tools in graphics software starting with Adobe Photoshop, Adobe Illustrator, In Design, and Corel draw.

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 of art. After the completion of this unit, you will be able to describe the significance of dot, line, color, texture, shape, size, value of tone, positive and negative space etc.

1. Dot/ Point

Dot/ Point is the smallest and the most basic element of design. These can be used in different sizes, values, colors, 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.

Dots and points are attention catcher, if you place even a single dot on a white surface, it will catch your attention easily. Dots are also important for formulation of other design elements as you place two dots and make a connection between them that will make a line. If there are three points, your mind will make a connection between them and make a triangle. The mind supplies the connections automatically. These are called as grouping, or gestalt.

2. Characteristics and Types of Lines

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.
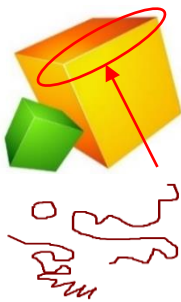
Lines as linear strokes

Since lines can be straight, curved, or irregularly shaped, you can also think of a line as the track of a point in motion.

Thick lines are more powerful than thin lines.

Step 1   Step 2   Step 3
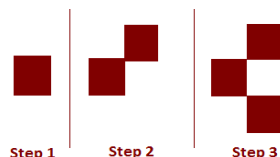
Lines act as borders between ideas, concepts and steps in sequence.
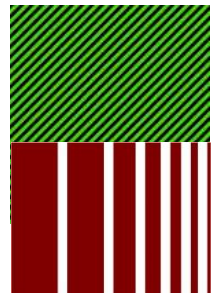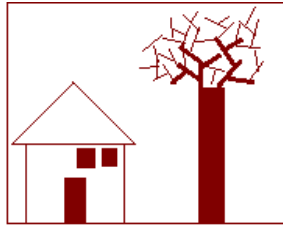
By using basic structure the concepts or ideas depicted through line drawing are easy to understand thus they are effective in learning.

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

Geometric Shapes

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

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 matter. 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.
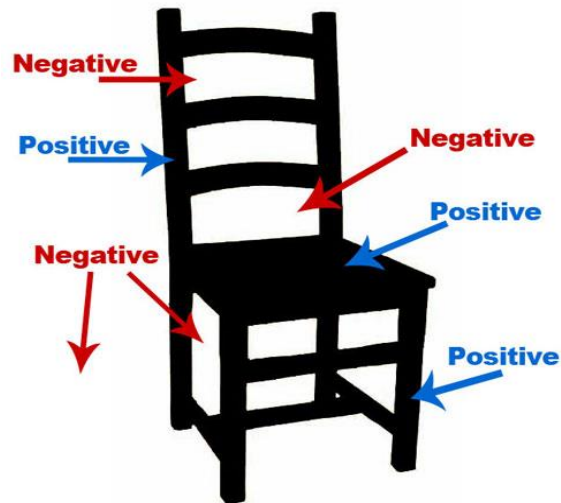
Negative and Positive Space

4. Direction of Lines

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 develop 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 play an important role to make design functional, attractive and organized.

Size

Size is simply the relationship of the area occupied by one shape to that of another.

The first factor be considered is function: what 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
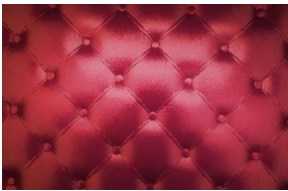
Texture gives your design piece a specific look and feel. They help to develop a mood in the layout and help to add liveliness and activity to the design.

There are two types of textures.

1.   Tactile Texture

Texture

Texture is the surface quality of a shape - rough, smooth, soft hard glossy etc.

The texture 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 dimension 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 refer to the color 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 help to develop contrast by subtly blending shades of color.

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. Our brains are even capable of making sense of complex relationships between positive and negative shape.
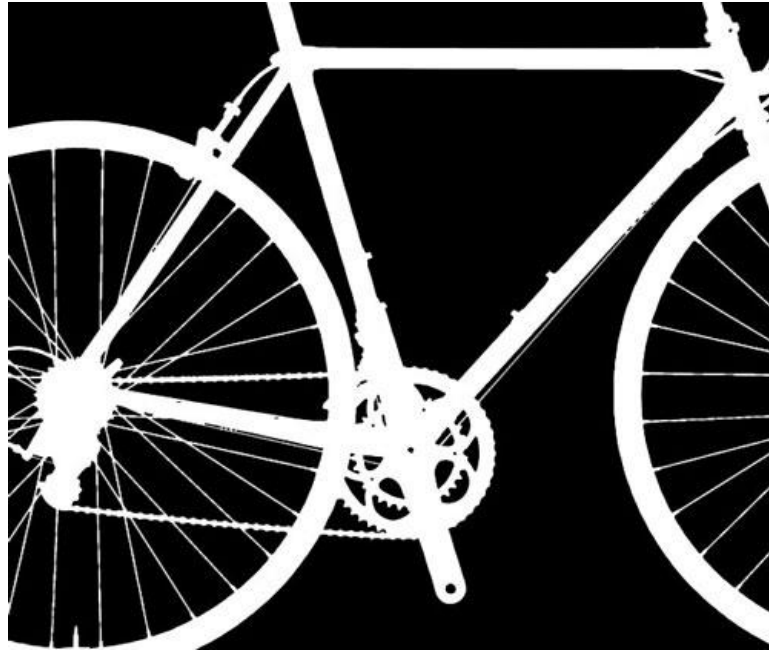
Negative and Positive Space

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. What is important to note to note be that the negative space also defines our subject.

Negative and Positive Space

Learner's Activity

Development of a Design using Basic Elements of Design

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: 30 min

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 color, size, contrast etc.

Balance

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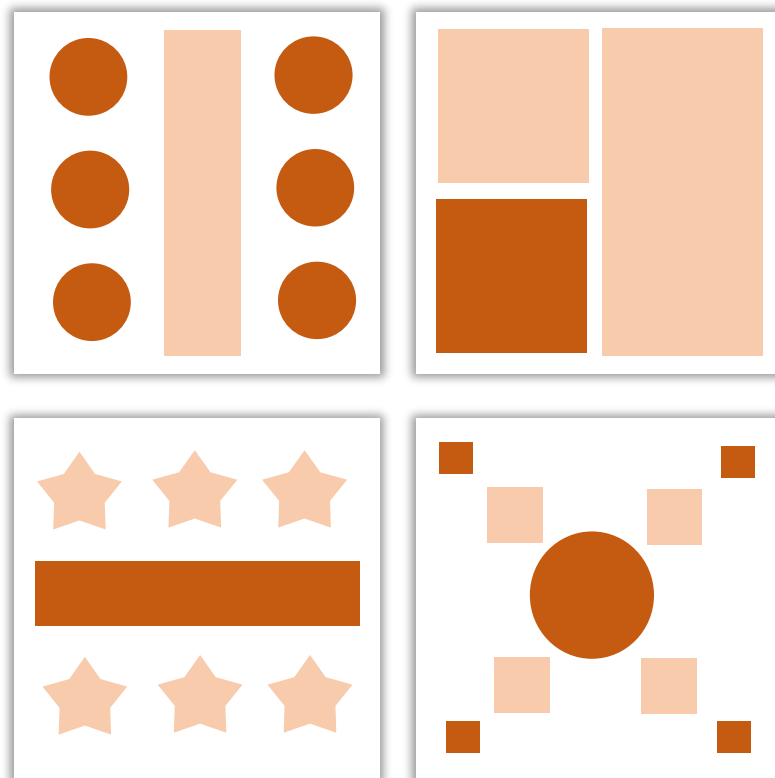
Balance in a Design

There can be two types of balance in your design:
1- Symmetric
2- Asymmetric
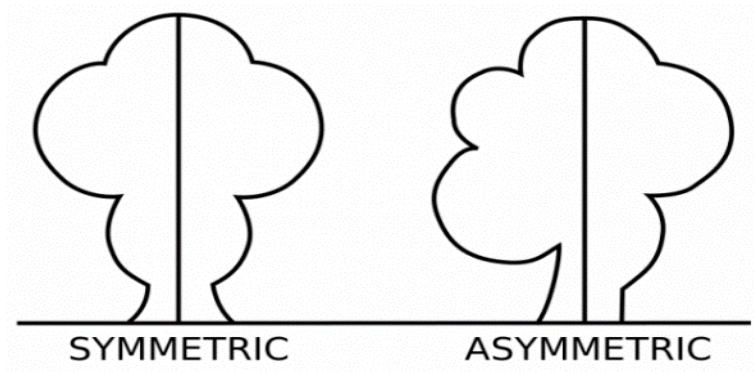
Symmetric Balance:

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.

Remember
Symmetrical balance is difficult to evoke emotion from the Visual readers because it was impressed too "planned".
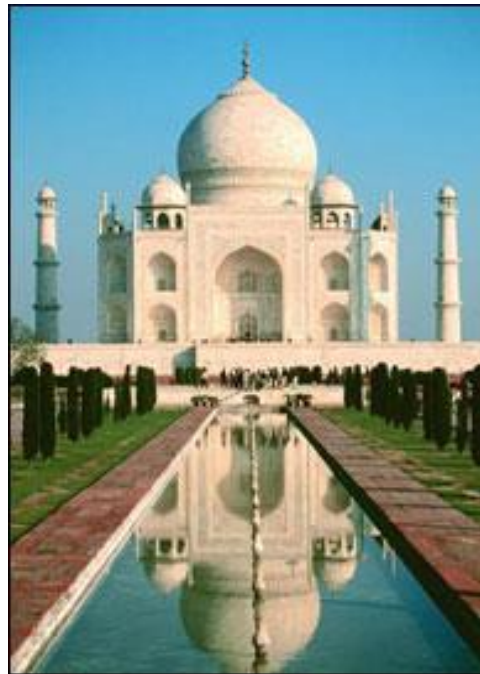
Examples of Symmetric

Asymmetric Balance:

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

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 color 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.

Examples of Asymmetric Balance

Balance by Value:

Balance by value is achieved through small dark color 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 colors 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.

Gradation

Gradation applies to the incremental change in the state of a design element.

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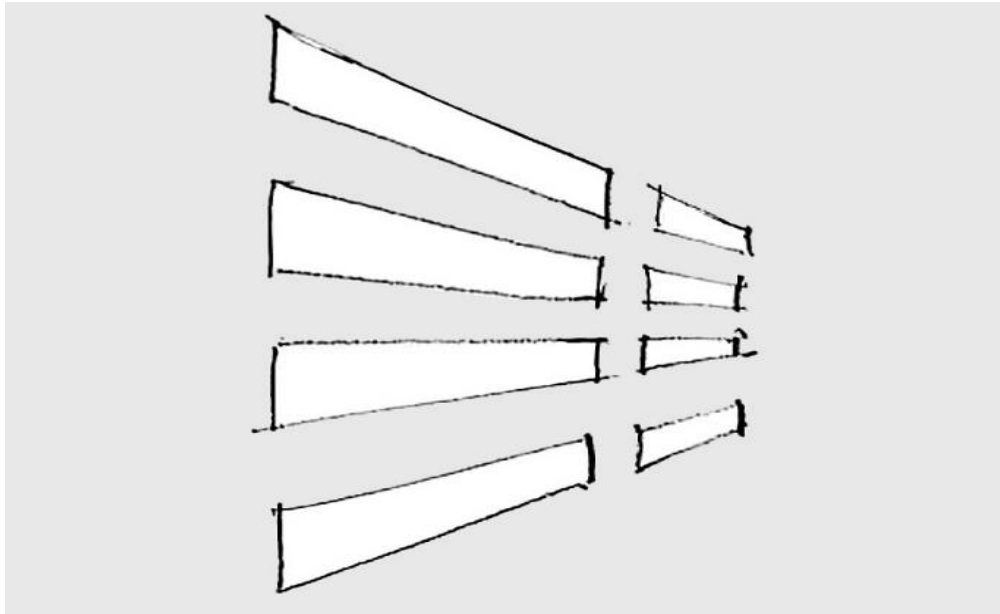
Gradation can add interest and movement to a shape in your design. A gradation from dark to light will cause the eye to move along a shape. Gradation is one of the most useful principles of design and the one that can be applied most easily.

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.

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.

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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.
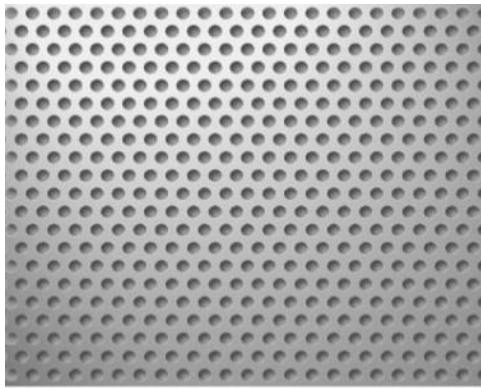
Repetition without Variation   *Repetition with Variation*
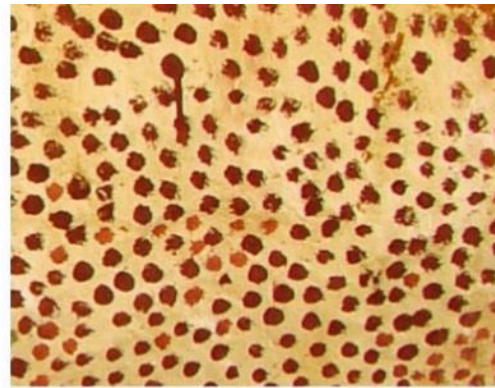
If you are using repeating elements as an area of relief in a design, variation is not necessary. If the repeating elements are to add to the interest of a design or painting, variation is important.

4. Contrast

Contrast is the juxtaposition of opposing elements. It can be a contrast in color (opposite colors on the color wheel), in value (dark vs light), in texture (smooth vs rough) or in 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.

Do you know!

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

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.

Do you know!

Camouflage is the use of specific combination of coloration or contrast for hiding something or preventing it from being known.

Improper use of contrast created camouflage making frog almost invisible.

5. Harmony

Harmony

Harmony is the visually satisfying effect of combining similar or related elements.

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.
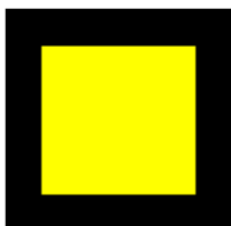
Good Harmony   Lack of Harmony

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.

Remember

Dominance will create an entry point on the page from which you can lead the viewer to other parts of the page.

While dominating an element the right positioning is very important so that it may not disturb the balance of design.

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 colors to the boat instead of dominent cool color, 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.
- Color – It's not fully understood why, but some colors 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

Remember	Unity means that all the components and design elements in your design support each other and all work together towards a common goal.
In design working toward the same unified goal is the idea of unity.	All the elements should look like they belong to one another not that they are temporarily placed in the design.

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 color 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
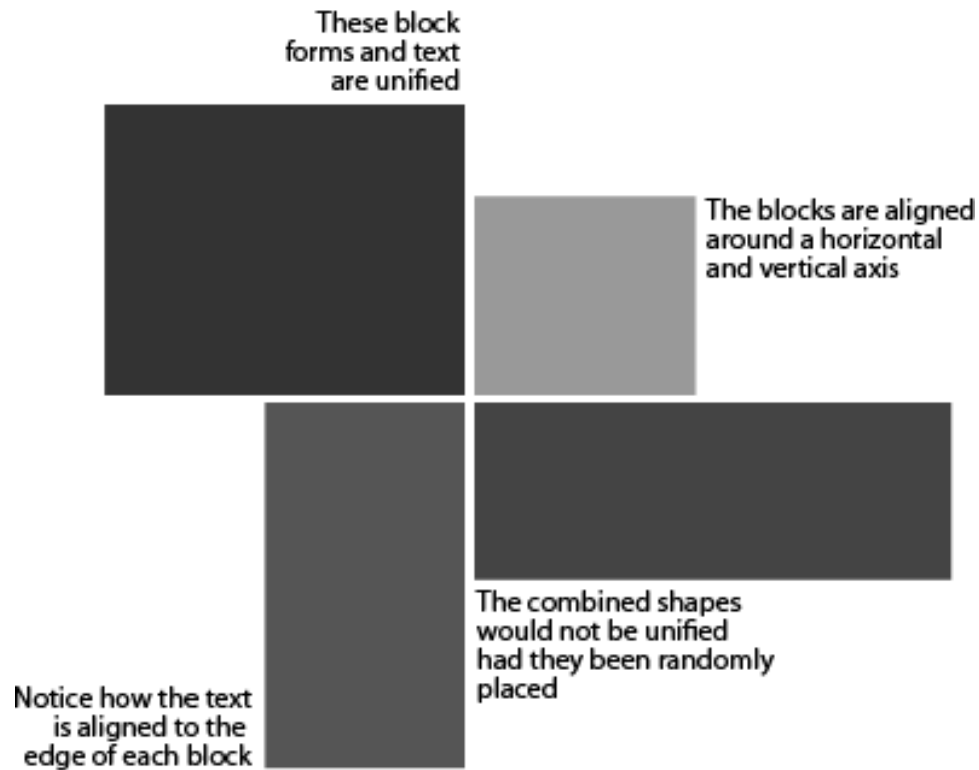
Unity is very important for our design because our design is meant to convey a single meaning. The more the elements of your design unified the more will message be clear to the viewers.

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 colors, images, style and contrast all should conceptualy be related to the central idea of design.

Learner's 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.

Teaching and Learning Material: Information Technology (Computer Graphics – Print)

Learning Unit 3: Understanding the Concept of Perspective

Overview

Perspective allows the artist to develop a design that looks realistic. In this learning unit, you will learn about 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.
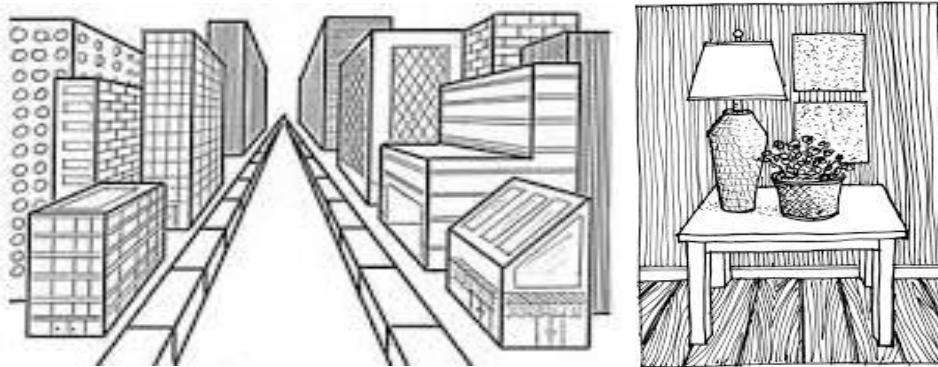
The concept of Perspective

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. It means that the perspective drawing of the same object or scene will be different depending upon the position of the eye level or horizon. 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.

Do you know!

Vanishing points are points on the horizon line where receding lines converge.
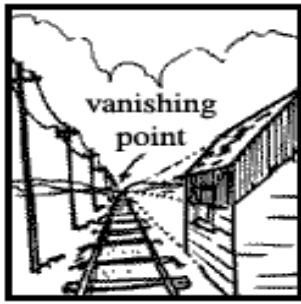
Vanishing point as seen from different horizons

Atmospheric Perspective

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

Atmospheric Perspective

The changes follow the following simple rules.

Contrast

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

Color

Colors are also more visible on the close objects. Warm colors also appear clearer on close objects. As we get farther away colors 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. Perspective as Relationship between Different Objects

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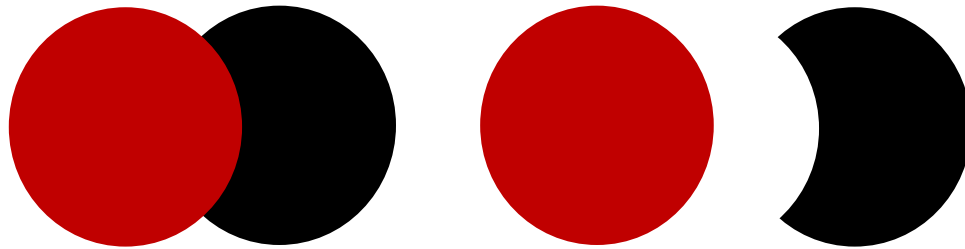
Visual and Perceptive Reality

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.

We need to be able to differentiate between optical and perceptual reality. Optical reality consists of geometry rules and is only visual. Perceptual reality on the other hand combines what we already know about the object and what we can see, hear and smell.

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 a realism to the design and makes it less abstract to the audience.
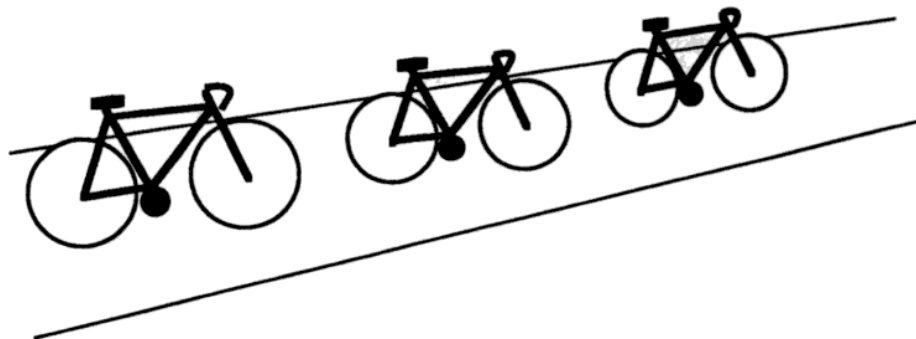
Converging lines indicate distance.

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

Teaching and Learning Material: Information Technology (Computer Graphics – Print)

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 need to appear far, are blurred in terms of contrast, color, sharpness and details. They turn to be dull with blue or grey color. The closer objects can be sharper to draw audience visual to them.

Perception through Sharpening Objects

Learning Unit 4: Color Theory and the Meaning of Colors in a Design

Overview

Colors are very important while giving expression to the design. In this unit, you will learn about the color theory, warm colors, cold colors, and neutral colors. After completion of this learning unit, you will be able to define different terminologies of color like hue, saturation, tones, shades and tints.

1. Warm Colors

Power of Red

Red (Primary Color)

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

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

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

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

Orange (Secondary Color)

Attention Gaining Orange

Orange is a vibrant and energetic color. 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 color takes attention without being overpowering like red.

Yellow (Primary Color)

Calm effect with Yellow

Yellow is considered to be the brightest and most energizing of the warm colors. Yellow color 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 color for babies and young children. Dark yellows and gold-hued yellows can sometimes look antique so we can use these colors in the designs where we want to give an effect of long life and stability.

2. Cool Colors

Cool colors are the color which are related to night, water, nature. Cool colors are calming, relaxing and closer to nature.

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

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

Green (Secondary Color)

Nature in Green

Green color is the sign of growth, renewal and beginning. Green color can also represent lack of experience. Green color 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 Color)

Nature in Blue

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 Color)

Royal Color Purple

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 color 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.

3. Neutral Colors

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

Black

Strong Black

Black is the strongest neutral color. 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 color of mourning in many countries.

Black is commonly used in edgier designs, as well as in elegant designs. It can be either conservative or modern, traditional or unconventional, depending on the colors 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

Strong White

White is at the opposite of black, but like black, it can be used successfully with any other color. 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 color is associated with goodness, and angels are also portrayed in white.

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

Gray

Gray is a neutral color, 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 color. 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.
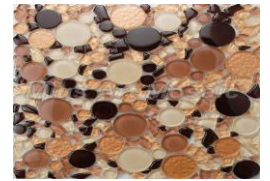
Brown

Brown is the color of the earth, wood, and stone. It is a completely natural color 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 color. Sometimes used in wood textures and sometimes in stone textures. It helps bring a feeling of warmth to designs. Sometimes darkest brown color is used in a design as a replacement for black, in backgrounds or typography.

Beige and Tan

Beige is a unique color, as it can take on cool or warm tones depending on the colors 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 colors around it, has little effect in itself on the final impression a design gives when used with other colors.

Nature in Colors

Cream and Ivory

Ivory and cream are sophisticated colors. They have a little warmth of brown and a lot of the coolness of white. These color 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 colors.

4. Concepts and Terminologies of Colors

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

Hue

Hues are the family of twelve purest and brightest colors.

- ✓ Three Primary Colors
- ✓ Three Secondary Colors
- ✓ Six Tertiary Colors

Hue

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

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

Tones

All the colors 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 color. Any color 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 color to adjust the value and intensity.

Saturation

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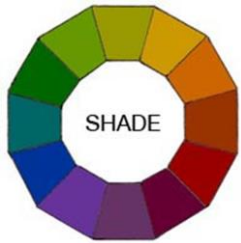
Shades

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

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

Chroma

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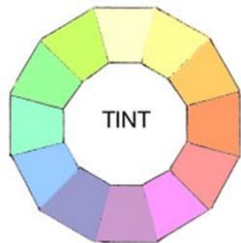
Tints

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

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

Value

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

Learning Unit 5: Typography

Overview

Understanding the rules and principles of typography is the first step of being a typographer. 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, color scheme and grid design theme.

1. Definition of 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.

> **Typography**
>
> The style and appearance of printed matter.

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.

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.

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 is the most commonly used font by professionals in graphic design. Mostly it is liked but some of its users believe that it is too tightly spaced.

Trajan

Trajan has also been used in some Hollywood movies posters. It is commonly used in the designs related to religion, law, marriage, class or the past.

Garamond

Garamond

Garamond

Garamond

There are many versions of Garamond, the most commonly used version is the Adobe Garamond version. Garamond is a great font which can be used for magazines, textbooks, websites and long bodies of text. Garamond was recently named the second best font (after Helvetica) by a German publication.

Futura

Futura

Futura

Futura

Futura is normaly used in large displays, logos, corporate typefaces and in books where small text is needed. Futura is based on geometric shapes for example circles, triangles and squares. Futura has an appearance of efficiency and forwardness.

Bodoni

Bodoni

Bodoni

Bodoni

Bodoni is a great font for headlines, decorative (trending to attraction) text and logos. Bodoni has a narrow underlying structure with flat, unbracketed serifs. The face has extreme contrast between thick and thin strokes, and an overall elegant geometric structure which makes it a very beautiful looking font.

Bickham Script Pro

Bickham Script Pro

Bickham Script Pro

Bickham Script Pro

Bickham Script Pro is used mostly for formal occasions, Bickham Script Pro is a font which does the job well.

Frutiger

Frutiger

Frutiger

Frutiger

The Frutiger font family is not very much geometric nor humanistic in construction.Its forms are designed so that each individual character is quickly and easily recognised. Such distinctness makes it good for display work and it is often used in Web 2.0 Logos. It is very good for smaller body of text in magazines and booklets.

2. Choosing Typeface and Integrating it with the Layout, Grid, Color Scheme and Design Theme

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.

Using nice and readable font makes your design more appealing and understandable.

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.

Leading
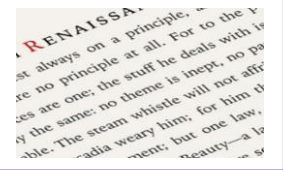
Tracking and Kerning

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.

Color Scheme

While adding type to your design color 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 color 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 colors but the layout is not good then your design will be distorted and hard to understand.

Using a grid when you're designing with type provides a clear balanced and geometric structure to your design. Try to design with grid from start, it gives a solid structure to your design.

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: Study Tools and Software for Graphics and Artwork Creation

Overview

Different graphics software are used to develop computer graphics. 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, Tools in Adobe InDesign for creating and editing type, text, and layout, Tools in Corel Draw.

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.
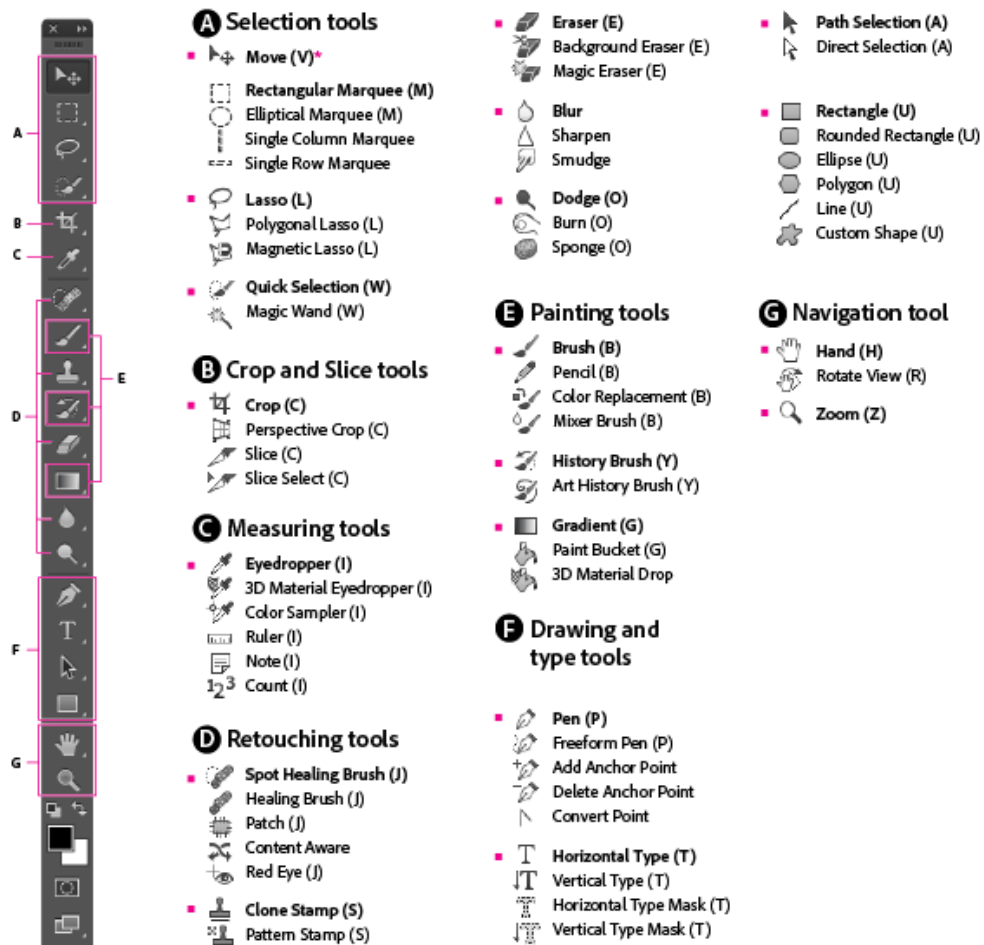

Open an image in Adobe Photoshop as
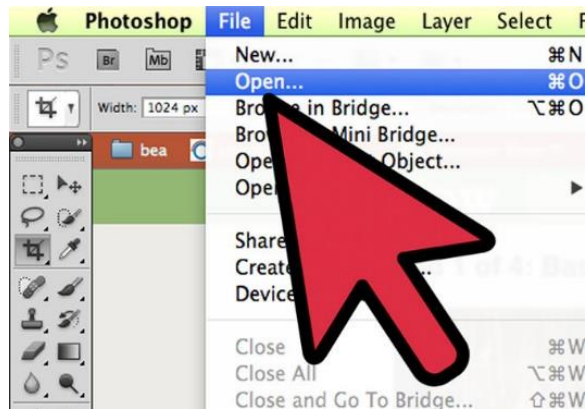
1- Open Adobe Photoshop and click at File->Open

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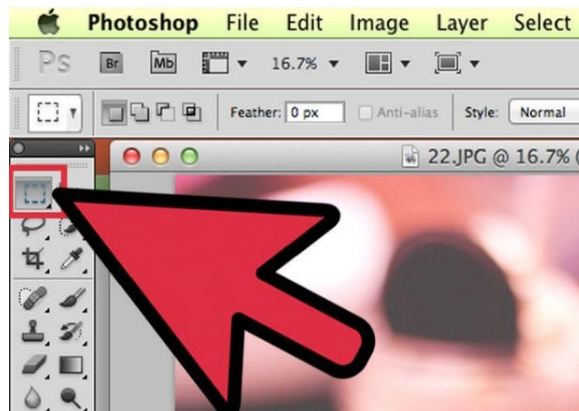
2- Clicking and holding on the Marquee icon will give you a small popup menu where you can select the variations: Rectangular marquee, Elliptical marquee, for selecting circles and ovals and a single-pixel marquee for both horizontal and vertical.

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.
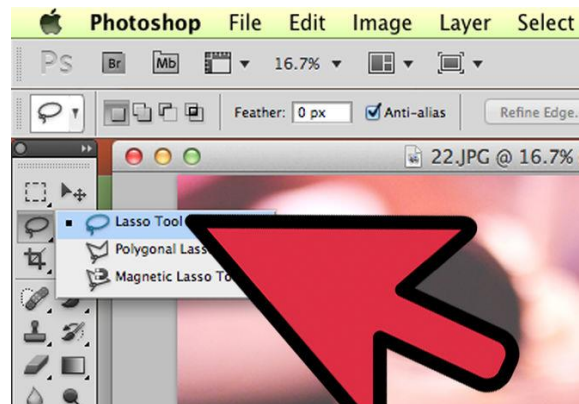
2- Click and hold the mouse button and then draw around some object on the image. As you reach the last point, release the mouse button and the selection will auto-complete.

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.

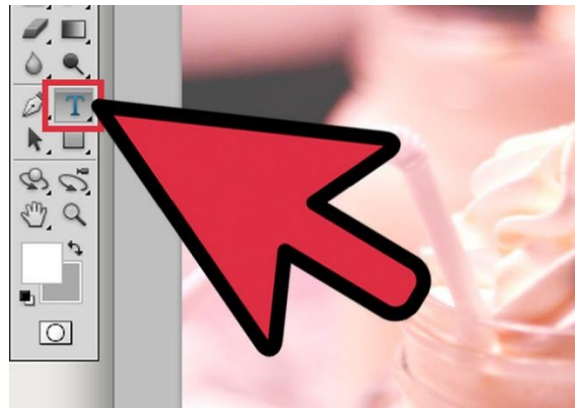4- Press the Escape key at any time to cancel the selection in progress.

Using the Crop Tool (*The Crop tool trims images)*
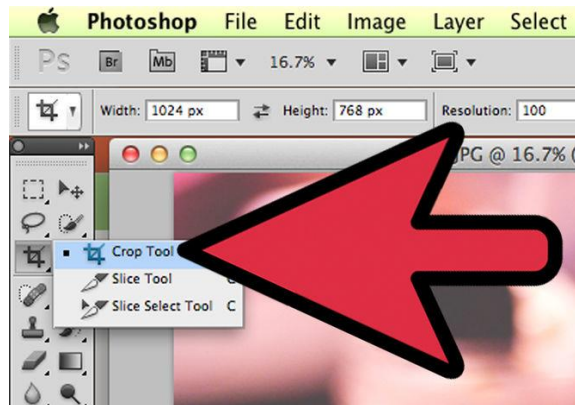
1- Select the crop tool from toolbox as

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
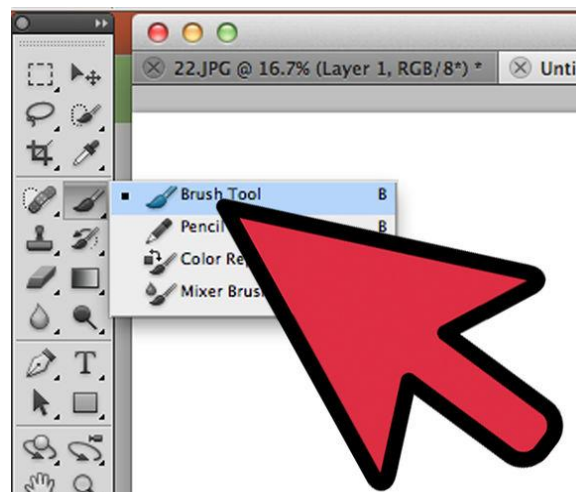
Using the Text Tool   Select the text tool from toolbox

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.
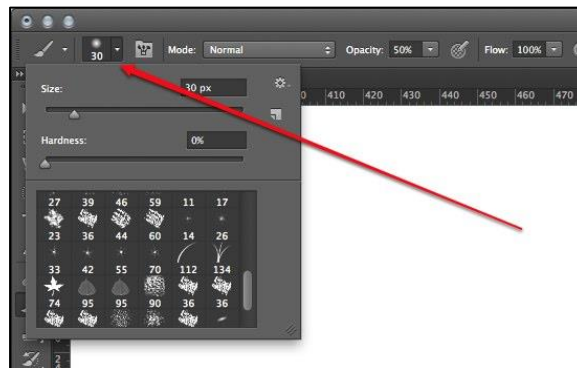

Using the Brush Tool *(Paints the brush strokes)*

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.
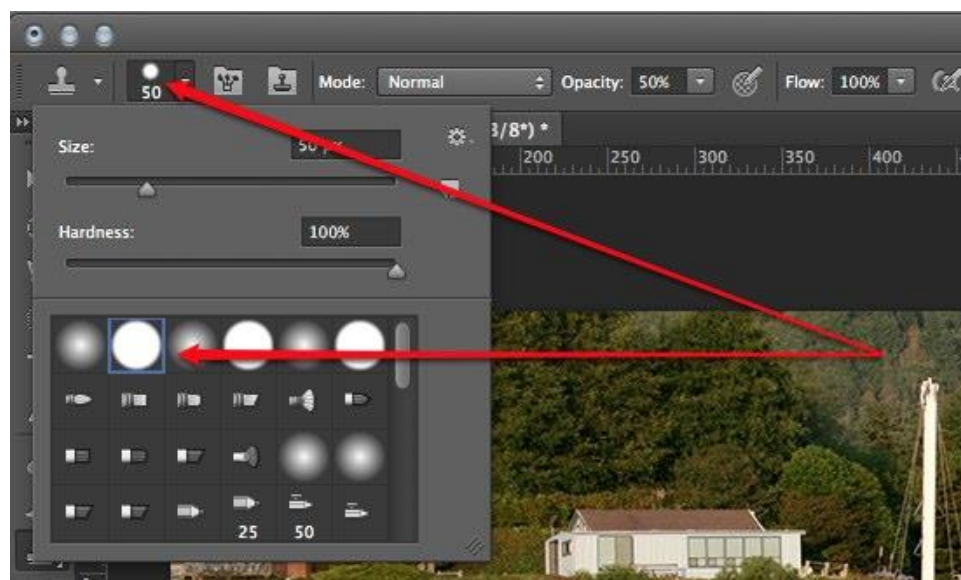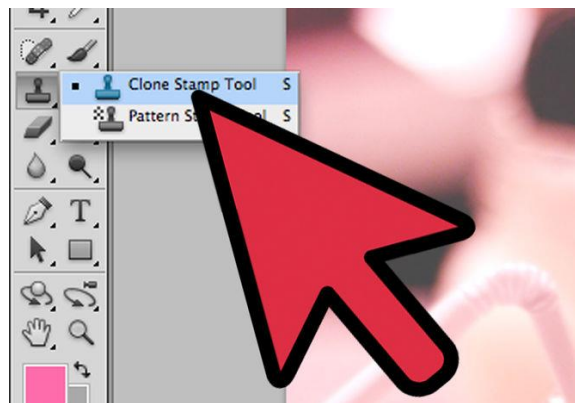
Teaching and Learning Material: Information Technology (Computer Graphics – Print)

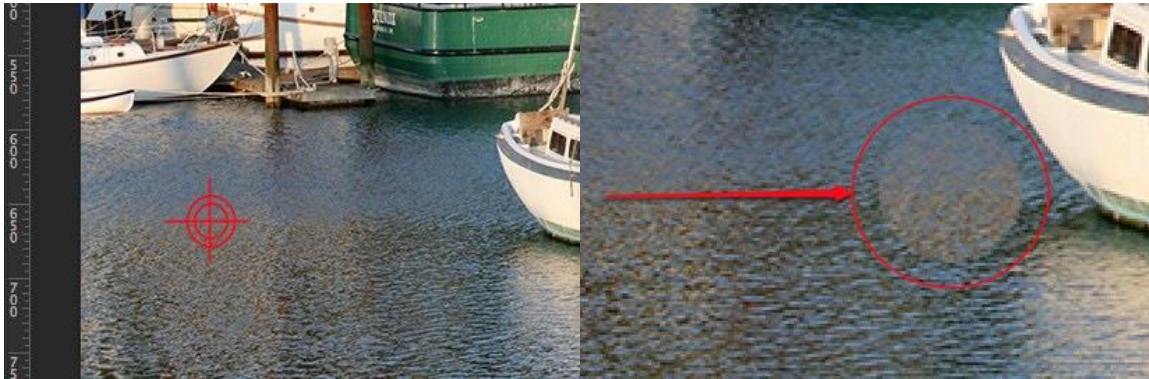3- Select the size and softness of brush from top left corner

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.

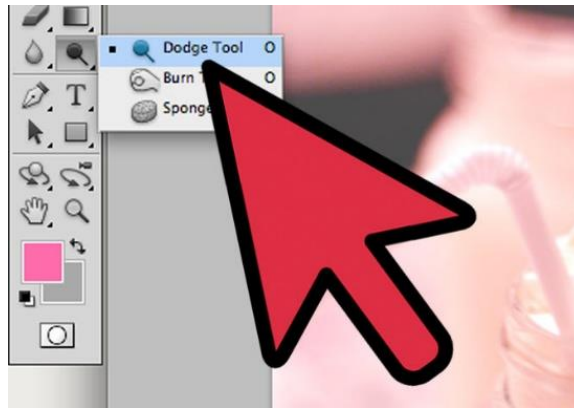**Using Spot Healing Brush** *(paints with a sample or pattern to repair imperfections in an image.)*

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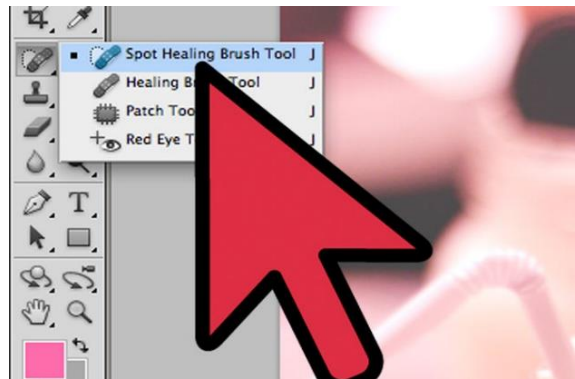
2- Alt-click (click holding down [Alt] key) somewhere on your image to define a sampling point.
3- Paint with the Healing Brush Tool on the damaged area.

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.
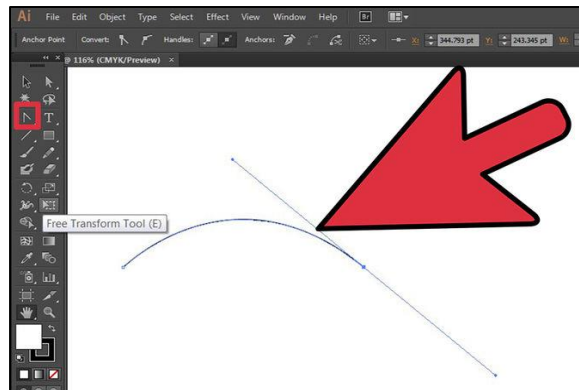

## 2. Procedures of Using Tools in Adobe Illustrator for Creating and Editing Type, and Text

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.
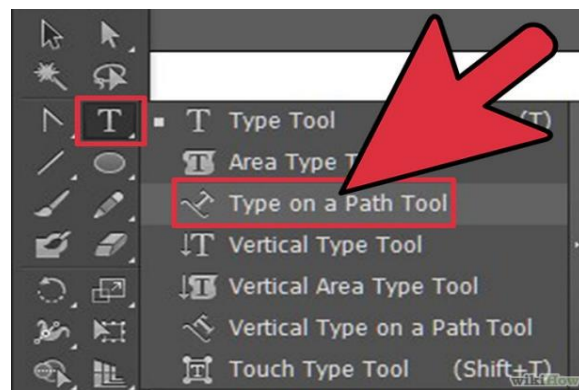
6- From the top menu, choose Window > Type > Paragraph. In the Paragraph Menu, select Align Left. Type a phrase and the text will begin on the left side of the arc and follow the path.
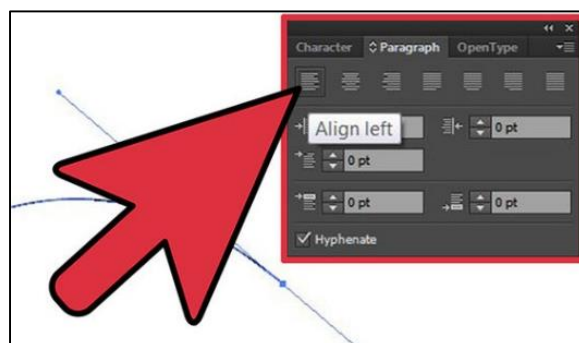
7- To move the text on the path, select the Direct Selection Tool (A) from the Tools Panel and click on the left bracket (near the anchor point). A small perpendicular icon will appear.

Teaching and Learning Material: Information Technology (Computer Graphics – Print)
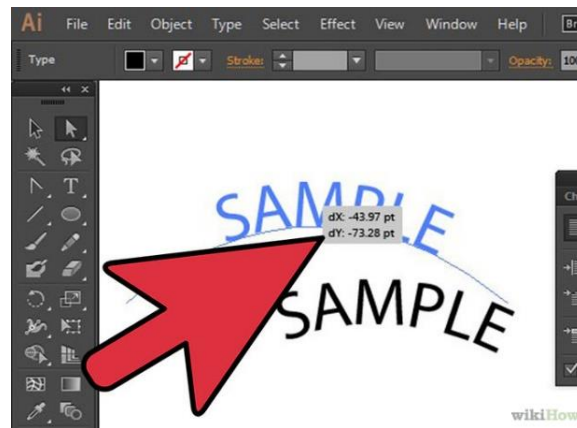
Text on a shape

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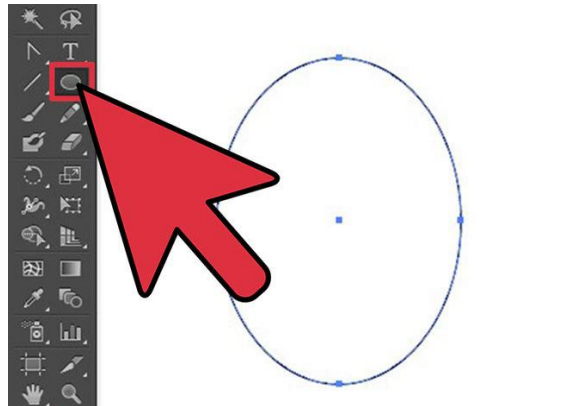
2- Click on the top center of the circle and begin typing. Again, use the brackets and perpendicular icon to drag the text along the circle.

3- Repeat the same steps for text on polygon, square etc.

Create a Text Box
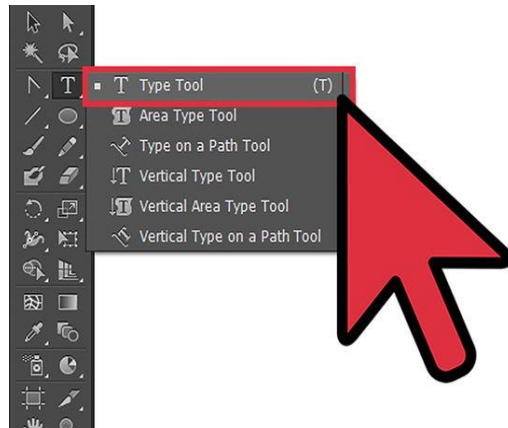
1- Select type tool Icon from Toolbar
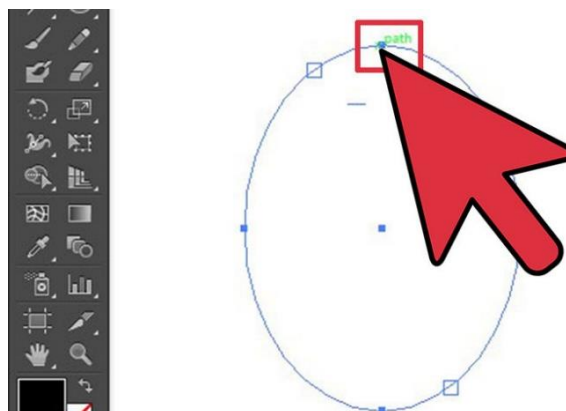
2- Drag mouse to create the size of your text area.

3- Type the text in text box.
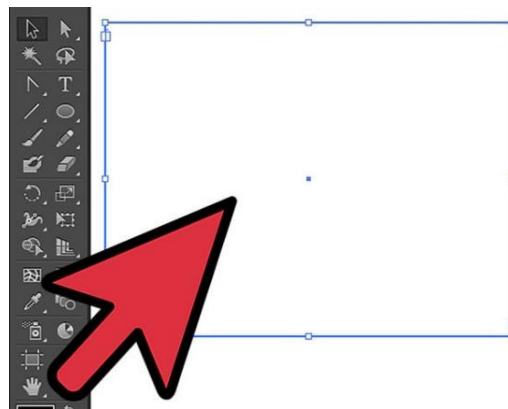
Changing Font Color

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.
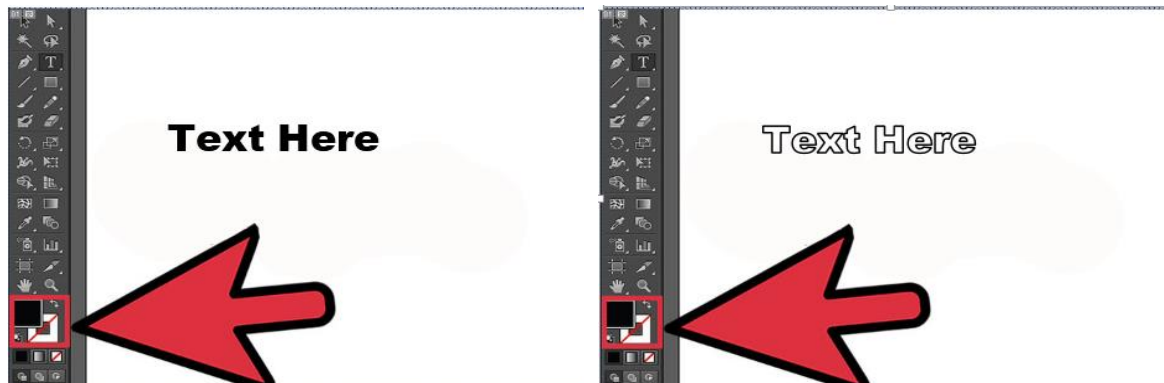
2- The below picture shows text with stroke only.

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.
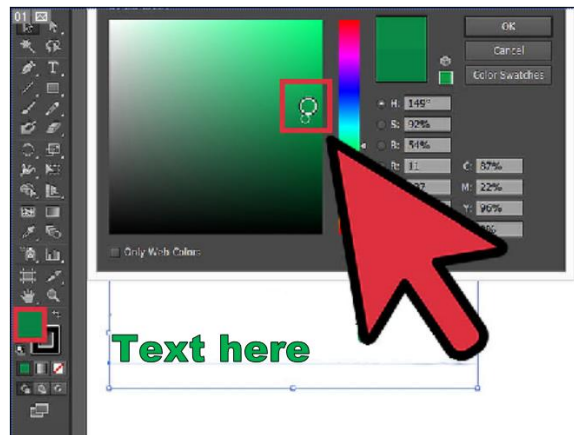
Character Panel

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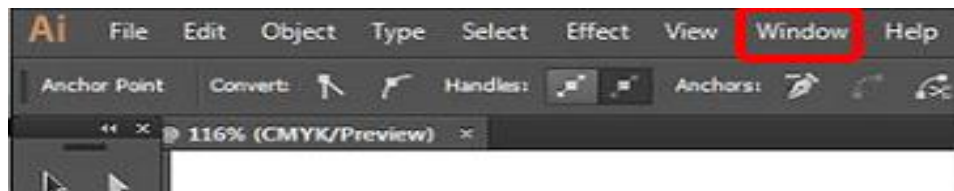
1- Open character panel as window->type->character

2- In the character panel, you can make following changes
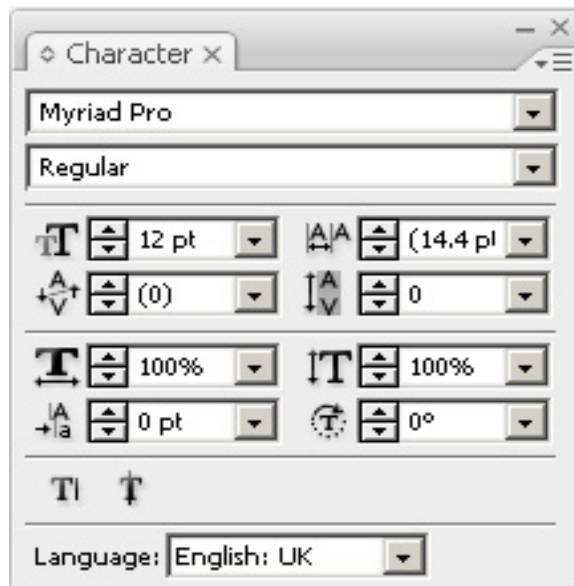
- Font family (in this case Myriad Pro)

- 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
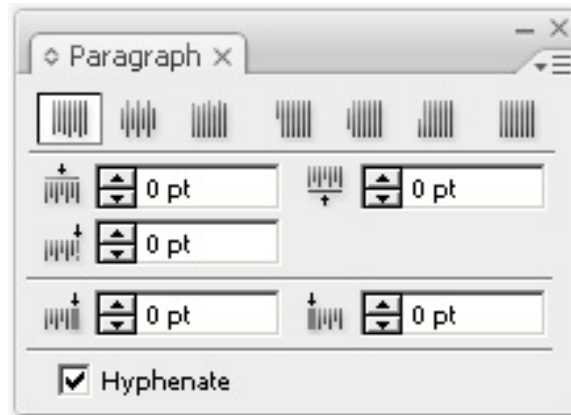
1- Open paragraph panel as window->type->paragraph

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. Procedures for Using Tools in Adobe InDesign

Following are the tools in Adobe InDesign

Teaching and Learning Material: Information Technology (Computer Graphics – Print)
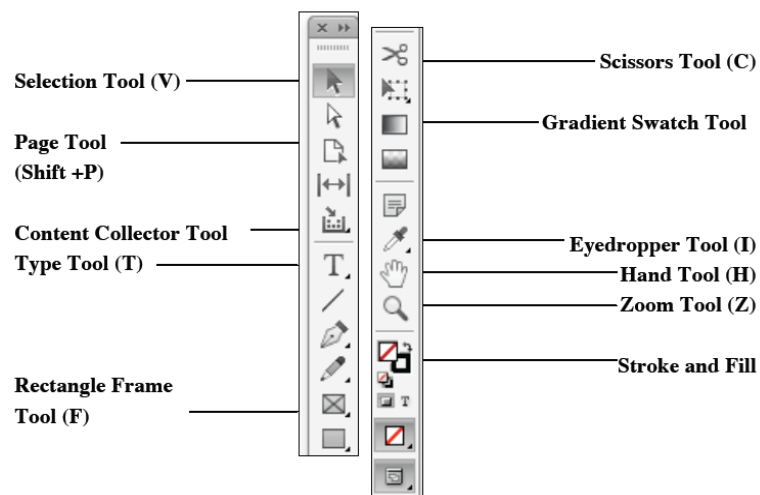
In Adobe InDesign, text is not added to a blank page, instead all the text is added in text boxes.

Typing Text

1- Select the Type Tool (T) in the toolbox.
2- Click and drag on the document to create a text frame.
3- Release the mouse button and begin typing content in the text block.

Importing Text

You can import text from some word processing program like MS word into InDesign.

1- In InDesign, go to File > Place.
2- In the bottom, right corner select the Show Import Options checkbox.
3- Select OR deselect the Replace a Selected Item checkbox depending on whether you want the imported text to replace a pre-existing highlighted item.
4- Select the item from the hard-drive (or any other storage device).
5- Press the Open button.
6- The Microsoft Word Import Options window appears.
7- Select OR deselect the Remove Text and Table Formatting checkbox depending on whether you want to keep or throw away the formatting.
8- Press the OK button.

Flowing Text into Frames

If you have created a text frame, and a red icon ⊞ appears in the bottom, right corner, that you have text that exceeds the boundaries of the text frame.

1- Expand the dimensions of the text frame.
2- Click once to highlight the text frame using the selection tool (black arrow tool).

Adding Text Frames

To add a frame to a thread before an existing text frame:
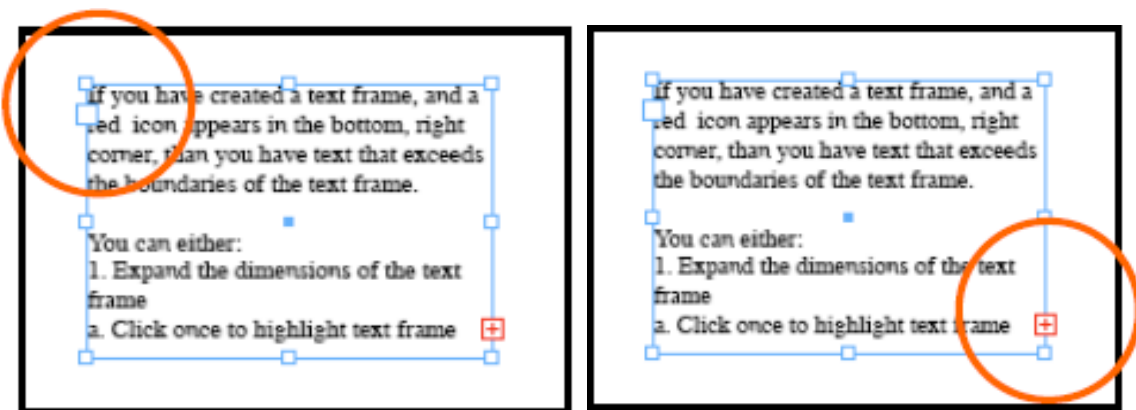
Before an existing text frame   *After an existing text frame*

1- Click once to highlight the text frame using the selection tool (black arrow tool).
2- Click on the white in port in the upper left-hand corner and the mouse cursor will change.

3- Click-and-drag to draw another text frame before the existing text frame.

To add a frame to a thread after an existing text frame:

1- Click once to highlight the text frame using the selection tool (black arrow tool).
2- Click on the (red or white) out port in the bottom right hand corner and the mouse cursor will change.
3- Click-and-drag to draw another text frame after the existing text frame.

Move Text Frames

1- Choose the Selection Tool (black arrow tool).
2- Click once to highlight the text frame.
3- Click-and-drag anywhere in the center of the text frame to move it to a desired location.

Resize Text Frames

Remember

Resizing a text frame doesn't change the size of the type.

1- Click once to highlight the text frame using the selection tool (black arrow tool).
2- Click-and-drag one of the white squares (on the outer four corners) away from the text frame until it enlarges to the desired size.

Deleting Text Frames

Deleting threaded (linked) text frames will not affect the actual content within the frames.

1- Click once to highlight the text frame using the selection tool (black arrow tool).
2- Press the Backspace or the Delete key on the keyboard.

Edit Stories in Story Editor

1- Select text or text frame.
2- Choose Edit > Edit in Story Editor.
3- Edit text and simply close the window after you are finished.

Spell Check

1- Go to Edit > Spelling > Check Spelling.
2- Press the Start button to begin the spell checking process.
3- Press the Done button to end the spell checking process.

Text Frame Options

1- Text Frame Options allow you to change settings in relation to specific text frames.
2- Click once to highlight the text frame using the selection tool (black arrow tool).
3- Go to Object > Text Frame Options.
4- Change number of columns, alignment of text, or change spacing between the text and the frame.

Formatting Text

To change the character formatting (i.e. – font, size, etc.):

1- Make sure the A button is selected in the Formatting palette.

2- Highlight the text using the Text tool.
3- Change the character formatting using the Formatting palette on the top of the screen.

To change the paragraph formatting (i.e. – justification, line spacing, etc.):

1- Make sure the ¶ button is selected in the Formatting palette.

2- Highlight the text using the Type tool.
3- Change the paragraph formatting using the Formatting palette on the top of the screen.

4. Procedures for Using Tools in Corel Draw

Pick Tool Selection
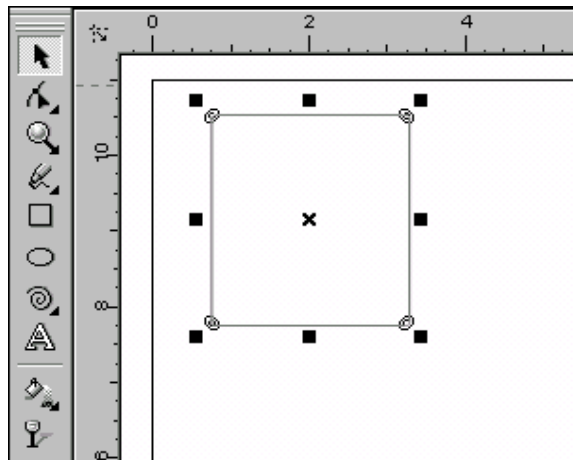
1- Click at the pick tool from the toolbox.
2- Click at the object.
3- Now you can resize the object by dragging the handles.

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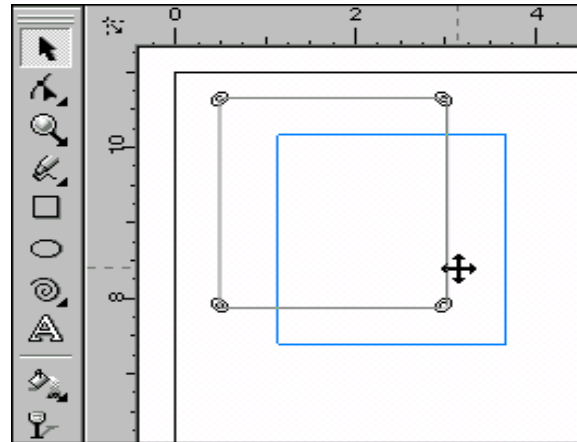
1- Click at the object.
2- Click and drag the object to desired location.
3- Leave the mouse.

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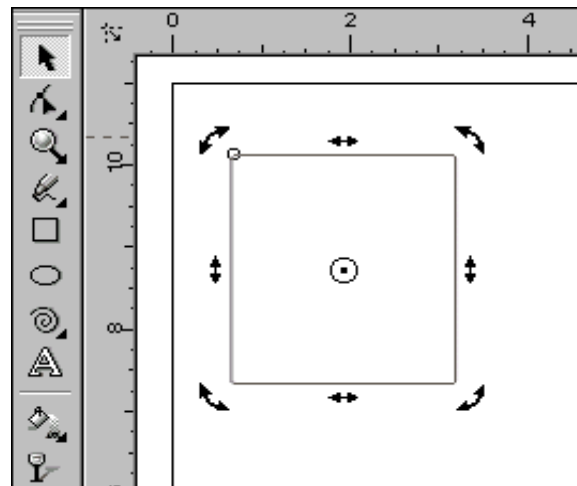
1- Double click the Object.
2- The handles will change into double headed arrows.
3- Click and drag any arrow to rotate from that corner.
4- Hold Ctrl key to rotate with 15 degree angle increments.

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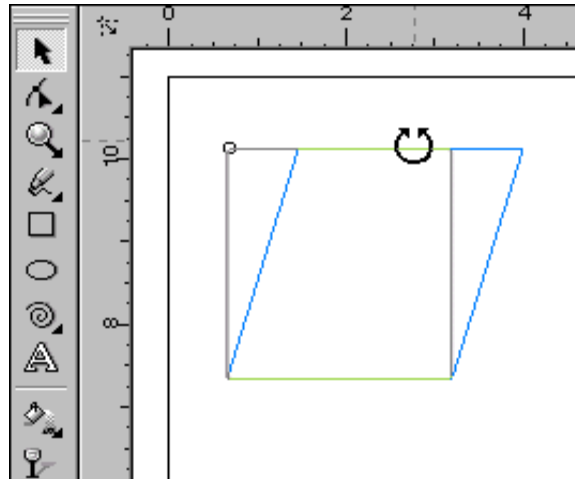
1- Double click the rectangle.
2- Double-ended selection arrows will appear.
3- Click and drag on one of the side handles to skew the rectangle.
4- Release mouse button when desired effect is created.

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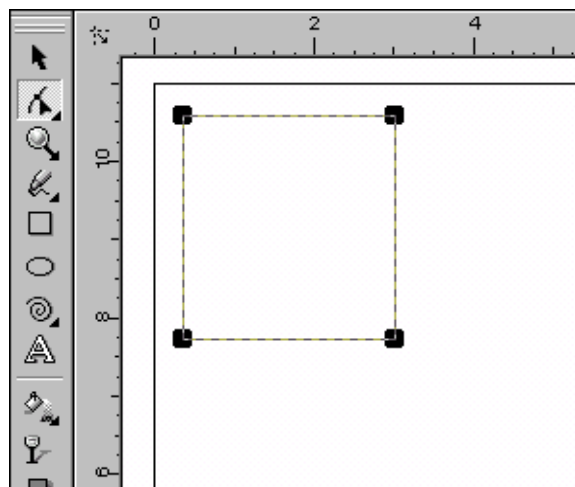
1- Draw a rectangle.
2- Choose the Shape Tool from the Toolbox and click on the rectangle.
3- Note the selection now appears as four corner handles and dotted lines. This indicates that the object is active with the Shape Tool.
4- Click and drag on one of the corner handles. Note how the corners become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

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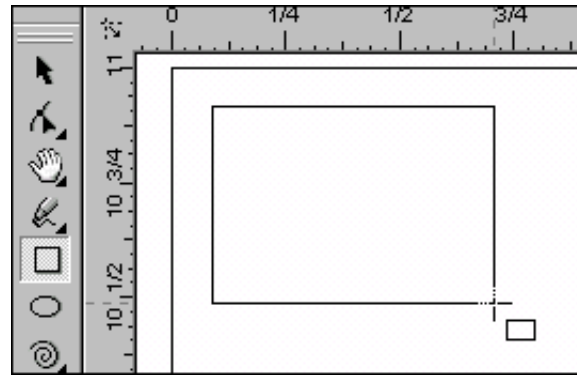
1- Choose Rectangle Tool.
2- Click and drag to create rectangle of the shape and size you desire.

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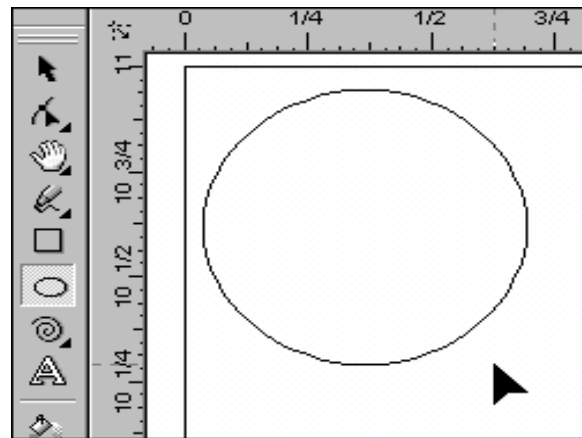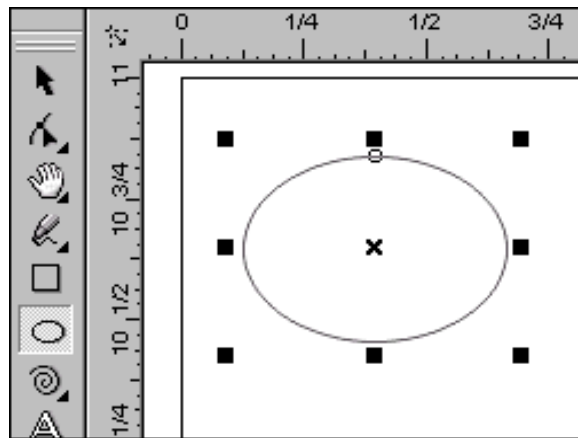
1- Click at ellipse tool from toolbox.
2- Draw an ellipse or hold down ctrl button and draw a circle.

Create a Spiral Object
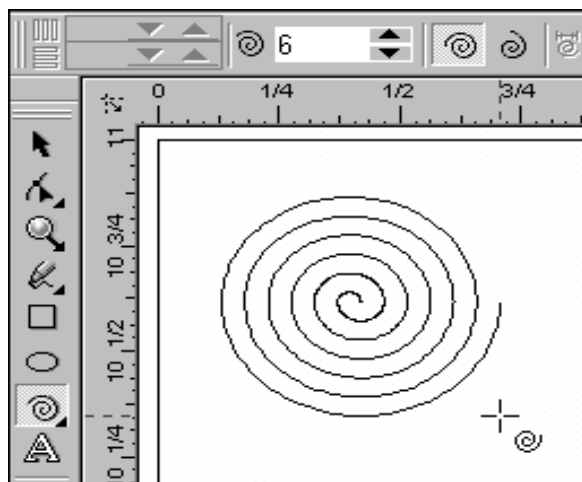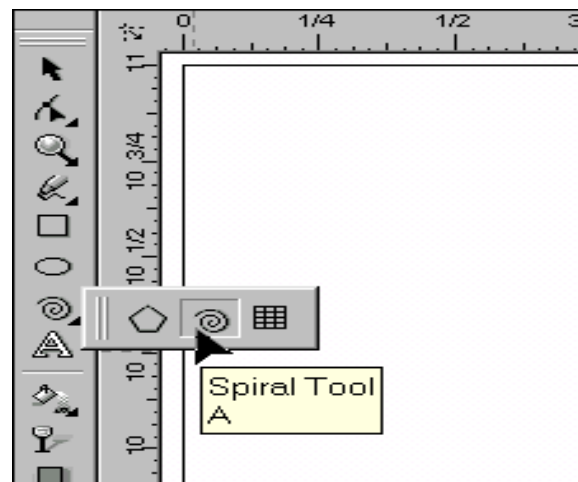
1- Choose Spiral tool from toolbox.
2- Draw a spiral by holding and dragging mouse.

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
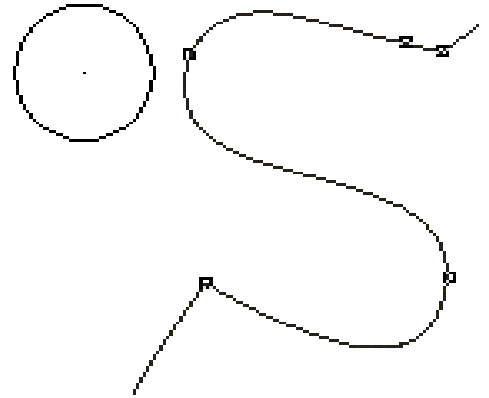
Roughen Brush Tool

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.
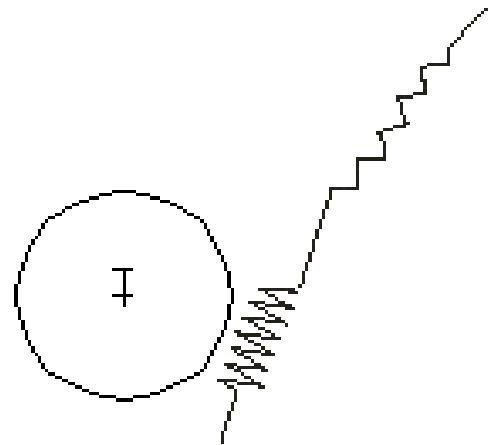
Twirl Tool

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.
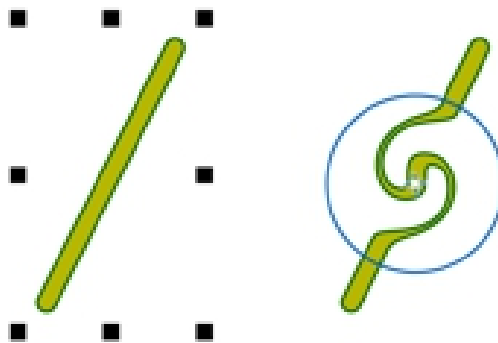
Knife Tool

Slice an object to split it into two separate objects.
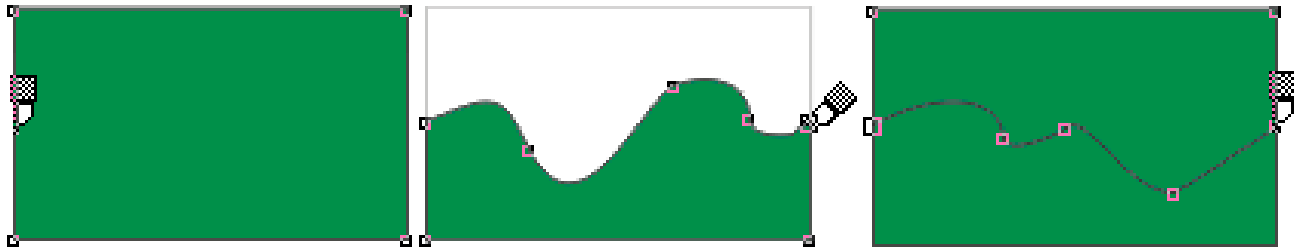
1- Click at knife tool.
2- Point the knife at the outline of the object where to want to start cutting.
3- Click and drag the knife along the path towards the target point.
4- Release the mouse.

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.
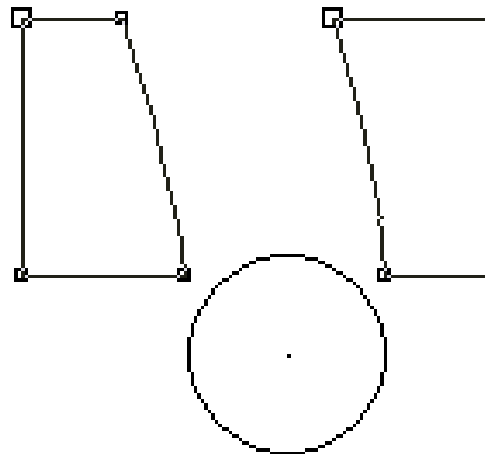
Bezier Tool

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.
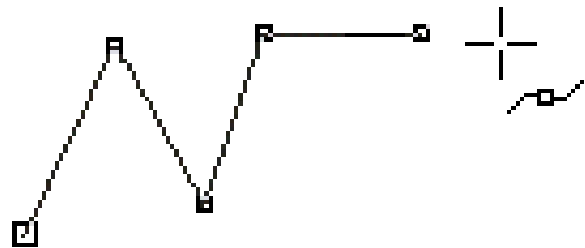
Blend Tool

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

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.
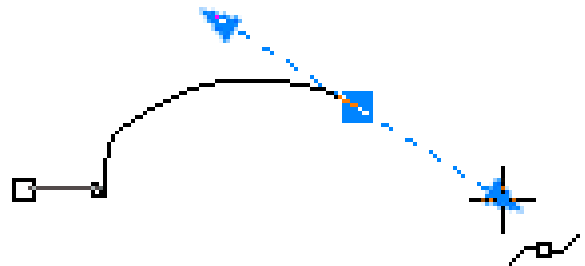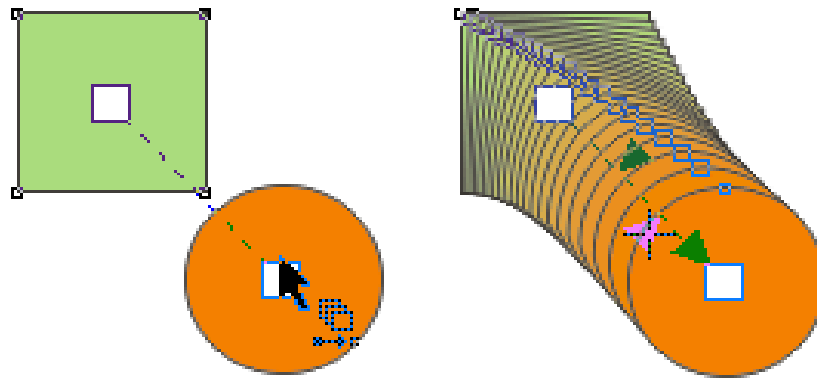
4- A series of blended objects will be created from starting point to ending point.

Summary of Module

- Dot/ Point is the smallest and the most basic element of design. A line is a form with width and length, but no depth. 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 refer to the color of a design element.

- You can have balance in your design by adjusting the graphical weight of your design elements in terms of color, 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 surface.

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

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

- 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, color scheme, grid and font etc.

Frequently Asked Questions (FAQs)

FAQ 1:	Which are the two types of lines?
Answer:	1- Solid Continuous line meeting two points. 2- Dotted or dashed line. Both can be drawn using any tools like pen or brush.

FAQ 2:	What is a geometric shape?
Answer:	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.

FAQ 3:	What are positive and negative space?
Answer:	Positive spaces are the shapes that the artist places in the design. The space around the positive space is called negative space.

FAQ 4:	What feelings do the direction 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 color, size and contrast.

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

FAQ 8:	How can we achieve asymmetric balance?
Answer:	Asymmetric balance can be achieved by value, by texture and by space.

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 color (opposite colors on the color 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 color 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 colors in design?
Answer:	Warm color make you think of sunlight and warmth. Cool color. Cool colors are calming, relaxing and closer to nature. Neutral colors often serve as the backup colors in design

FAQ 16:	What is typography?
Answer:	Typography is the art and technique of arranging type 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 color around the shape   d.   Present inside the positive shape

4.   Tactile texture is _____.

a.   The texture that is of bright colors   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 color

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 color.**

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 Number	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:

- Identify the requirements and needs of target market/ audience

- Identify the unique selling point of product or service

- Express implement the idea in visual form in the design

- Design effective brand guidelines

- Develop color themes based on brand guidelines

- Use brand guidelines in their design creation

Teaching and Learning Material: Information Technology (Computer Graphics – Print)

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 can be based upon 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, Charles Revson, founder of Revlon, always used to say he sold hope, not makeup. So they based their USP at product characteristics. Some airlines sell friendly, while others sell on-time service. Neiman Marcus sells luxury, while Wal-Mart sells bargains referring to price structure

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.

Design your unique product

Identify unique aspects of your product

Know what motivates clients purchase behavior

Decide client's emotional need to be met

Analyze the needs of target audience

Find Unique Selling Point for your product
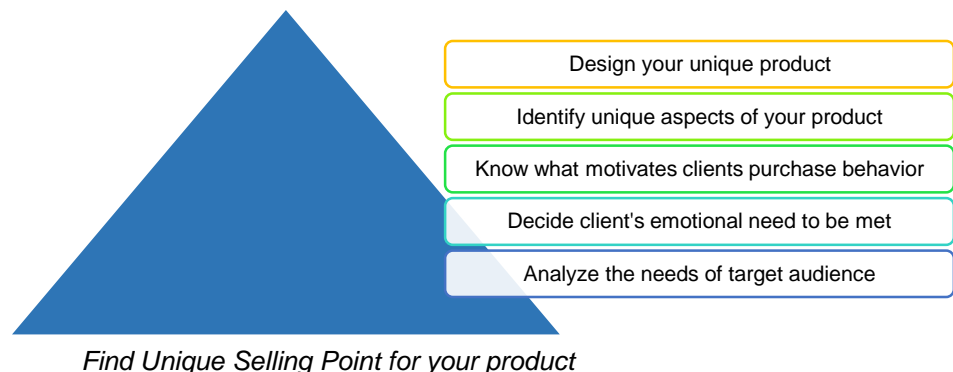
Sometimes a company focuses on one particular "P," which also drives the strategy in other areas. A classic example is Hanes L'Eggs hosiery. At the start when hosiery was sold primarily in department stores, Hanes opened a new distribution channel for hosiery sales. That was the idea because hosiery was a consumer staple so it should be sold in grocery stores. So placement strategy was their unique selling point.

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.

Understanding Customer's needs

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. Identify Motivation to your Customer's Behavior and Buying Decisions

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

> **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.

- 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.
- The consumer's buying behavior may also change according to social class.
- A consumer from the lower class will be more focused on price. While a person from the upper class will be more attracted to elements such as quality, innovation and features, etc.
- Sometimes customers purchase to follow a new trend in the market or society to be a part of innovation.

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.

A purchase decision is the result of each and every one of these factors. By identifying and understanding the factors that affect their customers, brands have the opportunity to develop a strategy, a marketing message (Unique Selling Point) and advertising campaigns more efficient and more in line with the needs and ways of thinking of their target consumers. A real asset to better meet the needs of its customers and increase sales.

5. Identify Unique Aspects of Product

Competitor

A company in the same industry or a similar industry which offers a similar product or service.

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. Create Design About your Unique Product or Service

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.

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: Define Particular Branding 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. Also, you will be able to demonstrate the development of brand guidelines, themes and manual, keeping in mind the elements and principles of design, perspective, typography and color theory.

1. Pick up the Big Idea which 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.

This is the idea that defines 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.

Teaching and Learning Material: Information Technology (Computer Graphics – Print)

Likeability

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

Look at the following examples:

With Land Rover you can get off the beaten track anywhere in the world.

Where families share the magic

For **Land Rover**, "off the beaten track" carries the double meaning of, Land Rover's world renowned off-road capabilities as well as, the mindset of so many of its loyal drivers…who love nothing more than the escape only Land Rover can give them.

And for **Disney**, No entertainment brand in the world better satisfy parent's and kid's desire to share the magic of fantasy and reality with each other.

2. Live the Brand; Design the Guidelines

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.

Your brand not necessarily what you want it to be but, it is 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.

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.

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:

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

✓ 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.

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. Create Brand Guidelines, Brand Manual and Themes According to Design Principles and Color Theory

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

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.

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

<table>
<tr><td>Do you know!

Variations of logos are used at different places like black and white documents, social media, packaging, attire etc.</td><td>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</td></tr>
</table>

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.
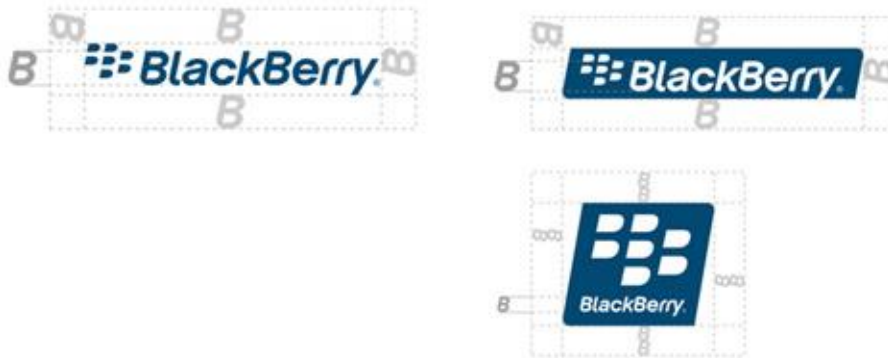
Spacing in BlackBerry Logo

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.

Typography Information

Typography details in Cunard Brand Guidelines

Color

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).

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
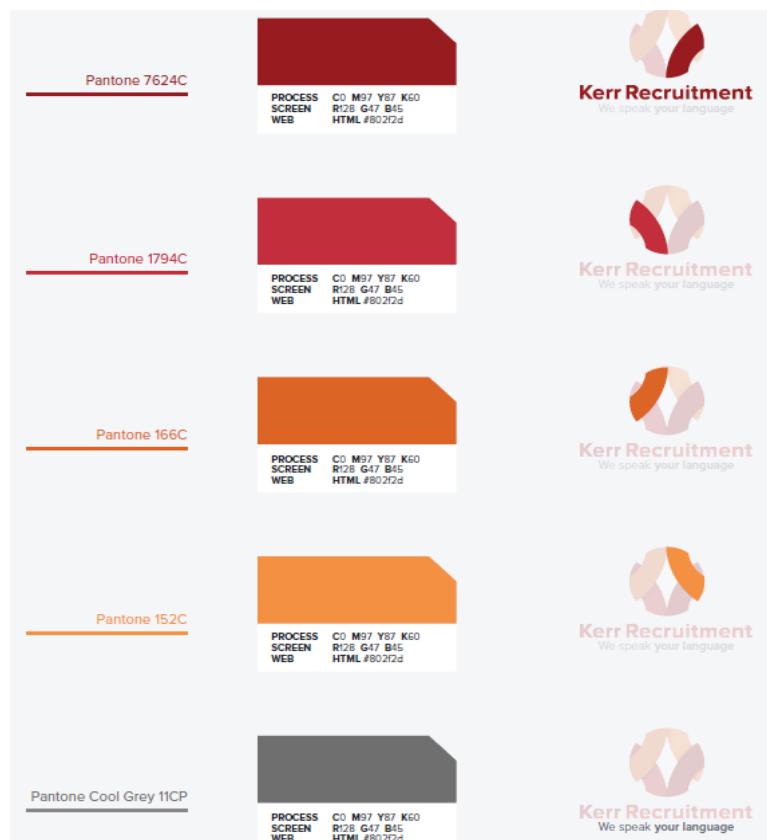
Colors in Kerr Recruitment Logo

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.

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

Learning Unit 3: Visualize the Layout of the Concept Following Brand Guidelines

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 idea. These

<table>
<tr><td>

Remember

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

</td><td>

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

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

designing.

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 the Page or Canvas Layout Based on Brand Guidelines

Whether you're designing a page for print, or a website, there are some common principles you should follow. Page layout typically involves a lot of placement, rearranging and formatting of elements. Many designers carry out this process naturally, resulting into a desired product. While this can lead to some excellent product, there is a risk that it can result in a lack of visual balance on the page.

A good page composition should be pleasing to the eyes and also communicate key messages clearly to the intended audience.

These approaches will help you to create a balanced layout.

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

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

provide a sense of order to your layout, providing the reader with 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.
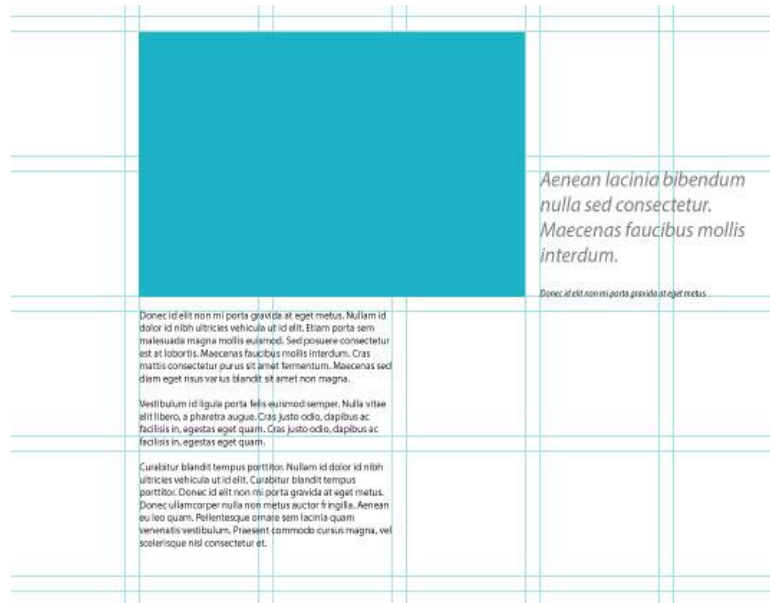
Use of Grid in Designing Page Layout

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.
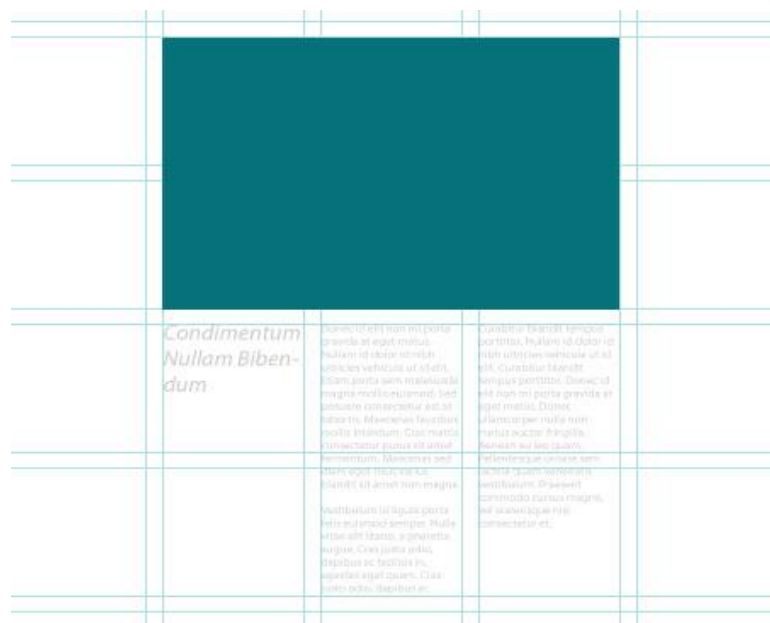
Use of Focal Point in Design

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.

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.
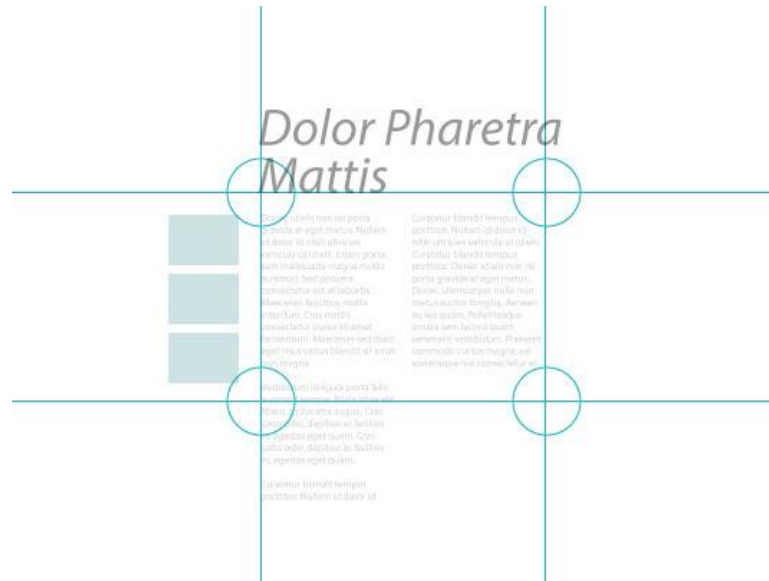
Use of a Rule of Thirds

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

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.
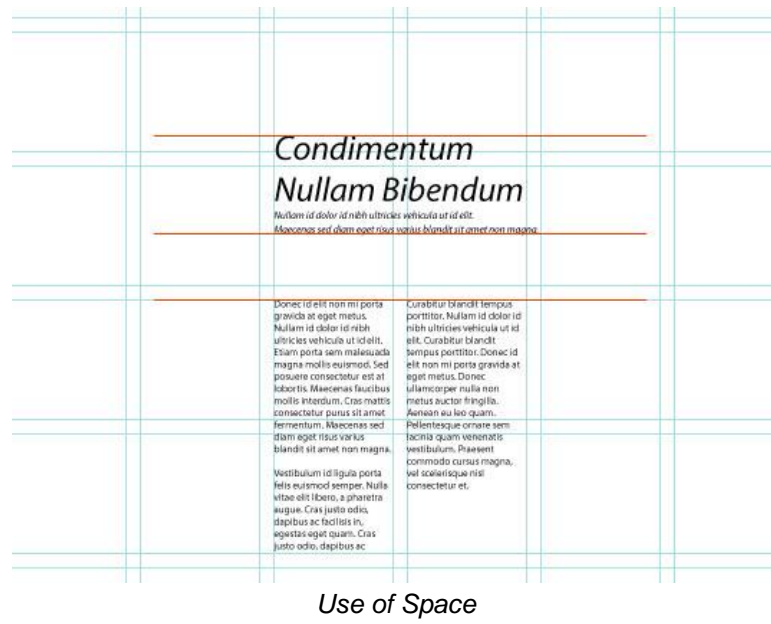
Use of Space

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).

Repeat Design Elements
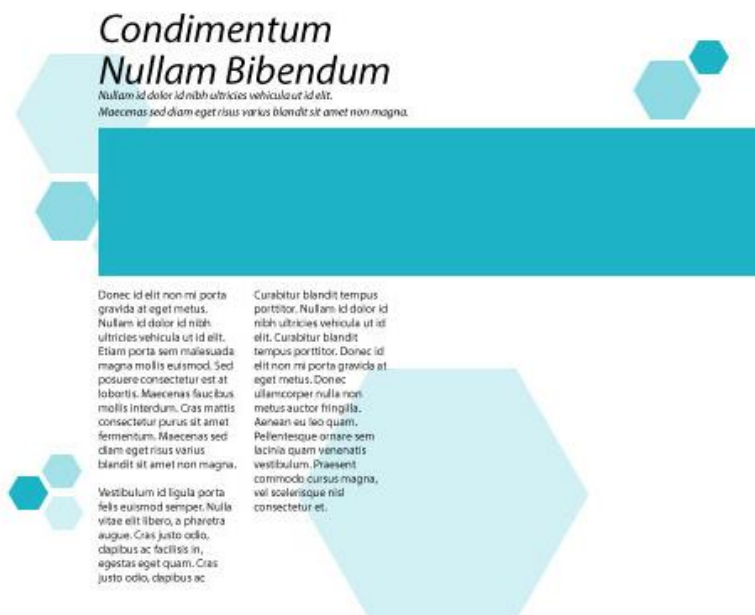
Repetition of Design Elements

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.

Remember

Repetition can also provide a focal point in your design.

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.

Use Scale, Contrast and Harmony
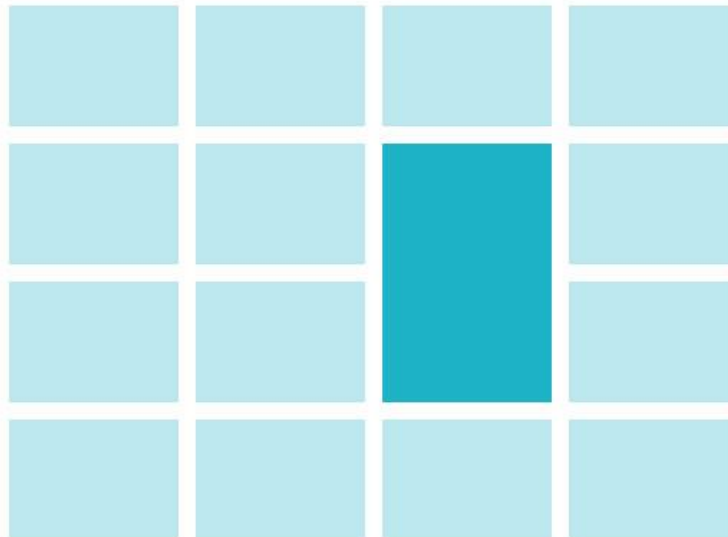
Repetition in Design

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. Identify the Composition of Elements following the other Concepts

The primary objective of a design, whether it's for a printed brochure or the latest web app, is to communicate information clearly and effectively to the reader.

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 define your Unique Selling Point efficiently through colors, typeface, theme, graphics and text. It should cover the complete idea so that your USP can be better comprehend by the customers.
2- Accurate identification of the client's needs and requirements is also important for the design. 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 of 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- Accurate description of the appearance of the final layout should be available in the Guidelines developed for the brand.
6- The colors used in the design layout should be according to the guidelines of brand.
7- Typography, line height, typeface, font size used should also be according to the defined guidelines.
8- 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. Collection, Organization and Application of Material in the Layout

Page layout is the part of graphic design that deals in the arrangement of visual elements on a page. It generally involves organizational principles of composition to achieve specific communication objectives.

The material/information needed to develop a layout includes:

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.

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.

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.

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.

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.
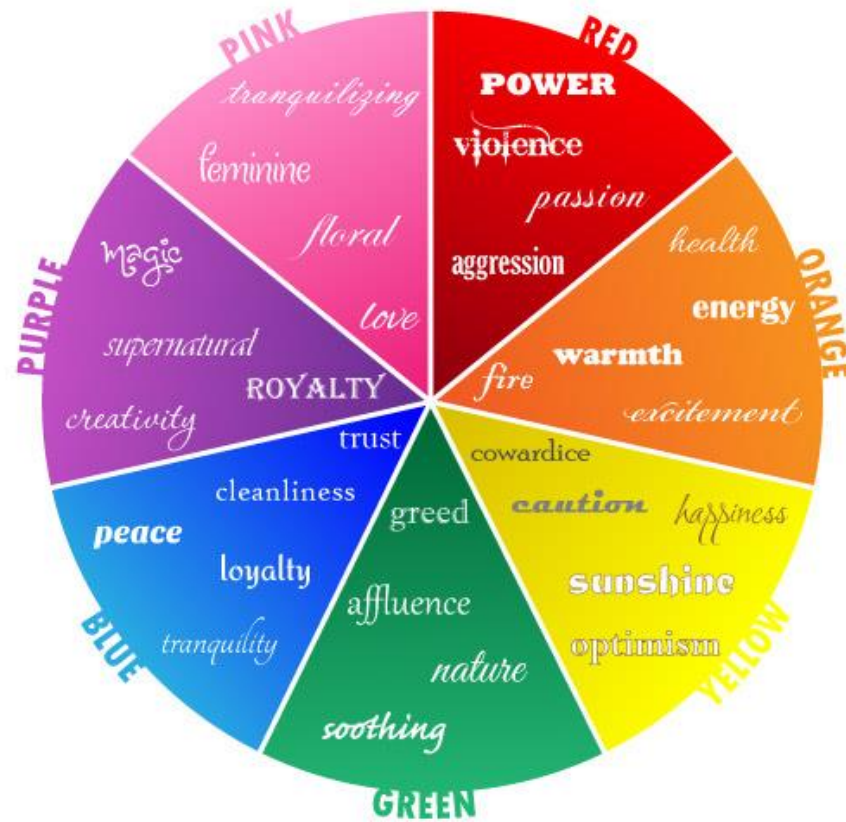
Intended Meanings of Colors

The objective describes what the information on the printed page is intended to do. Knowing the purpose helps the layout artist determine which text, colors and illustrations will be best for the job.

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 idea before forgetting.

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

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 is unique selling point important for a brand?
Answer	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.
FAQ 3:	What factor motivate 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:	What is the difference between feature and 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 or 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 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.

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

Answer Key

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

Module 3: Analyze Cost Effective Solution

Learning Outcomes

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

- Select the suitable document size in terms of medium of publication.

- Select appropriate printing process and orientation of document size.

- Propose cost effective printing process and get familiar with local and international names of paper sizes and printing machines.

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

- Differentiate between various types of printing material and their weight

- Identify suitable printing textures.

Learning Unit 1: Determine Suitable Size of the Document

Overview

In this learning unit, you will learn the concepts about papers used for printing. After completion of this learning unit, you will learn to select suitable paper size for printing, process for printing, orientation of paper size. You can propose a cost effective printing process and know the international names of paper sizes and printing machines.

1. Paper Sizes Available for Printing

In print advertising companies we have to deal with different types and sizes of papers for example, newspapers, magazines, advertising and sales material etc. if you want to have desired results, you need to do some research on different sizes of papers available for printing and deliver a file to the printer that is ready to print.

If you don't use the exact paper size then printer need to resize the document to fit, and if it is not proportionate it will be either stretched or squished to fit. That will result in bigger charge for the client in the end, and poor quality in most cases. There are several projects that different sizes can be used for.

> **Do you know!**
>
> Paper sizes always bring confusion and exact measurements make a difference, even half of an inch does matter a lot.

Below are a few basic paper sizes:

Letter Size - 8.5"x11":

This is the most common size used in most commercial communication aids such as fax machines and copy machines, as well as being the standard print size for home inkjet printers.

Legal Size – 8.5"x14":

This size is offered on almost every printer, most likely any printer that is built to handle 8.5"x11" paper can handle this size because the width is the same. This size is used for larger flyers, brochures and works well with Microsoft Excel projects.

Tabloid Size - 11"x17":

Some home printers can handle this size, but you will find these printers are much larger than other at home ink jet printers. This size is great for flyers, brochures, signs and 4 pages flyers as well. When you fold the 11"x17" paper in half it will create 4 8.5"x11" panels which is great for announcements, programs and small booklets.

Letter Half Size – 5.5"x8.5":

This size is the standard letter size (8.5"x11") cut in half. This is a common size for direct mail pieces and inserts for magazines and booklets. There are several sizes for direct mail pieces, so you will need to check with your printer to find out the sizes that they offer.

A4 – 8.27"x11.69":

This paper size is most commonly used to create magazines catalogues, letters and forms etc.

A3 – 11.69"x16.53":

It is most commonly used for printing drawings, diagrams and large tables. It is also used to print two A4 documents on same spreadsheet.

The paper sizes of A4-A1 in mm is as

- A1   594mm X 841mm
- A2   420mm X 594mm
- A3   297mm X 420mm
- A4   210mm X 297mm

Compact Disc – 4.72"x4.75":

This size is specific for CD covers and inserts.
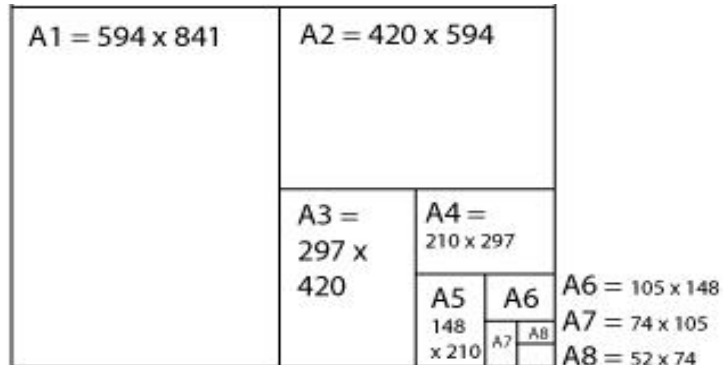
Postcards:

- Standard: 5.47"x4.21"
- Oversized: 8.5"x5.47"

Business Cards:

- No Bleed Horizontal: 3.43" x 1.93"
- No Bleed Vertical: 1.93"x3.43"
- Bleed Horizontal: 3.54" x 2.05"
- Bleed Vertical: 2.05" x 3.54"

Banners:

There are several standard banners size. That can be customized according to the client's need.

2. Procedures of Creating Custom Paper Sizes in Graphic Software

Panorama

Panorama printing represents any wide angle painting, drawing, photography and 3-D models.

For scrapbook 12x12 sheets, panorama printing, and other special projects, you need to define a custom paper size in printer properties.

Creating custom paper size in Adobe Photoshop

1-   Open your image in Adobe Photoshop.
2-   Click at file->Print.
3-   Select the printer from the dropdown menu and click at print settings
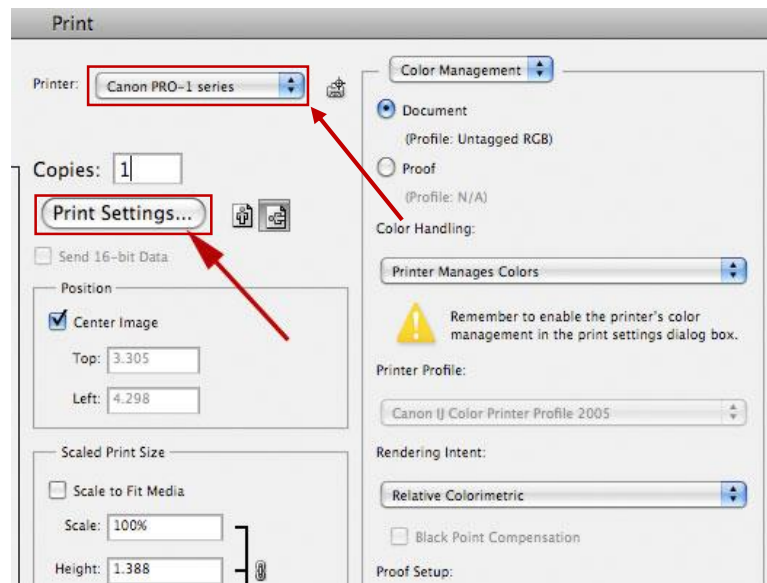
4- Click at paper size drop down menu.
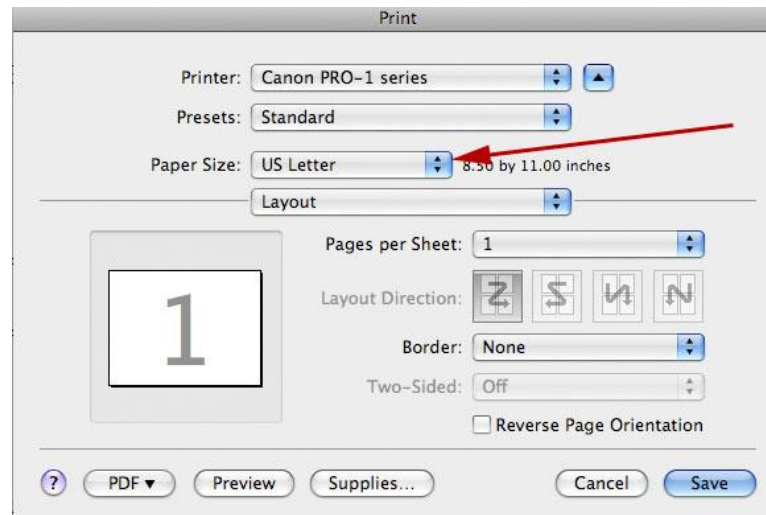
5- Under "Paper Size" choose "Manage Custom Sizes".
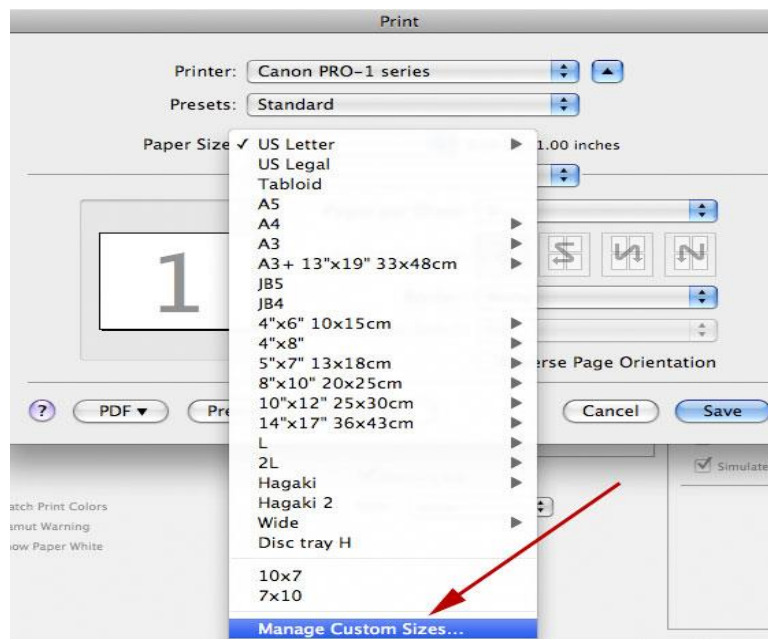
6- Set page height, width and margins.
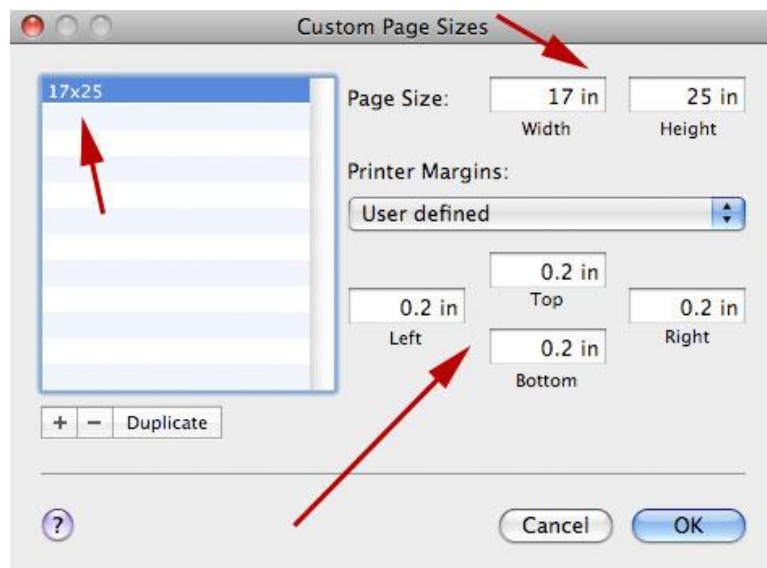
7- Click Ok.

Creating custom paper size in Corel Draw:

Remember	
After you create a custom paper size, it will be saved in the graphic software for future use.	1- Open your file in Corel Draw. 2- Click at Layout->Page Setup
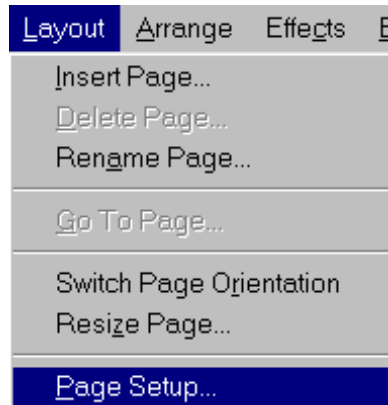
3- Choose size from options list, enter the height and width of the page. We can also set page orientation here to Portrait or Landscape
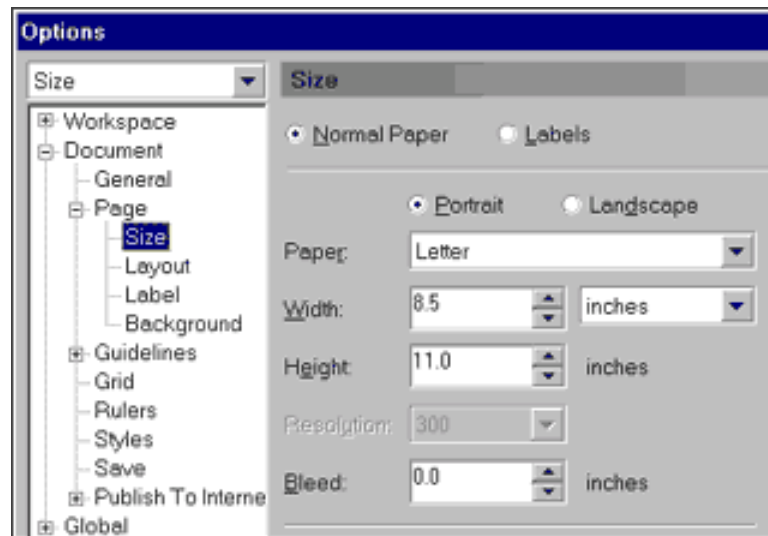
4- Click Ok to save your settings.

3. Page Orientation

The two most common types of orientation are portrait and landscape. All software allow the page orientation to be selected.

Select an orientation according to your requirement and design of your page. Following are the procedures to change orientation.

Page Orientation

Page orientation is the way in which a rectangular page is oriented for normal viewing.

Changing page orientation in Adobe Illustration

Page orientation can be changed either at the time of creating a new document or later on.

1. When creating a new document, change the orientation by clicking the portrait or landscape icon.
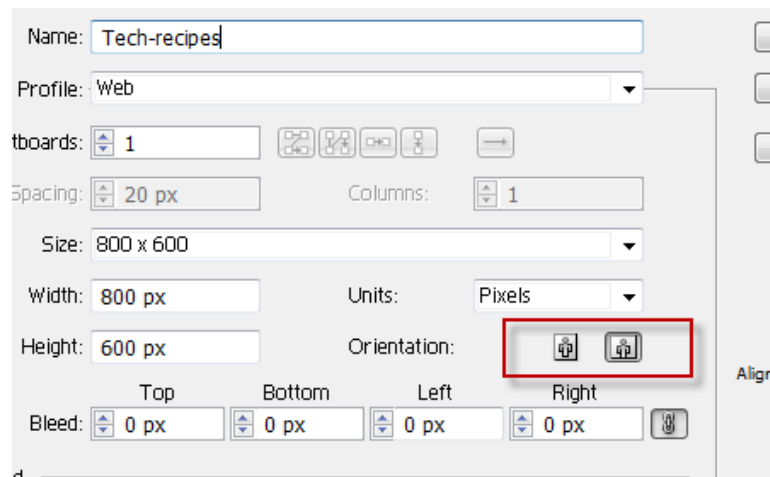
To change the orientation of an existing document,

1- Click the Art board tool on the left side.
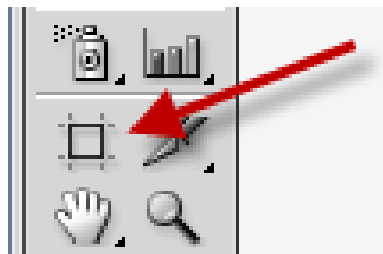
2- Page orientation icons will appear at the top. Click the mode that is required.
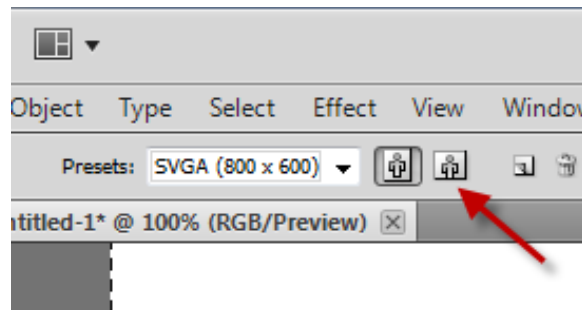
3- To change the orientation of the objects for printing purposes, go to File -> Print.

4- When the Print window pops up, make sure that you are in the general section.

Remember

It is better to choose a page orientation at the start of new document and composed the document in that orientation.
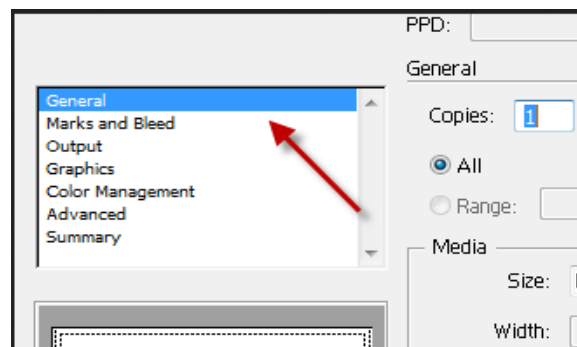
5- Check the Auto-Rotate option, and choose the orientation from the set. Available options are as follows: Portrait Up, Portrait Down, Landscape Left, and Landscape Right.

6- After configuration, click Print or Done at the bottom.
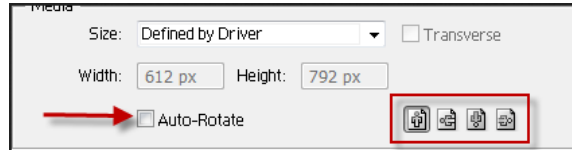
Selecting Page Orientation in Adobe InDesign:

1. When creating a new document, you can change the orientation by clicking the portrait or landscape icon.
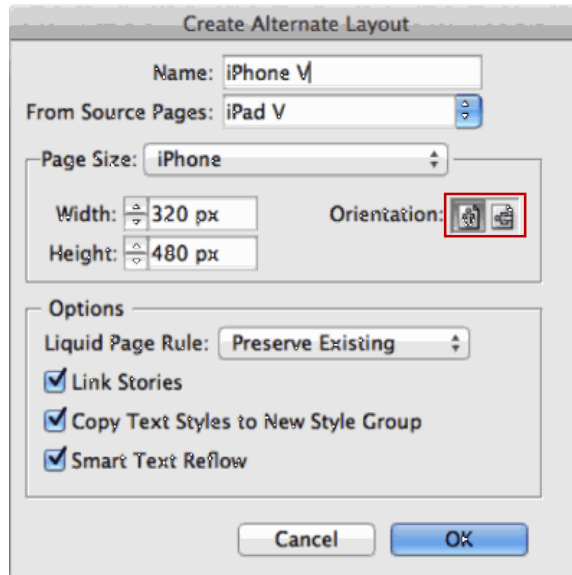
To change page orientation while printing

1- Click at File->Print.
2- Select setup from options in the print dialogue box.
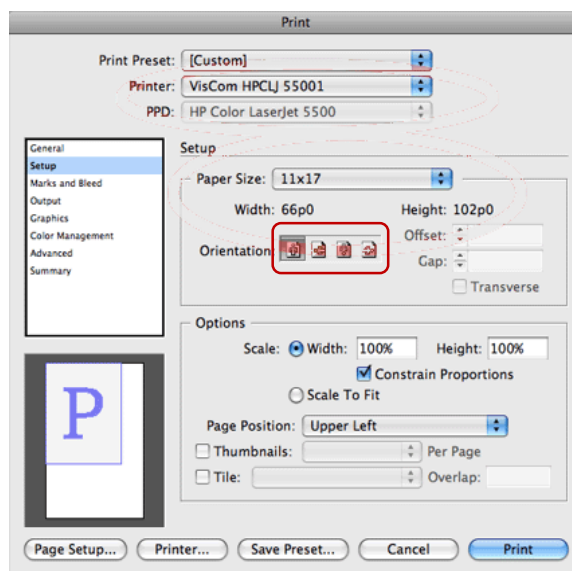
3- Choose the orientation from the section and click print button.

4. Offset Printing Process

Offset Printing

Offset printing is a commonly used printing technique in which the inked image is transferred (or "offset") from a plate to a rubber blanket, then to the printing surface.

Offset printing is the most widely used printing technique for a wide range of products such as books, newspapers, post cards, envelops, stationery and posters etc.

In offset printing, a printing plate, which is mostly made from aluminum, contains an image of the content that needs to be printed. When the plate is inked, only this image part holds ink. That inked image is then transferred (or offset) from the plate to a rubber blanket and then to the printing surface. There are two types of offset printing machines.

1-   Sheet-Fed offset printing

In this printing machine the printing is carried out on a single sheet of paper. As they are fed to the press one at a time.

2-   Web-Fed offset printing

The process can be used to print on paper, cardboard, plastic or other materials but these have to have a flat surface.

A Four Color Sheet-Fed Printing Press

Above is a picture of a four color sheet-fed printing press.

- At the far end is the intake where individual sheets of paper are automatically fed into the press.

- The 4 towers or printing units each print one color, typically black get printed first, followed by cyan, magenta and yellow.

- The stack of printed sheets is visible on the front of the machine, underneath is the press console & monitor which controls the press.

Remember

For higher volume work offset presses use rolls of paper.

The picture below shows such a larger web press. It is so fast that the printed paper needs to be force dried. The black unit at the end of the press is an oven. Offset printing this process is considered the most cost-effective that is why many in the industry prefer this process. This also allows publishers to print. High quantity of prints in faster time because the printing machine is very quick and easy top set up as long as plates are already available.

A Larger and Faster Web Press

Roland

Ronald range of offset presses includes single edge, single width printing machines. The basic unit of web offset printing press consists of a body of high grade, stress-relieved cast iron which is machined on sophisticated Computer Numerical Control (CNC) machines to ensure interchangeability.

Ronald Offset Printing Machine

Rota

The Rota consists of a rotary table with automatic pad printing machines for a more-color print up to maximum 6 colors.

The output is from 800 up to 1200 cycles per hour.

- From 8 up to 16 positions according to the model

- Ink cup diameter: 90 mm up to 220 mm
- Depending on the model it is possible to mount 1 up to max. 6 pad printing machines
- The number of pad printing machines on the rotary table determines the number of colors without output decrease
- All jigs are quickly changeable on the rotary table and easily accessible
- The patented ink cartridge allows easy and fast changing of printing plate and ink on all pad printing machines
- The pad is quickly changeable on each pad printing machine. We provide a magnetic fastening with accurate positioning by means of dowel pins.

Rota Offset Printing Machine

Solna Offset Printing Machine:

Solna offers a wide variety of single-width web presses-in both horizontal and vertical formats. Historically, web printers were either horizontal or vertical, but Solna offers both types of presses to match the production needs. It is commonly used for newspaper and commercial printing.

Solna Vertical Press   *Solna Horizontal Press*

Heidelberg

With the Speedmaster machines, Heidelberg offers the most comprehensive product series within the sheet-fed segment. The performance of all the SpeedMaster models of heidelberg is very high. Both small and large format machines Speedmaster machines deliver very good productivity. They provide a performance solution which is flexible, cost-effective and innovative.

Heidelberg Sheet-fed Press

5. Digital Printing Process

Modern printing methods such as laser and ink-jet printing are known as digital printing. In digital printing, an image is sent directly to the printer in the form of digital files such as PDFs and other files from graphics software such as Illustrator and InDesign. This eliminates the need for a printing plate, which is used in offset printing that saves money and time.

> **Remember**
>
> We don't need plates for digital printing, so faster printing is possible with the help of laser/inkjet printers.

Setup

The setup for digital printing is very easy

- Install the printer driver in the computer.
- Prepare the design in the graphics software.
- Insert paper sheet to be printed on.
- Send the design to the printer directly
- Print it out…

PROS

- Incredibly fast! If you are working within a tight deadline and just have to get it done, digital printing could be your best option.
- Less Expensive. If you have a low quantity (less than 1000 pieces), digital printing is far more cost effective than traditional offset printing.
- Greater Flexibility. Allows for frequent changes to your printed material if needed.
- The Printer Proof helps you to get the output just as you want.

CONS

- Unable to Color Match. Despite digital printing constantly improving, they still can't match the color quality of traditional offset printer. Digital printers use a four color process while traditional offset printers use the PMS and inks to deliver color accuracy.

- Cracking in the Folds. Digital printer inks are not fully absorbed into the paper which means that cracks can appear in the color along the edges when the piece is folded. This typically isn't a problem in traditional offset printing.
- Fewer Material Options. Digital printing presses don't have a wide range of choices for the materials to print on. Traditional offset presses still offer a wider range of paper, ink and finish options.
- More expensive in higher quantity print runs. While you may need a project fast, if you have a higher quantity (more than 2500 pieces), traditional offset pricing normally becomes more cost effective.

6. Screen Printing Processes

Screen Printing

Screen Printing is the process of using a mesh-based stencil to apply ink onto a substrate, whether it be T-shirts, posters, stickers, vinyl, wood, or other material.

Screen printing is a printing technique where a mesh is used to transfer ink on a substrate, except in areas made waterproof to the ink by a blocking stencil. A blade is moved across the screen to fill the open mesh openings with ink, and in reverse stroke the screen touches the substrate for some time along a line of contact. This causes the ink to wet the substrate and be pulled out of the mesh openings as the screen springs back after the blade has passed.

Screen Printing Press

It is also known as screen, silk-screen, serigraphy, and serigraph printing. One color is printed at a time, so several screens can be used to produce a multicolored image or design.

Setup

The print station is the point at which the printer will stand. This is where the printer will operate the press.

The shirts are loaded onto the pallets here and then after all the colors have been printed, the shirts are unloaded and put onto the belt dryer from this position.
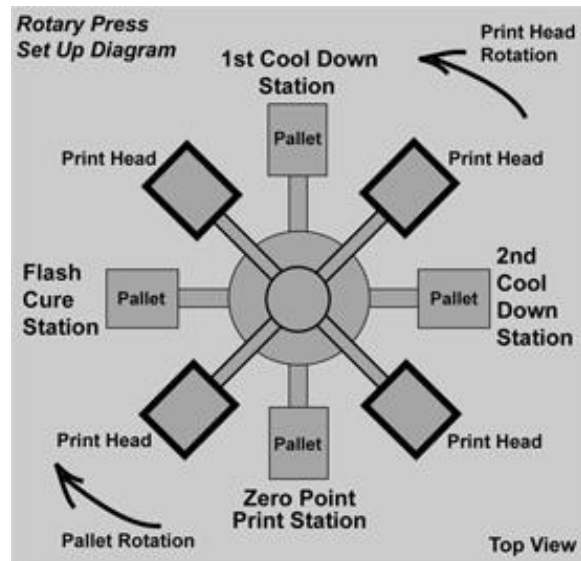
Pros:

- Perfect for larger designs consisting of one or two colors.
- Ideal for printing on to cotton and poly cotton clothing items.
- The ink is heat dried, therefore the garments can sustain the roughness of machine washing.

Cons:

- Each color is applied separately, making the cost higher per additional color.
- Separate screens are required for each individual design. So, for each additional color, a new screen will need to be used.
- Not the best option if your design consists of several colors.
- Coated fabrics cannot be screen printed.
- Longer processing time if many colors are used.
- Time consuming to set up and clean.

Learning Unit 2: Determine the Number of Pages and Colors for Printing

Overview

In this learning unit, you will learn about color modes like RGB, CMYK, and lab etc. After completion of this learning unit, you will be able to know the difference between spot printing and offset printing and identify the cost efficient solution based on number of pages and number of colors

1. Selection of Appropriate Color Mode

When you are working with your design there are several color models to select, but three of them are more important than others. They are RGB, CYMK and LAB.

Do you know!
When red green and blue are combined, they create white. Red + Green + Blue = White.

RGB

RGB stands for Red Green and Blue. RGB is a convenient color model for computer graphics because the human visual system works in a way that is similar to an RGB color space. This model represents how the computer sees colors. As we know that each pixel in our screen can be 'switched on' like a little 'light-bulb' by means of a 'light-ray' produced by an electronic gun inside the monitor.
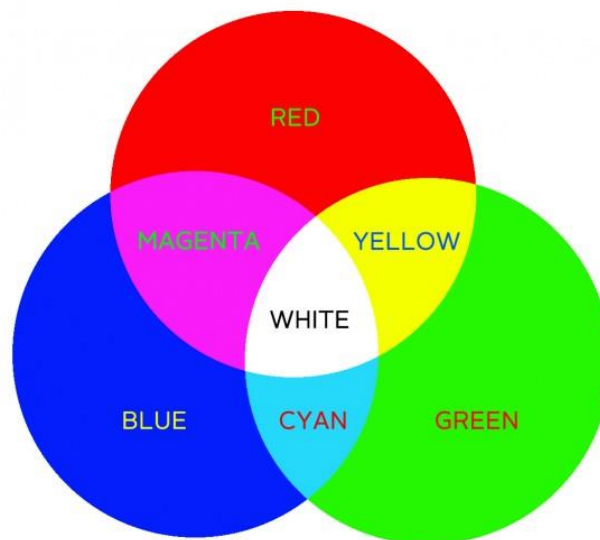
RGB Color Modes

This ray can be a shade of Red, a shade of Green or a shade of Blue. For this reason the pixel shot by the ray can assume a shade of red, a shade of green or a shade of blue. According to the RGB model, each shade of each of the 3 colors (Red, Green and Blue) is represented by a number ranging from 0 to 255. For example, the black color is represented by the '0 0 0' RGB value (R=0, G=0 and B=0) while the white color is represented by the '255 255 255' RGB value (R=255 G=255 and B=255).

RGB model can represent more than 16 million of colors. RGB is an additive model, because Red Green and Blue are additive colors. RGB color mode can be used in Digital Presses, color copiers, computer displays.

CMYK

CMYK stands for Cyan Yellow Magenta and blacK. This model is used for printing. These are the 4 colored inks used inside of color printers. CMYK is a subtractive model. In theory, Cyan, yellow and magenta should combine among themselves to absorb all colors. Another reason is that colored inks are more expensive than black ink. Besides, 3 inks means 3 ink layers during printing. And 3 ink layers cause the printed paper to become quite wet, so the paper will dry more slowly and the press can be slower.
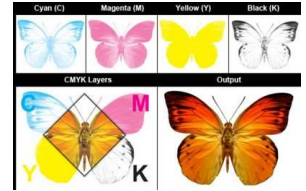
> **Remember**
>
> CMYK works through light absorption. The colors that are seen are from the part of light that is not absorbed.

CMYK Color Mode

In other words more expensive. Poor quality paper such as newsprint may break if it becomes too wet.

Text is typically printed in black and includes fine detail (such as serifs), so to reproduce text using three inks without slight blurring would require impractically accurate registration. This use of the letter K to represent black also helps to avoid confusion with the letter B as used in the acronym RGB for black. CMYK is normally used for Offset litho printing.

LAB

In LAB, L stands for Luminance (or lightness) and A and B. According to this model A ranges from green to red, and B ranges from blue to yellow. This model was designed to be device independent. In other words by using this model you can handle colors regardless of specific devices (such as monitors, printers, or computers).

LAB Color Model
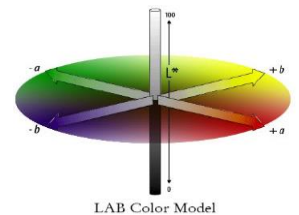
Lab color is designed to estimate human vision. It aims to closely match human perception of lightness. The Luminance ranges from 0 to 100, the A component ranges from -120 to +120 (from green to red) and the B component ranges from -120 to +120 (from blue to yellow). To adjust the lightness contrast of the color shade using the L component.

> **Do you know!**
>
> Many of the colors within Lab space fall outside the range of human vision, and are therefore purely imaginary; these colors cannot be reproduced in the physical world.

Because Lab space is much larger than the range of computer displays, printers, or even human vision, a bitmap image represented with Lab color model requires more data per pixel to obtain the same precision as an RGB or CMYK bitmap.

LAB color model is used in Photoshop - mainly for color corrections or using the lightness channel for color to grayscale conversion.

2. Difference between Spot and Offset Printing

Offset printing is a commonly used printing technique in which the inked image is transferred (or "offset") from a plate to a rubber blanket, then to the printing surface. On the other hand, spot color refers to color generated in offset printing by a single ink. That ink could be a "pure" color or mixed according to a formula.
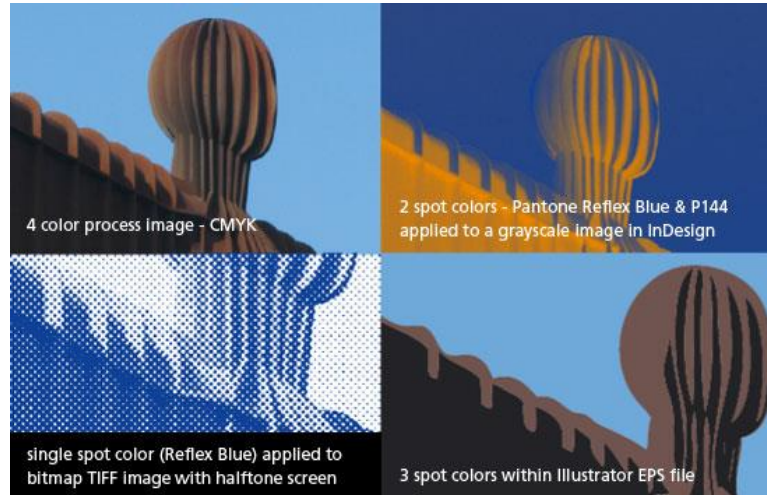
Four Color Process and Spot Printing

The commonly used printing process are two.Process. 4-color printing, uses four spot colors to generate a full-color gamut: Cyan, Magenta, Yellow and Black (CMYK).

More advanced processes use six spot colors, adding Orange and Green to provide an even larger gamut. This is called hexachromatic process printing, or CMYKOG.

At times, however, you may want to print using just one or two colors – for example let's say blue and black. This is a classic example of two color printing.

Spot color printing is used for jobs which require no full color imagery, such as for business cards and other stationery, or in monotone literature such as black and white newspaper print. Below is an illustartion showing how spots are visible on zooming a 4 color print.

Color Spots in Four Color Process

3. Number of Pages Verses Cost Effective Solution

For an organization or an individual at business, rising costs for toner, paper and other printer consumables can be a real challenge but creating a great "Cutomer experience" is also important. So, there is a need to address the printing concerns and identify several opportunities for reducing costs and boosting service. "With rules based printing, specialty print jobs are routed automatically to more cost effective printing devices."

You can reduce the number of pages in order to have a cost effective solution for print by using following techniques.

> **Cost Effective Solution**
>
> Anything effective and productive in relation to its cost is reffered to as a cost effective solution for the organization.

Editing

Editing is your first line of attack. Eliminate the repetitions out of your document, combining two adjacent paragraphs into one by deleting a paragraph mark can often make all the difference.

Margins

Your second priority may be to reduce the top and bottom margins. For example if top and bottom margins are set at 1.0, you can reduce that to 0.9. But reducing the left and right margins, you'll find that reducing the side margins by 0.1" will accomplish much more than doing the same to the top margins.

Fonts

Sometimes reducing the size of the text is the easiest and best thing to do. Often the text is larger than it needs to be. Although there is a certain irreducible minimum type size for readability, this size depends on the length of the line; text in narrower columns can be smaller.

Paragraph Spacing

Sometimes you can reduce the space between paragraphs (if any). For example, if a heading has 12 points Spacing Before, and you have several headings, it may be great reducing the space to 11 points (which will be undetectable) will be all that is required. The space between the paragraphs in the body can also be reduced.

Line Spacing

Line spacing depends upon the size of the text used. The font with a greater x-height are designed with larger line spacings. You can reduce this space to save some page.

4. Number of Colors Sufficient for Print Job Verses Cost Effective Solution

While seeking out cost effective solution for printing costs, an important and significant point to consider is the number of colors required for a print job keeping in mind that the quality of the print should not be affected. There are many tecniques for identifying the number of colors for a print job and reduce them to an optimal level. Some of them are explained below.

- Any natural scene or color photograph can be optically divided into three primary colors red, green and blue. Roughly equal amount of these colors give white. Other proportions of any two colors give many different shades of colors. so for a full colored and expressive print 3 colors are used.
- Sometimes giving a mono chromatic look to an image makes it even more expressive and makes it a cost effective too.

- To reduce stop/start cycles use the Printer Properties | Advanced tab and tell the computer to start printing after the last page is spooled. Typically this setting is set to start printing immediately to improve user experience and reduce the perceived wait. When you change this setting, your document will start printing when the computer is done generating the entire document, so there will be an initial delay between the time you start your print job and the time the print job starts printing on the printer.
- Try to restrict some jobs to monochrome (B&W) printers only.
- You can use 2 color printing for lower end marketing materials and 4 color printing for commercially printed pieces.
- You can also use four color process with 2 spot colors only. That will allow you to print rich and accurate photos within your requirements.

Learning Unit 3: Understand the Usage of Appropriate Printing Material and Texture

Overview

In this learning unit, you will learn different types of materials used for printing and their characteristics. After completion of this learning unit, you will learn about glossy, matte paper, vinyl, cloth for printing, paper weights, textures and the types of lamination.

1. Printing Material

There are many types of materials available for printing. You need to know the difference between these materials as well as the pros and cons of each in order to select a suitable printing material for your print job.

Glossy Paper

Glossy papers generally offer the widest color range and best resolution, but they are coated with glare which can be a problem under certain lighting conditions. As pointed out above, glossy paper is excellent for photos that will be handled without glare. They may show fingerprints, but you can easily wipe off smudges or fingerprints without harming the prints. Glossy paper have high quality that truly brings out the best color and resolution from your printer.

> **Gloss Coating**
>
> Gloss coating is a coating that provides a lot of shine, which results in a higher contrast and color gamut than other papers.

They are often not the best choice for scrapbooks or glass mounting as they can sometimes stick to the surface that is mounted against the printed side of the paper. For mounting behind glass or plastic sleeves, semi-gloss may be the best compromise. Glossy paper need to be compatible with your printer. That is, it is possible that the paper have gas/light fade problems with certain inks.

Matte Paper

Matte paper is excellent for displaying photos that must be displayed "naked" (not behind plastic/glass) in an environment where light reflections can be an issue. Matte papers are generally not as durable as semi-gloss paper or glossy paper as handling of matte prints can sometimes cause marks similar to running your fingers across a microfiber material. As a result, matte paper is not generally suited for prints that are to be handled in their naked state.

> **Matte Coating**
>
> Matte coating is a light coating that provides a boost to the contrast of your photos, but results in very little glare

One real issue with matte papers is that they have less dynamic range (contrast) and a smaller color gamut than semi-gloss or glossy papers. Regardless of the semantics, matte papers will generally have greyer colors and less contrast than semi-gloss or glossy papers. This fact even more prominent when profiling different paper types as it has a smaller color gamut and less dynamic range for matte papers and will therefore you will have to make more compromises when creating the print.

Semi Glossy Paper

Semi-gloss or "luster" papers offer a good compromise between glare, color range, and durability. It has a color range close to that of glossy paper, and at the same time you can be sure you are getting the full power of your printer along with reducing glare and smudges. Semi-gloss papers may not completely eliminate glare but most

of them reduce glare to a point where it is not an issue except under the most extreme lighting conditions and viewing angles.
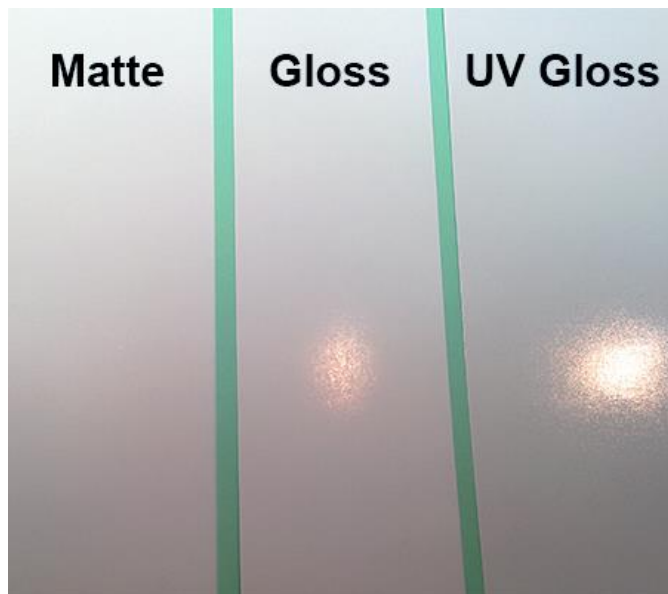
Matte and Glossy Papers

Vinyl Material

Vinyl is not a natural substance but is a synthetic man-made material. It is a type of plastic that is made of ethylene (found in crude oil) and chlorine (found in regular salt). When processed, both the substances are combined to form Polyvinyl Chloride (PVC) resin, or as is commonly referred to – Vinyl. Vinyl is resistant to moisture and humidity. It is a very strong and durable plastic material. Vinyl can be manufactured in a variety of colors, both transparent and solid. Vinyl is a very low cost material to produce.

- Vinyl printing has top quality result and idea for low quantity runs.
- Multicolored results can be achieved by applying each color separately.
- Vinyl can be easily removed and changed.

Cloth

Do you know!
Various methods like block printing, stencil printing, screen printing, digital printing can be used to print on cloth.

Fabric or cloth can also be used for printing, it can be referred to as textile printing. Textile printing is the process of applying color to fabric in definite patterns or designs. In properly printed fabrics the color is bonded with the fiber, so as to resist washing and friction.

For cotton printing vat and reactive dyes are generally used. Silk is usually printed with acid colors. Wool is printed with acid or chrome dyes but before printing it is treated with chlorine to make it more receptive to colors. Manmade fibers are generally printed with disperse and cationic dyes.

2. Paper Weights

Paper weight is an important component to consider when printing. Heavier media often produce quality and provides durability. There are three most famous scales to use for weighing paper.

Basis Weight

The basis weight of a paper is the fixed weight of 500 sheets, measured in pounds, in paper's basic sheet size. It is important to note that the "basic sheet size" is not the same for all types of paper.

Caliper

Caliper refers to the thickness of a sheet of paper expressed in 1000 of an inch. This measurement is taken with a micro meter.

GSM (Metric System)

This system describes paper weight as mass per unit of area. It is measured in grams per square meter, or GSM.

Below is list of paper weights and their common usage:

- 40 gsm: tracing paper
- 45-50 gsm : newsprint
- 75-90 gsm: sketching or practice paper — thick enough to work on with pencils, charcoal, or pastels, but usually too thin for ink or most markers, which may bleed through.
- 100-130 gsm: drawing paper suitable for finished artwork in most media. Paper any lighter than 70lb will usually be thin enough to see through to drawings or materials underneath.
- 180-260 gsm: heavy-weight drawing paper, Bristol, multi-media papers. Weight in this range is similar to card stock or light poster board.
- Heavier papers approx. 300 gsm or more, are most often used for painting rather than drawing. When found in sketchbooks, they are usually rougher papers intended as watercolor journals or to remove for painting on individual sheets.

> **Remember**
>
> Papers with different weights are used for different purpose according to their weight.

3. Paper Textures

Smoothness can also be a factor when deciding which paper to use for printing. Laser printers for example use heat and toner to produce text and images, and therefore need a smooth paper to give good results, whereas many other printers use water based inks, and therefore, need textured paper to absorb the ink.
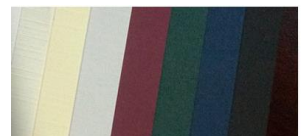
Paper Textures

Below is a list of paper textures commonly used by commercial printers

1- **Wove or Smooth** – A smooth uncoated surface.
2- **Laid** – A paper that is manufactured with finish lines on its surface. This texture is used mostly for business stationery elements, like letterhead, envelopes and business cards.
3- **Linen** – Similar to a laid finish, this paper has textured lines on the surface of the sheet, but they are finer and more regular than those that appear on a laid finish. This paper is also used frequently for business stationery.
4- **Laser** – A paper that is guaranteed to be compatible with laser printers.
5- **Coated** – A paper with a waxy texture (shiny or matte).
6- **Uncoated** – A paper with an untreated surface that is dull and unreflective.
7- **Coated One Side (C1S)** – A cover stock that has a coating on one side and is dull on the back side.
8- **Coated Two Sides (C2S**) – A cover stock that has a coating on both sides.
9- **Column** – Also has a ribbed texture.

> **Remember**
>
> The smoothness of the paper can be determined by whether or not the paper is coated as well as the material it is made out of.

10- Felt – Has a textured finish to it and is great texture for holding ink

Column	Felt	Laid	Linen
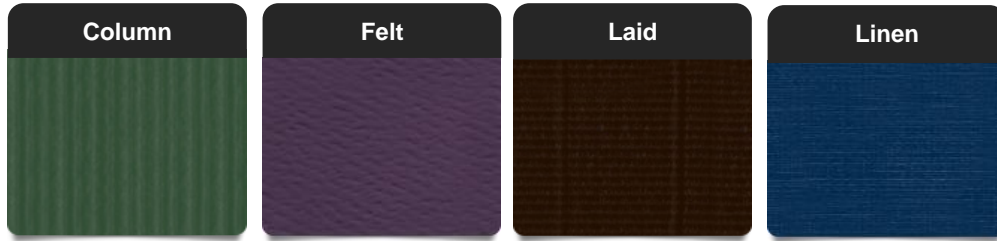
Different types of Paper Textures

If you want paper that is smooth you could choose an uncoated paper or a coated paper that has either a matte or high gloss finish.

4. Understand Laminations

Finding the perfect lamination and mounting product for photography normally comes with two choices.

1- Gloss (clear and shiny).
2- Matt (textured and smooth).

Gloss Lamination

Gloss lamination will provide photography with a reflective finish, furthermore this finish is good for dark rooms with little light as it will reflect any light coming off the image, drawing your eyes to the picture.

Glossy and Shiny Lamination

Using a Gloss lamination mounting in very light areas can make the image look distorted or sometimes you won't be able to see the image at all with too much light reflection.

Matte and Textured Lamination

In very light areas such as the outdoors or rooms with larger windows it is normally recommended that you use a Matte lamination finish. This will add a slight grain to your image and will absorb the light making the viewer able to see the image clearly.

Matte and Textured Lamination

The Gloss or Matte lamination choice can also be used depending on the quality and the feel of the final image. Gloss lamination tends to work better with very vivid images such as a glossy vehicle shot or a close up image of a colorful butterfly. Matt lamination should work better with flat images such as graphics, signs or buildings.

Other advantages of using lamination will help keep your images:

- Clean from dirt and dust.
- Scratch proof.
- Protection from fading and color changes through UV damage.
- Waterproof.
- Adds a professional quality look and feel.

Lamination using Glass or Matt is really up to the end user. What you think looks better is the correct choice, it really is down to personal preference.

Summary of Module

- If you want to have desired printing results, you need to do some research on different sizes of papers available for printing and deliver a file to the printer that is ready to print.

- In offset printing an aluminum plate contains image of content. When the plate is inked, only this image part holds ink. That inked image is then transferred (or offset) from the plate to a rubber blanket and then to the printing surface.

- In digital printing, an image is sent directly to the printer in the form of digital files such as PDFs and other files from graphics software such as Illustrator and InDesign.

- Screen printing is the process of using a mesh-based stencil to apply ink onto a substrate, whether it is T-shirts, posters, stickers, vinyl, wood, or other material.

- When you are working with your design there are several color models to select from but three of them are more important than others. They are, RGB, CYMK and LAB.

- Offset printing is a printing process and spot color refers to color generated in offset printing by a single ink

- Anything effective and productive in relation to its cost is reffered to as a cost effective solution for the organization. It can be cost effective solution to reduce the number of pages and colors required for printing.

- While printing, things that need to be considered include, type of paper used (Glossy, Matte etc.), weight of paper, texture of the paper (smooth, linen, column etc.) and type of lamination to be used (Glossy, Matte and textured).

Frequently Asked Questions (FAQs)

FAQ 1:	What are different paper sizes used in printing?
Answer	There are different sizes of paper used for printing for example, letter, legal, tabloid, A4, A3, A2, A1, Posters, Banners, and Cards etc.
FAQ 2:	What is page orientation?
Answer	Page orientation is the way in which a rectangular page is oriented for normal viewing. The two most common types of orientation are portrait and landscape.
FAQ 3:	What is the drawback of offset printing?
Answer	The major drawbacks of offset printing process is the plate. Once a layout is already made into a plate, it cannot be easily changed
FAQ 4:	Name the famous offset printing machines?
Answer	The famous offset printing press are Ronald, Rota, Solna and Heidelberg.
FAQ 5:	What is digital printing?
Answer	In digital printing, the image is directly transferred from computer to printer to be printer on paper.
FAQ 6:	What is screen printing?
Answer	Screen Printing is the process of using a mesh-based stencil to apply ink onto a substrate, whether it be T-shirts, posters, stickers, vinyl, wood, or other material.
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:	Write one of the disadvantages of screen printing?
Answer	Each color is applied separately, making the cost higher per additional color
FAQ 9:	CMYK stands for?
Answer	Cyan, Magenta, Yellow and blacK
FAQ 10:	What is color spot?
Answer	Spot color refers to color generated in offset printing by a single ink.

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.   RGB Stands for_____.

a.   Red, Green, Brown   b.   Red, Green, Black

c.   Red, Green, Blue   d.   Rusty, Green, Blue

2.   Select INCORRECT option, Offset printing machines are_____.

a.   Rota   b.   Spot Color

c.   Ronald   d.   Heidelberg

3.   Screen Printing is also called_____.

a.   Offset Printing   b.   Silk Screen

c.   Digital Screen   d.   Ronald Printing

4.   RGB colors combine in equal proportion to create_____.

a.   Magenta   b.   Black

c.   Yellow   d.   White

5.   Cyan, Magenta and Yellow colors combine to make_____.

a.   Pure Black   b.   Light Black

c.   Pure Brown   d.   Muddy Brown

6.   Which of the following is not a paper texture

a.   Vinyl   b.   Linen

c.   Felt   d.   Wove

7.   Which one of the following is not a paper weight scale

a.   Basis Weight   b.   Caliper

c.   KMS   d.   GSM

8.   Matte Paper Provides_____.

a.   High Quality   b.   Large gamut of colors

c.   High contrast   d.   Durable Product

9.   Vinyl is a _____ material.

a.   Natural   b.   Man-made

c.   Low quality   d.   High quality

10.   Glossy lamination is used in _____.

a.   Low light areas   b.   Indoor

c.   Outdoor   d.   Very light areas

Answer Key

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

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 such as filters to a photo to enhance it.

- Merge different photos to create one single photo.

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

- Scan and use photos.

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

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.
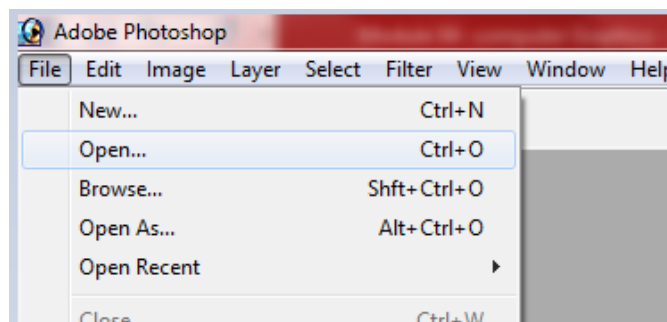
Color correction using Levels:

Below are the steps for color correction:

1- Open the image in Adobe Photoshop.

> **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.
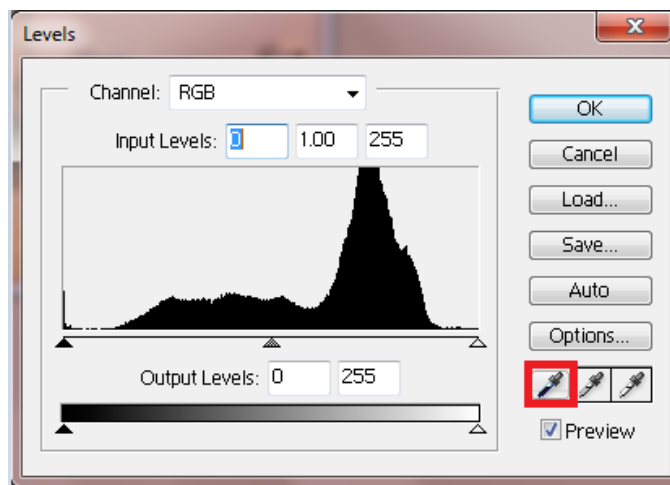
> **Do you know!**
>
> Adobe Photoshop can remove the color cast created by fog, dusty environment of light effects.
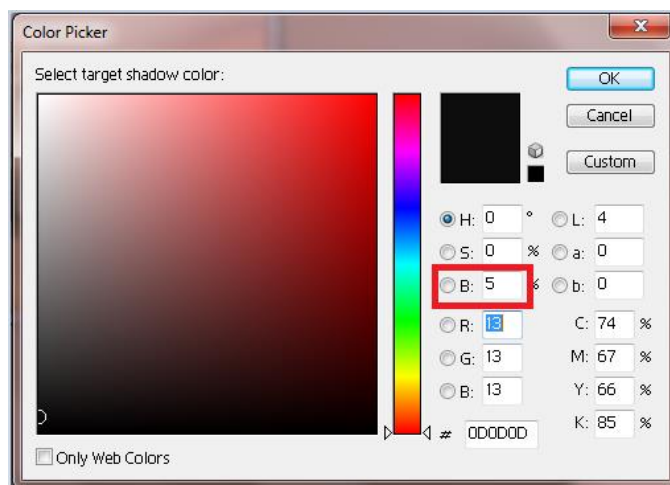
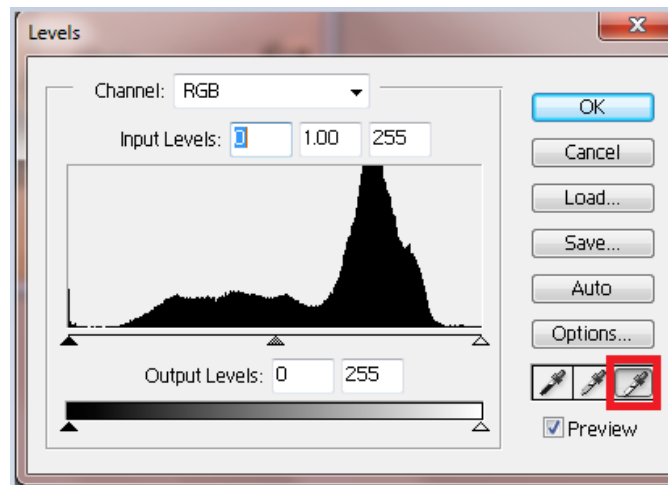2- Create a new level layer as:
   Layer->New adjustment Layer ->Levels
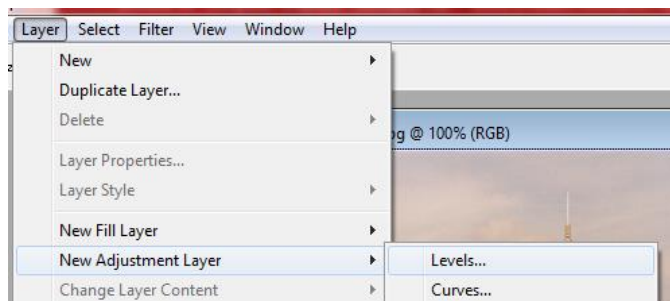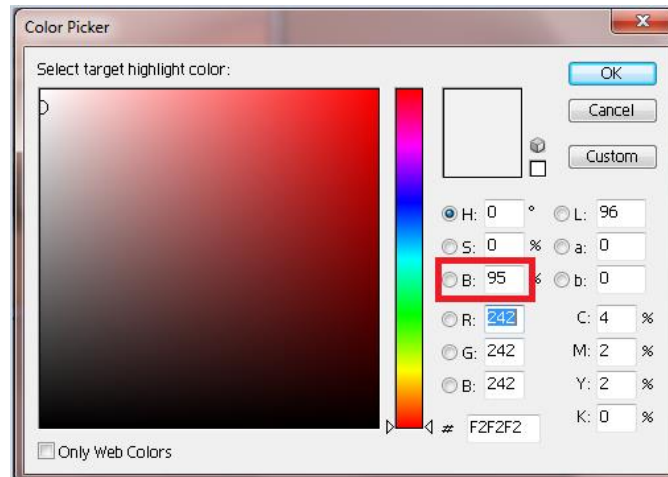

3- Double click at the black eyedropper on the left

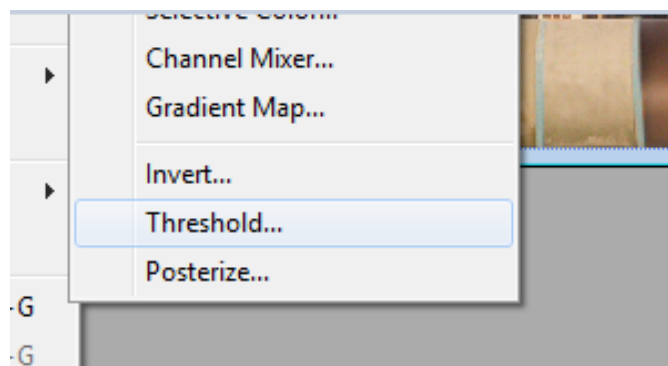4- Color picker will appear, type 5 in the B text box as shown, press ok.

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.
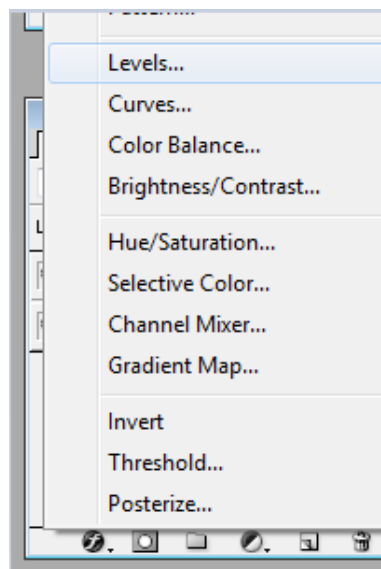
9- Now click at Cancel.

Do you know!

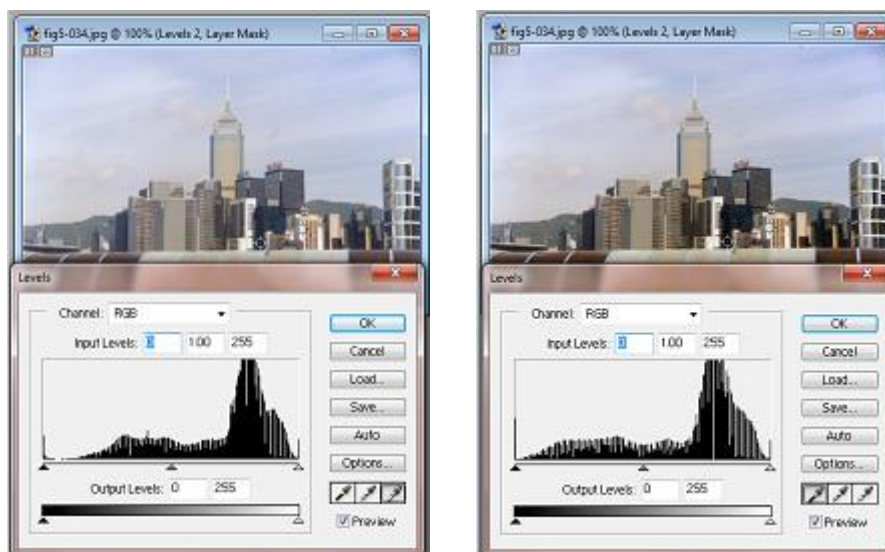Threshold layer helps you to mark the lightest and darkest points in your image.
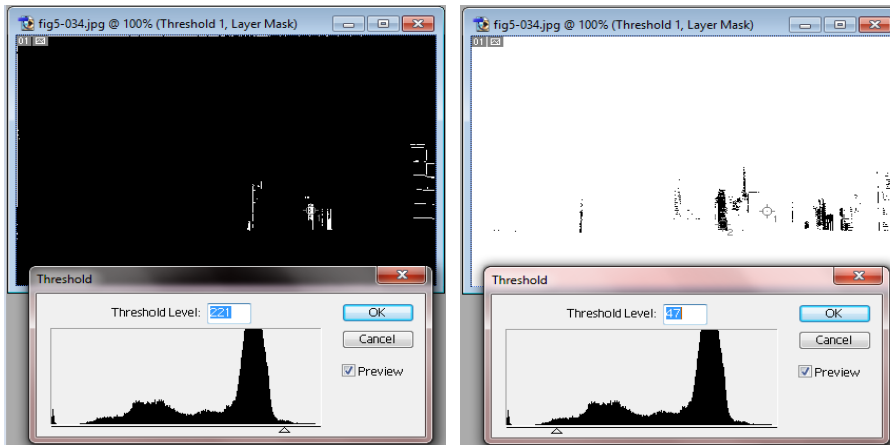
10- Click at New Layer button -> Levels.

11- Click at white eyedropper and then click at marked point 1.
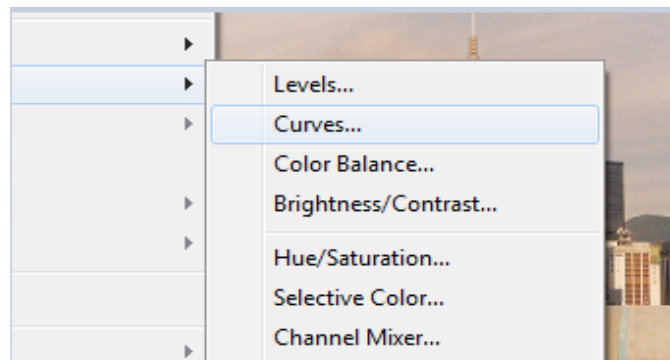12- Click at black eyedropper and then click at marked point 2.

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.
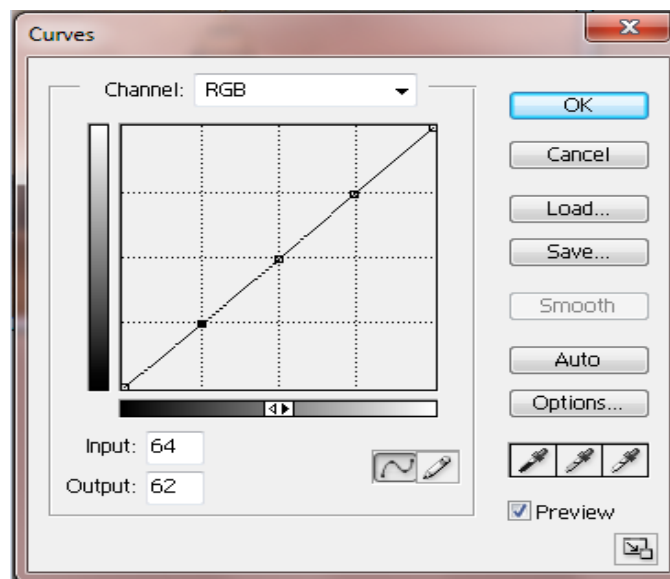
Curves

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.
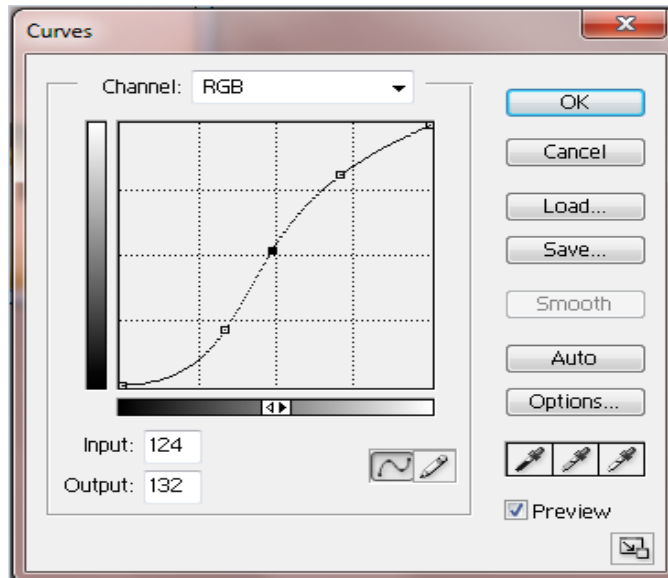
Before   *After*

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
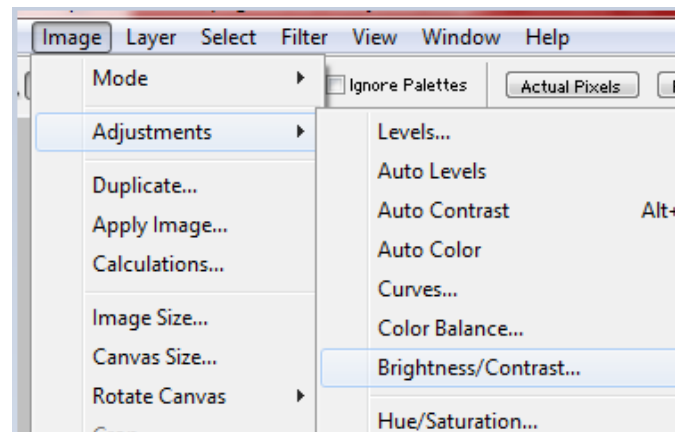
3- You can adjust the brightness and contrast by moving the sliders.
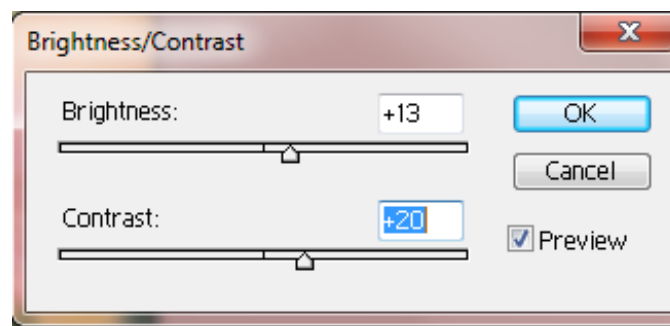
To change color tint and saturation,

1- Click at image->adjustment->Hue/Saturation.

2- You can change the color tint (lightness), saturation (intensity) and hue using the sliders.

Tint
Tints are created by adding white to a color. It refers to the lightness of a color.

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

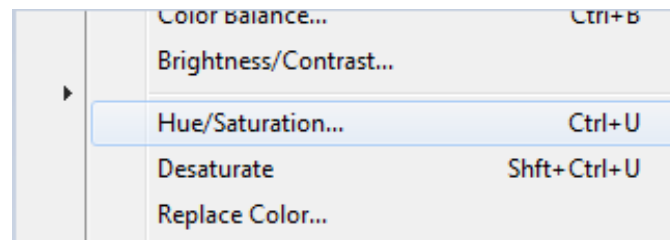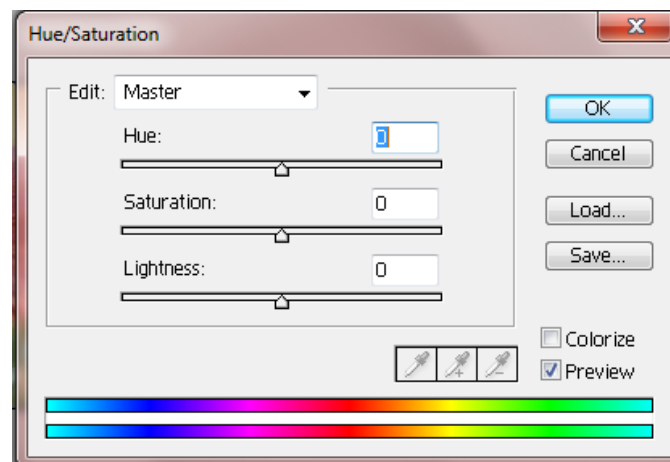4-   Decrease the intensity until the objects are less bright.

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*
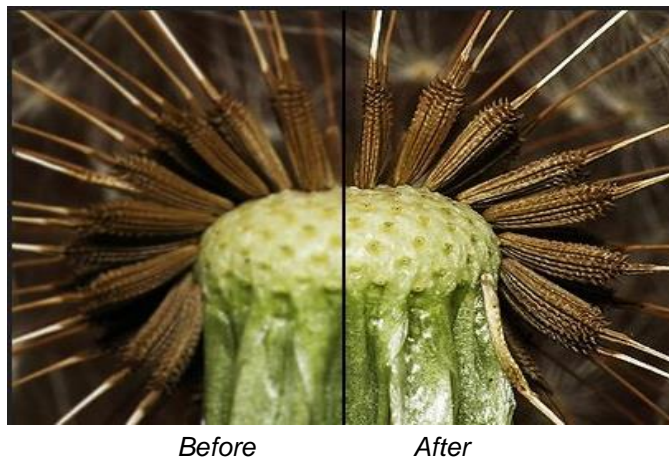
Sharpening image in Adobe Photoshop

You can sharp the image in Adobe Photoshop as

1. Open your image in Adobe Photoshop.

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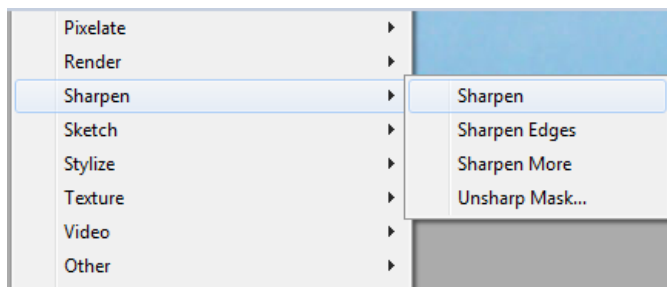
3. Now you can sharpen the image by using different options available in the menu.

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.
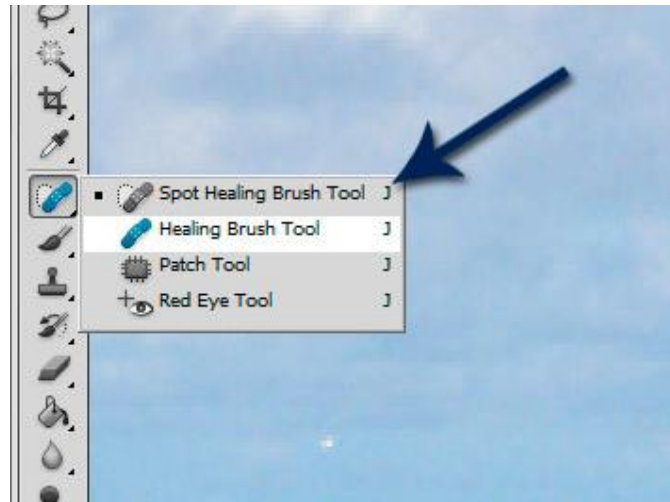
3- Make sure to have following settings for healing brush tool.

    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.
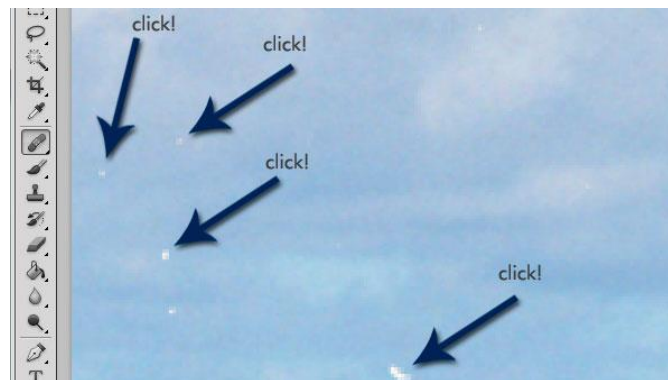
Remove Dust specks and scratches using Clone Stamp.

Remember	1- Select the clone stamp tool from toolbox.
To remove dust specks and scratches in tight spaces like face or designs, use clone stamp.	
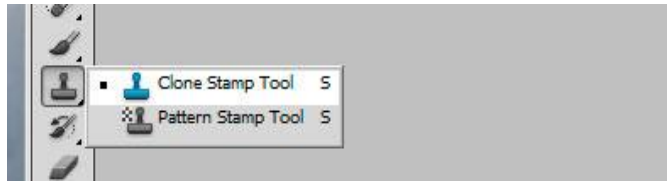
2-   Select a clear point in the image as a source point. Alt+Click at that point.

Use, Alt + Left Mouse button to set your "source"
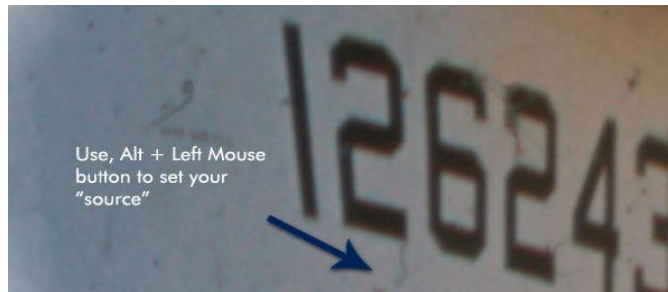
3-   Click at the dust or scratch spot one by one like distorted number 2 in the above picture.

1. When you move to a new spot, remember to Alt and Left Click to set new source

2. Set source here to remove dust under the number 2

3. Set a NEW source here to work on this number 2

HowToScan.ca

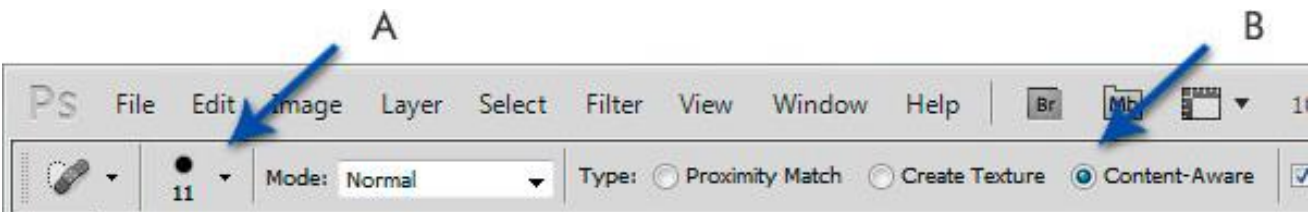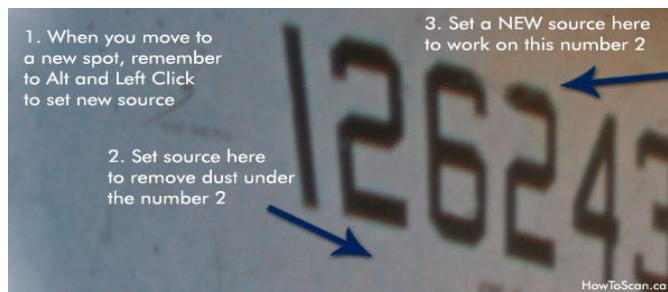## 4. Understand and Practice the Use of Visual Effects

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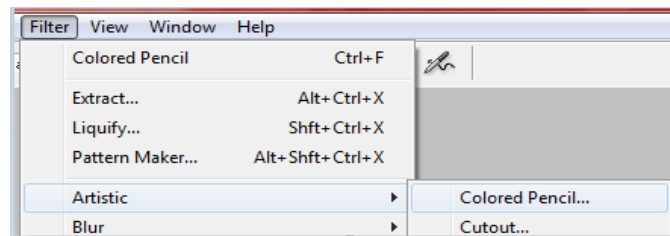
2- Click at Filters->Artistic->Colored Pencil.

3- The output image will be like.
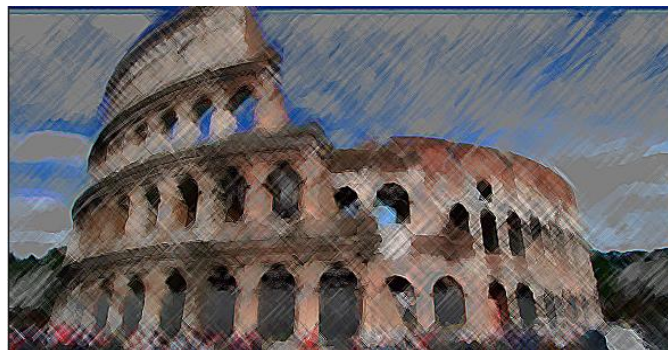
After Filter Effect

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

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

> **Do you know!**
>
> You can apply transformations to a selection, an entire layer, multiple layers, or a layer mask.

- 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.
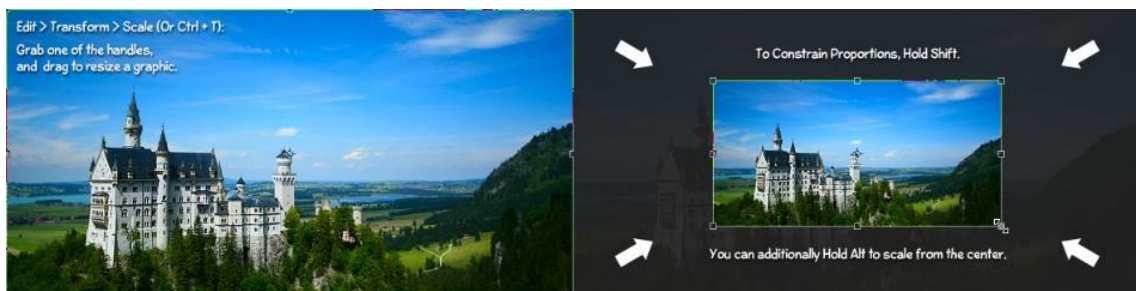
Scaling Graphics

- 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

Remember
Layer styles are linked to the layer contents.

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.

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.
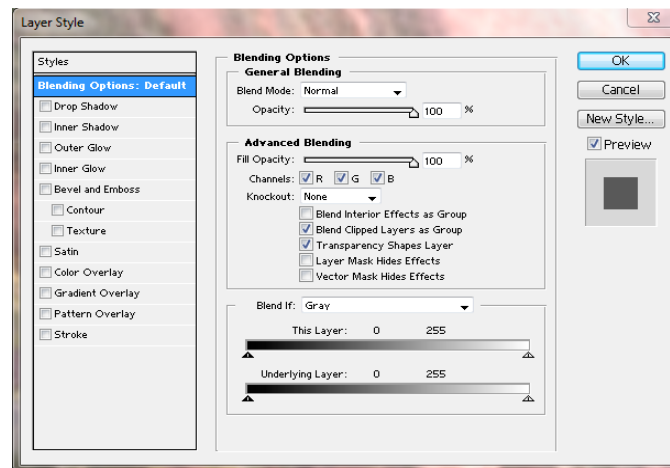
Layer Style Dialogue Box

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

6. Procedure of 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.

> **Do you know!**
>
> Barrel distortion refers to the shape of a barrel and pincushion distortion refers to the shape of a cushion.

Barrel and Pincushion

Chromatic Aberrations

Chromatic Aberration

Chromatic aberration appears as a color fringe along the edges of objects caused by the lens focusing on different colors of light in different planes.

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.
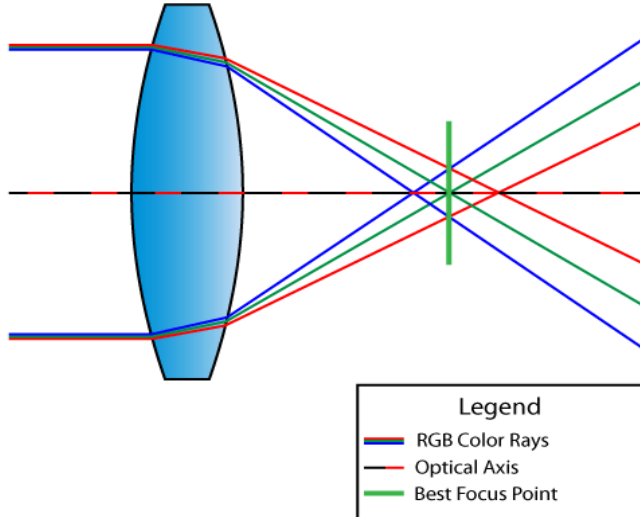
Chromatic Aberration

Correcting Lens Aberration

You can correct lens aberration in Adobe Photoshop as

1- Open image in Adobe Photoshop.
2- Click at Filter > Lens Correction.
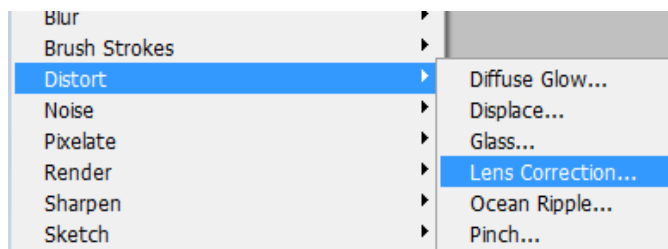
3- Move the slider, drag it until it looks correct and then release.
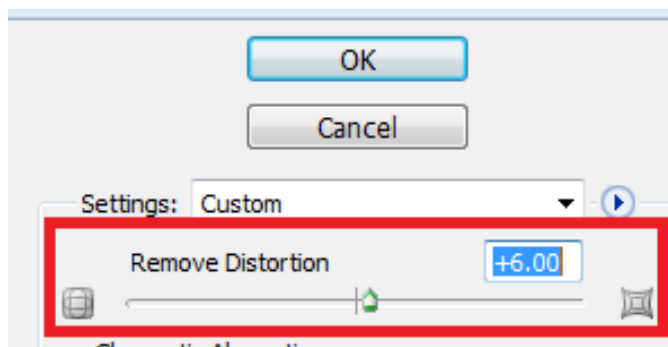
4- Feel free to fine tune as you see fit.

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.
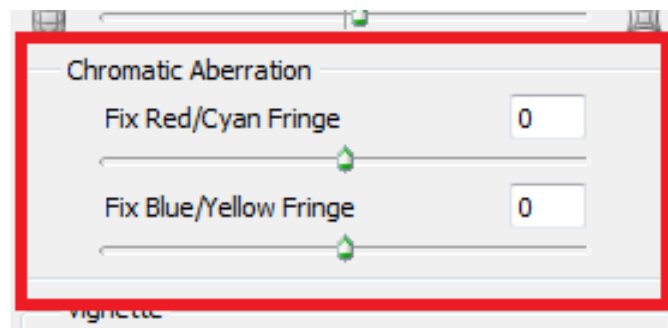
Correcting Light falloff

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.
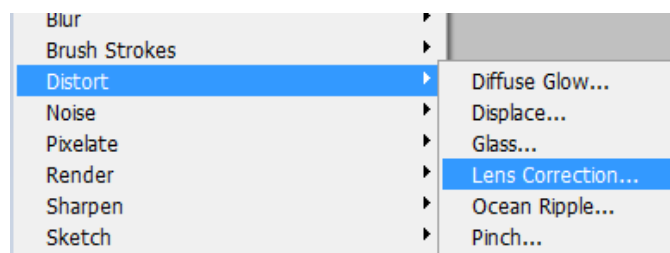
3- Move the lens Vignetting slider until the edges of image are lightened up.
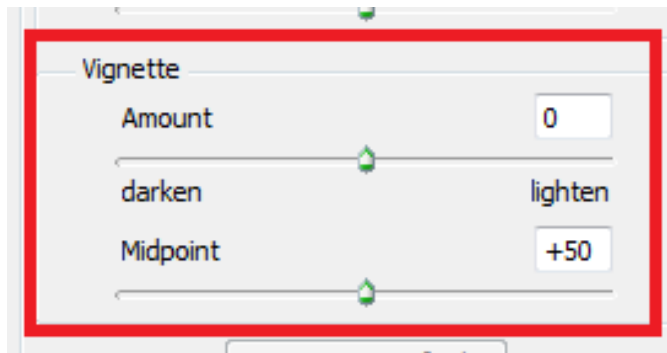
7. Procedures for the Adjustment of the Geometry by Crop, Rotate, Correct Perspective and Distortion

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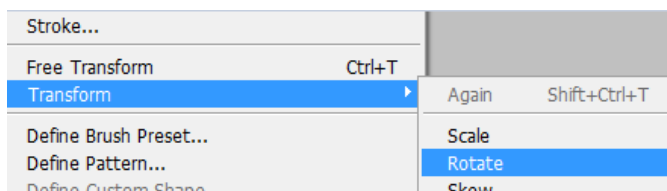
3- Handles will appear but instead of dragging one of these, go just outside of the object until you see a curved arrow rotate icon.
4- At this point, simple drag left or right to rotate the selected object.

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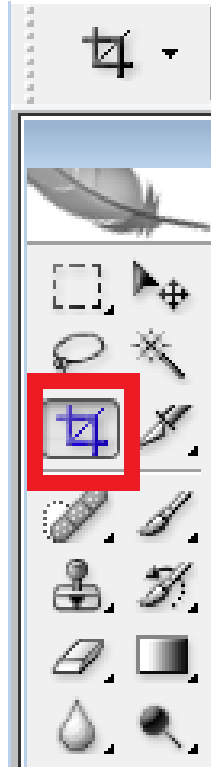
3- Click and drag over the desired area in the image.

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.
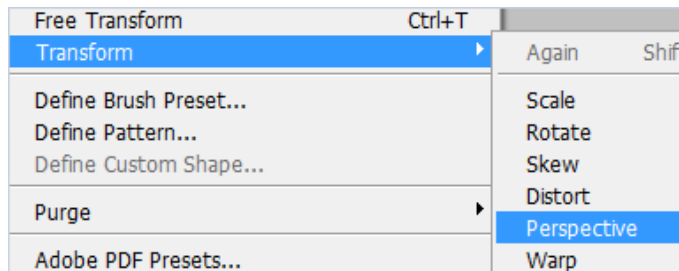
3- Click and drag the handles that appear on the edges on image to add perspective to the image.
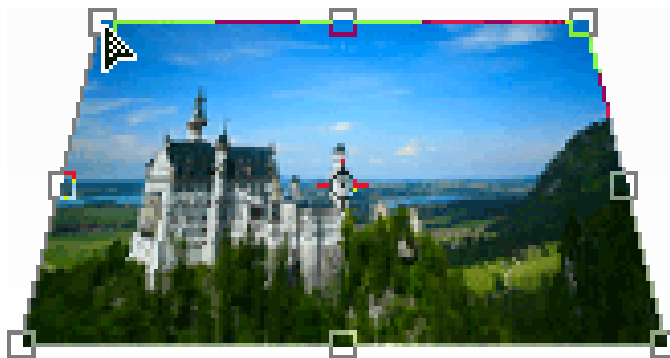
4- Press Enter to make the changes permanent.

Correcting Distortion

To correct distortion,

1- Open the image in Adobe Photoshop.
2- Click at Edit->Transform->Distort.
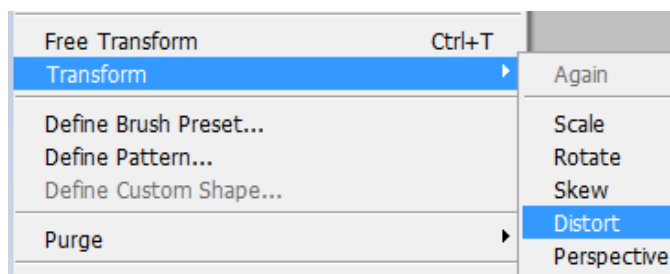
3- Click and drag the handles that appear on the edges of the image to distort it in the desired direction.

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.

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.

- Artistic
- Blur
- Brush Strokes
- Distort
- Noise
- Pixelate
- Render
- Sharpen
- Sketch
- Stylize
- Texture

Artistic Filter

Filters from the Artistic submenu help you achieve painterly and artistic effects for a fine arts or commercial project.
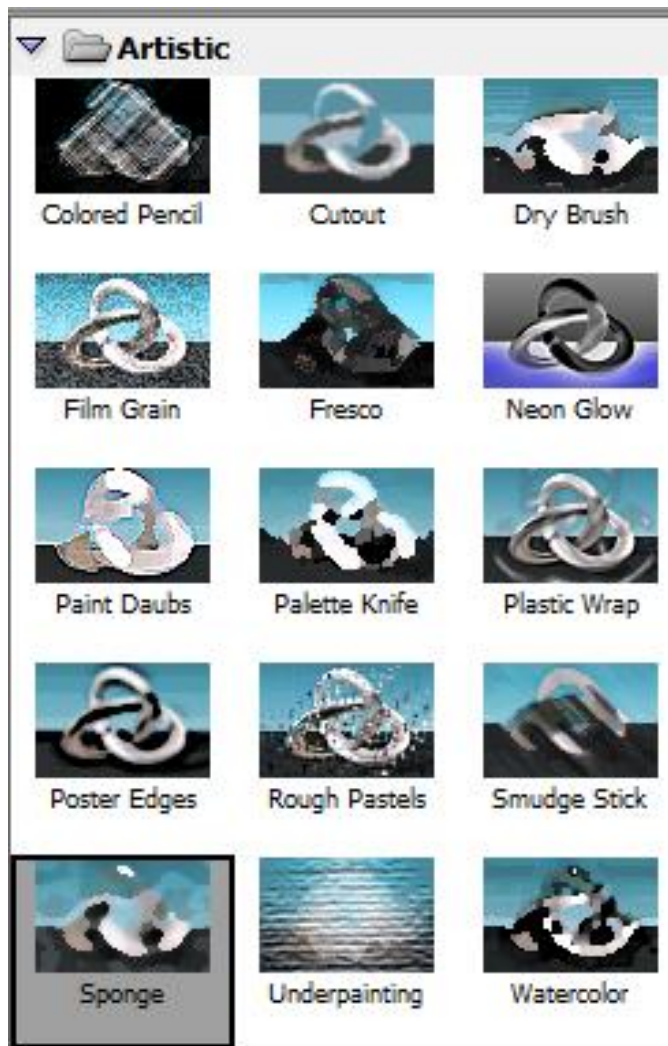
Bursh Strokes

Like the Artistic filters, the Brush Stroke filters give a painterly or fine-arts look using different brush and ink stroke effects.
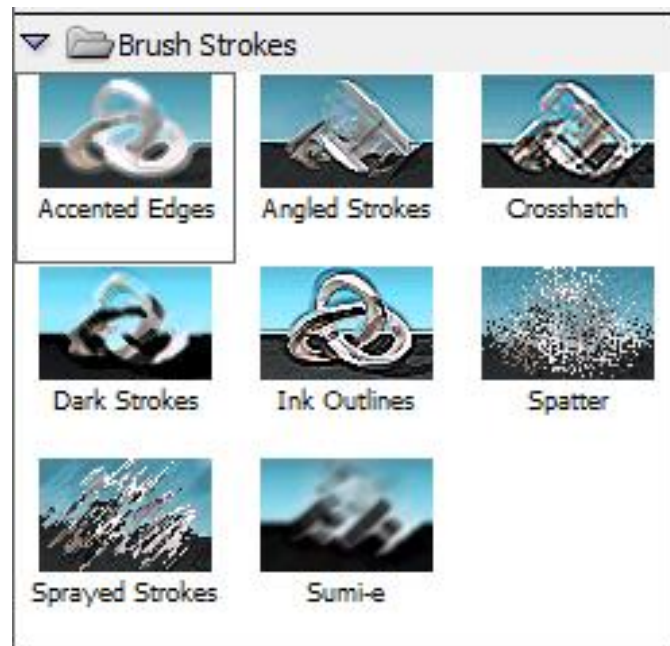
Distort Filter

The Distort filters geometrically distort an image, creating 3D or other reshaping effects.
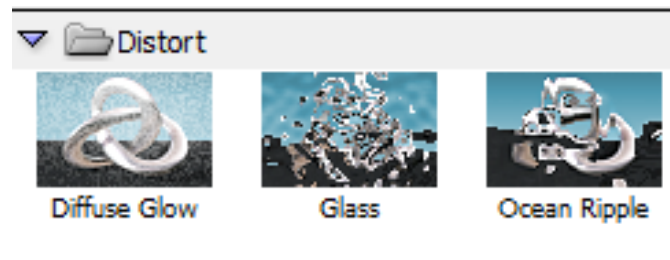
Sketch Filter

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.
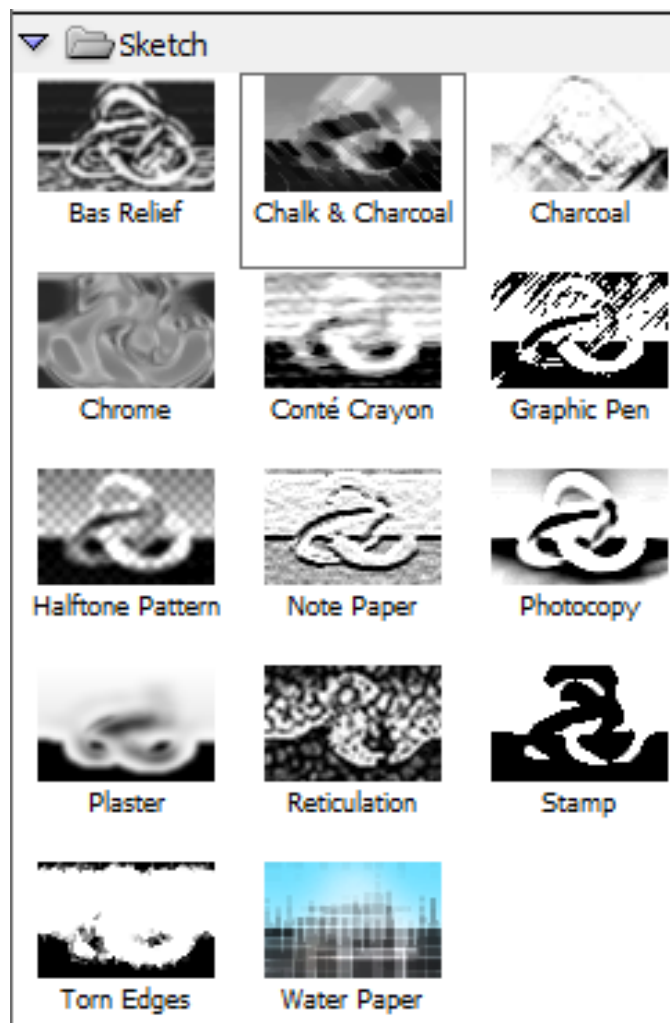
Stylize Filter

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.
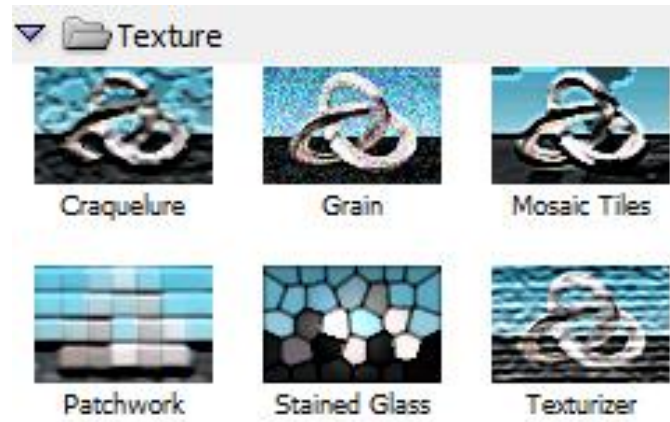
9. Procedure of Merging Two or More Photos into One

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.
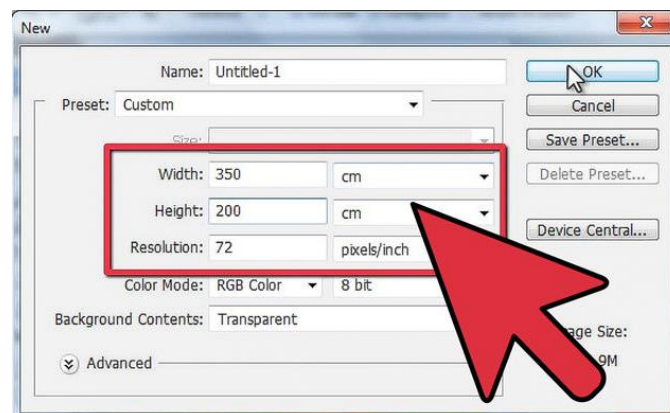
4- Drag the other two photos in the new image file.
5- Now remove the unwanted parts of image by selecting the eraser and and set up the size to 145px and the Hardness to 15%. Set the Opacity to 30% so the Eraser tool will be less effective and easier to use.
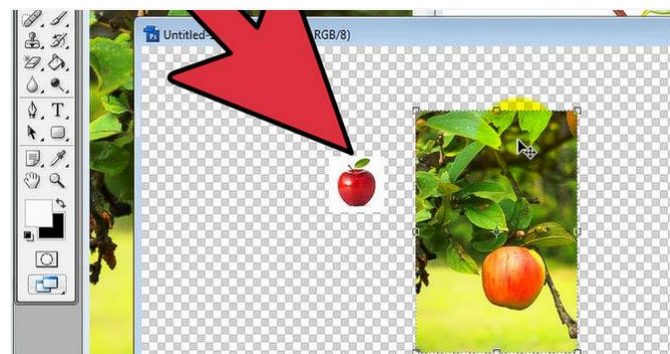
6- Erase the unwanted parts and use smaller sized eraser for narrow areas.

Remember

To correctly erase the parts, you can also set up the level in mode to Multiply. This way the layer becomes semi-transparent and allows you to see what you have done in the level behind.
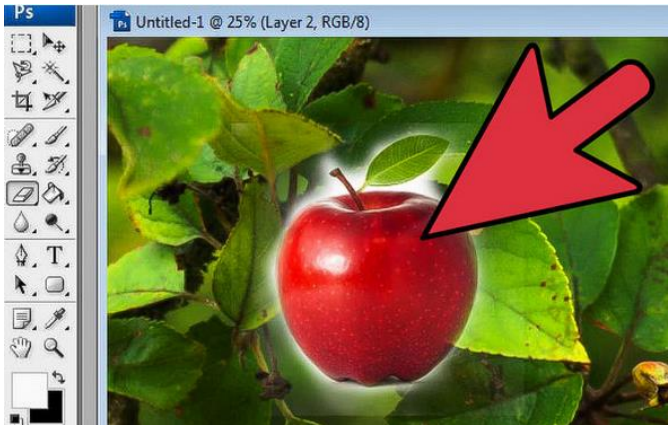
7- Select the Brush tool from the toolbox, set up the size to 100px, hardness 20% and Opacity to 30% using color which best matches with your images.
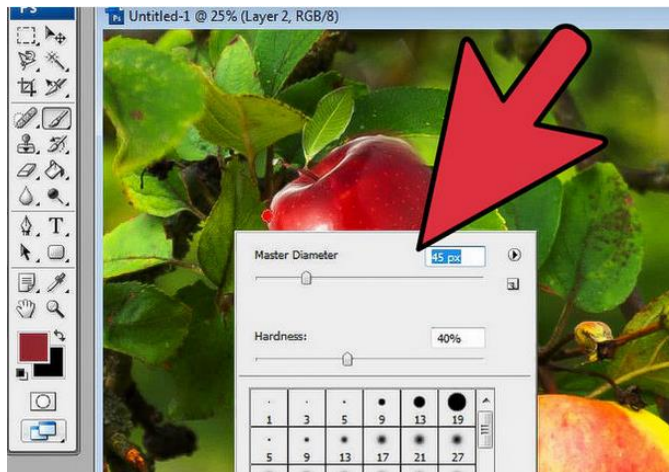
8- Use smaller size areas for fine details.
9- Refine the results.
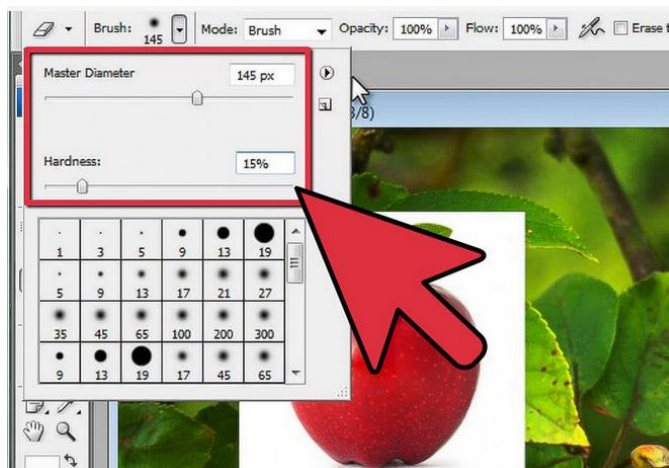
10. Importing Photos through Scanning them in a Layout

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.
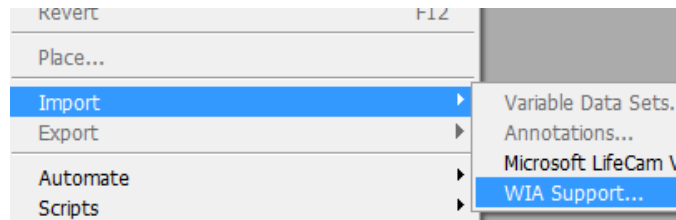
2- Choose a destination on your computer for saving your image files.
3- Click Start.
4- Select Open Acquired Images In Photoshop (unless you have a large number of images to import, or if you want to edit the images at a later time).
5- Select Unique Subfolder if you want to save imported images in 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.

Learner's Activities

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 (Media Elements, Graphics, Graphs, Tables, Diagrams etc.) 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.

make a new file

paper size custom

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 %
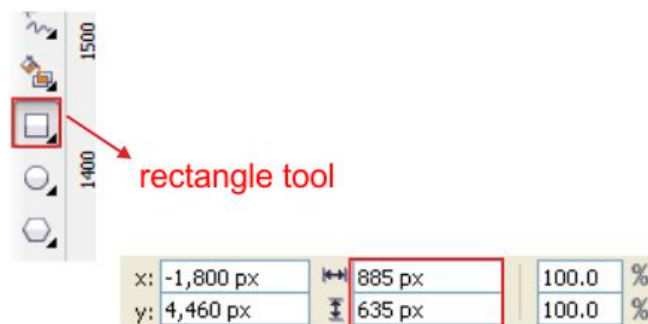
5- Select Shape Tool from toolbox and go to the upper toolbar there you will find corner shape option, set the type into Rounded Corner, and set the Corner Radius to 107 px, apply it on all corners.

shape tool

107 px   107 px
107 px   107 px
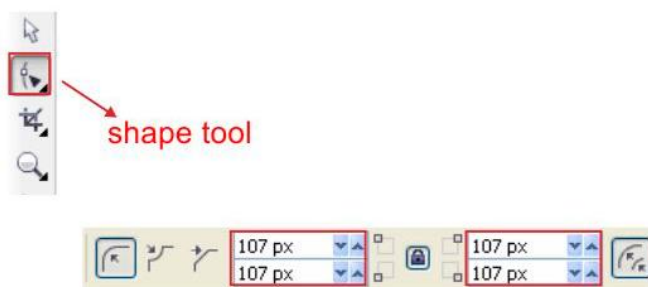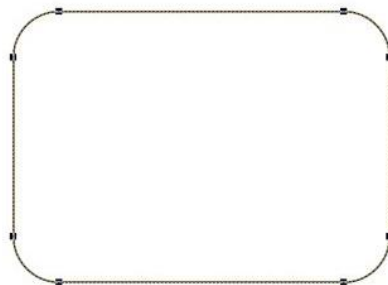
6- Select the box go to the "Fountain Fill Tool ", choose custom fill on the color blend and make the type Linear, fill the color with Gray on the left and white on the right.
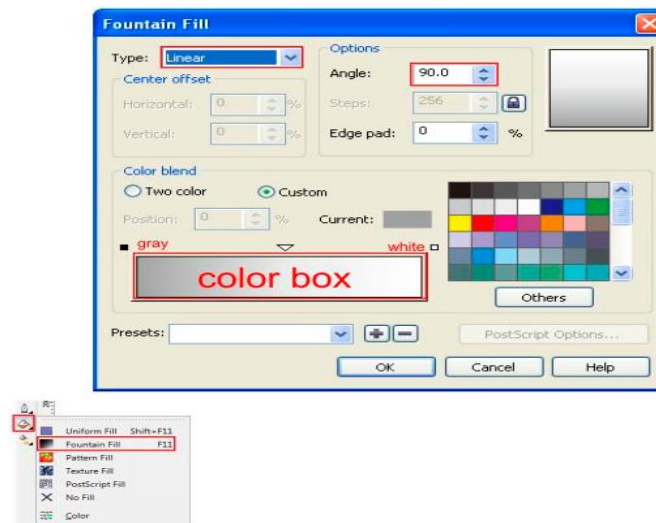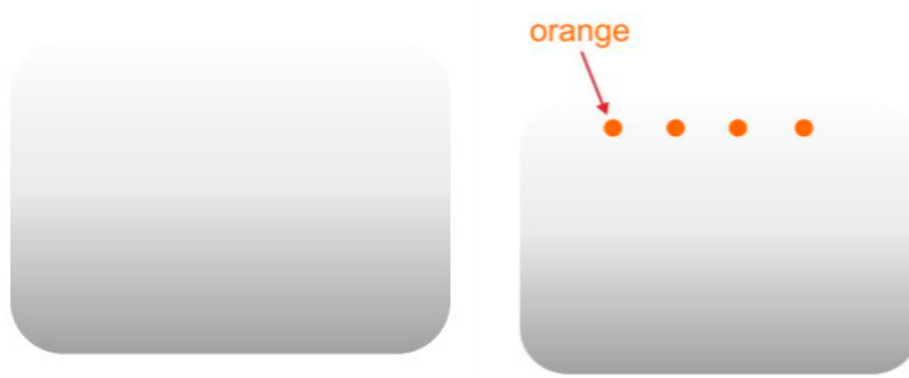
7- Now create a tiny Circle Shape using "Ellipse Tool "in the left toolbar.
8- Arrange the Circles on top of the Gray Box Shape, give it Orange color and copy it as picture below.
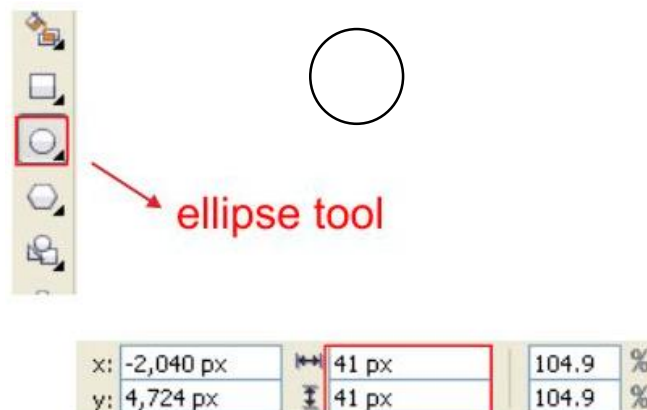
9- Create a line using "Bezier Tool "by left click and point.

bezier tool
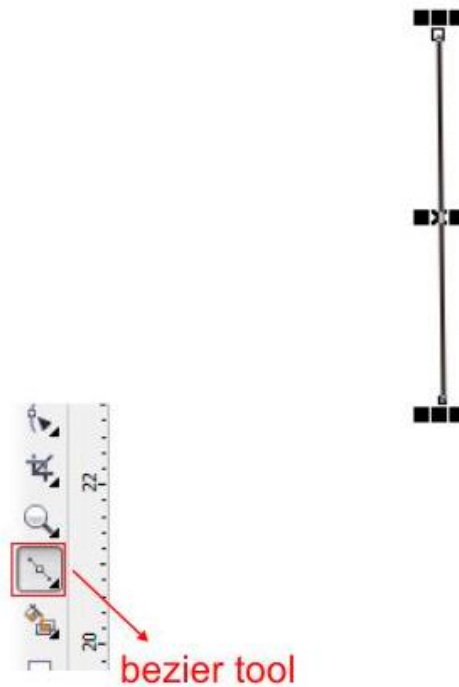
10- Shape it using "Shape Tool ", click on the middle of the line and find "convert to curves" in the top toolbar, drag the arrow on the corner in order to shape.

shape tool

Convert to curve
Convert a line segment to a curve, which can be reshaped by manipulating the control handles.
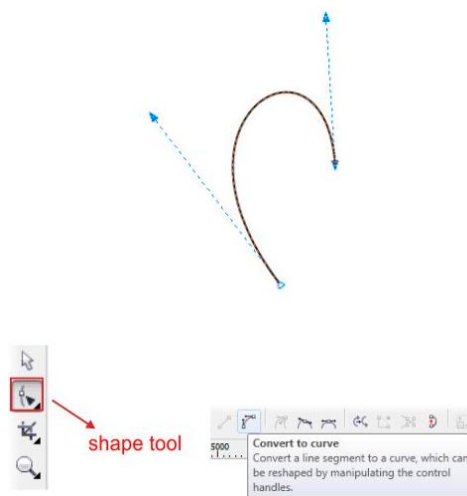
11- Make it outline strong arrange the shaped line on top of the Orange Circle.

Remember

Develop all the elements of the layout in the same way and then integrate them with balance in the form of a layout.

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.
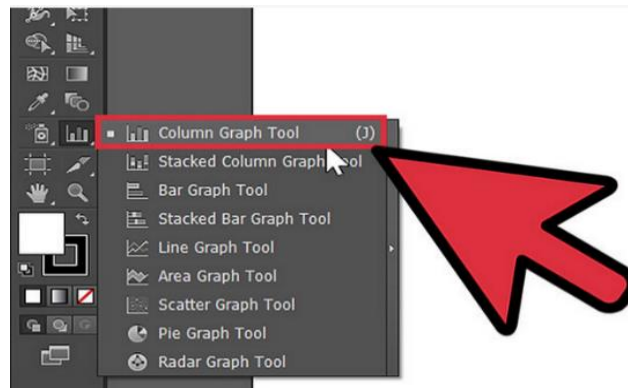
3- You will see a table to put your data, enter all your data in the table.
4- You will see a chart like in the picture (this illustrate is a Column Graph Tool).
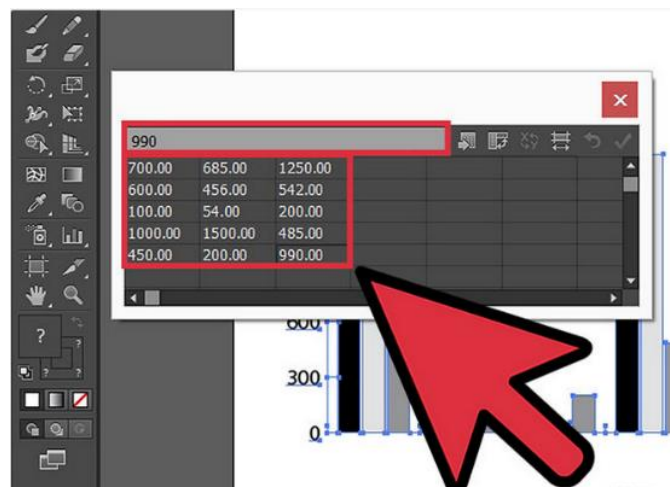
5- You can change the default graph by click on the graph (currently a bar chart), press the right click and select Type, let's change its type to area graph.
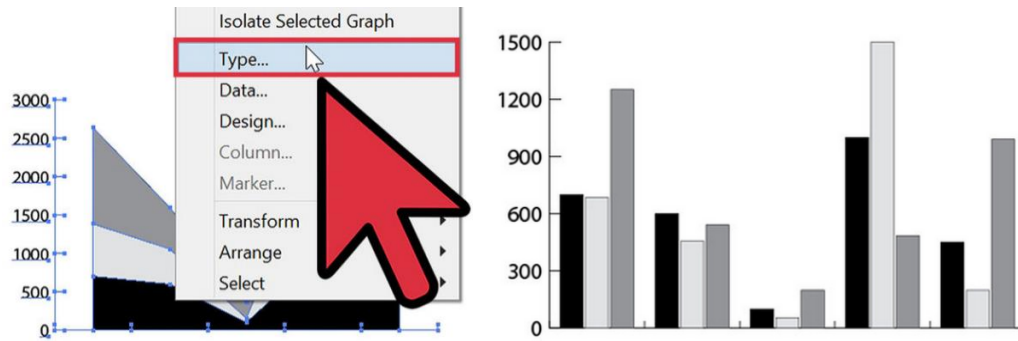
6- You can change your graph color or elements by use Direct Selection Tool.

Remember

You can select the indivisual components of the graph and apply different formating.
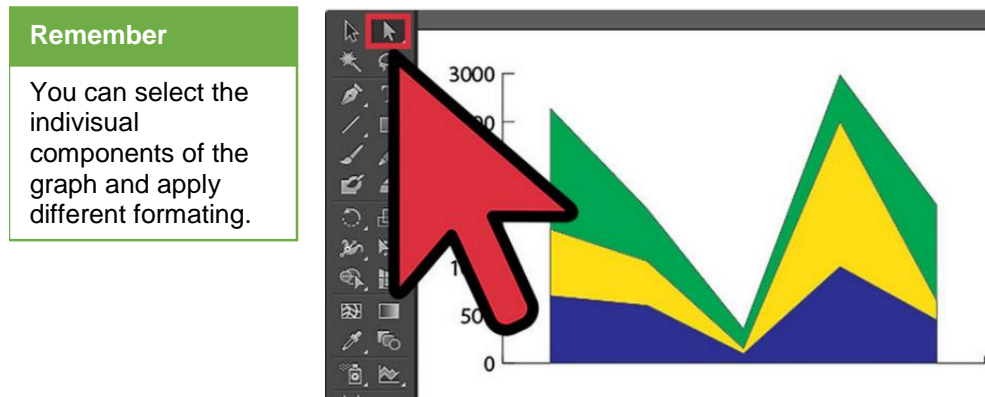
Creating table in Adobe Illustrator

1- Open Adobe illustrator.
2- Create a rectangle of desired size using rectangle tool.
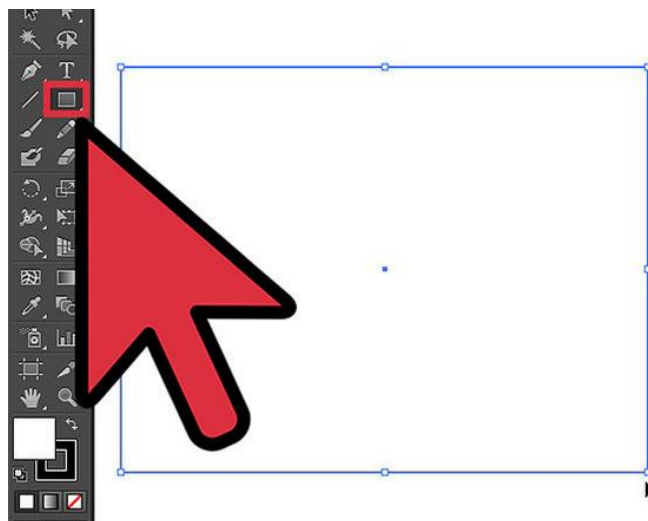
3- Click at your rectangle and choose Object at the main menu, scroll down to Path and select Split into Grid.
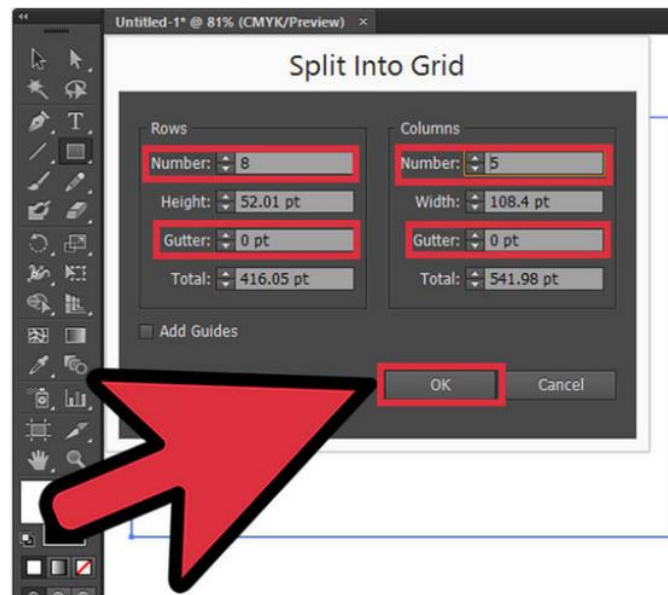
4- Set the number in Gutter box to 0px, type the number of row and column in the boxes and click OK.
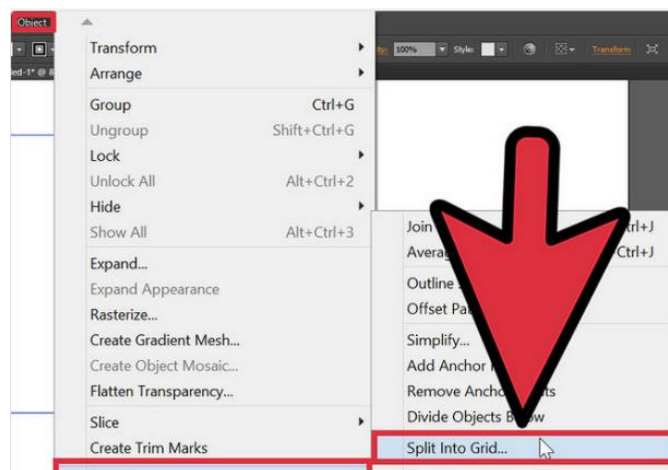
5- You will get a table and can change the color, stroke or type a text in each box.
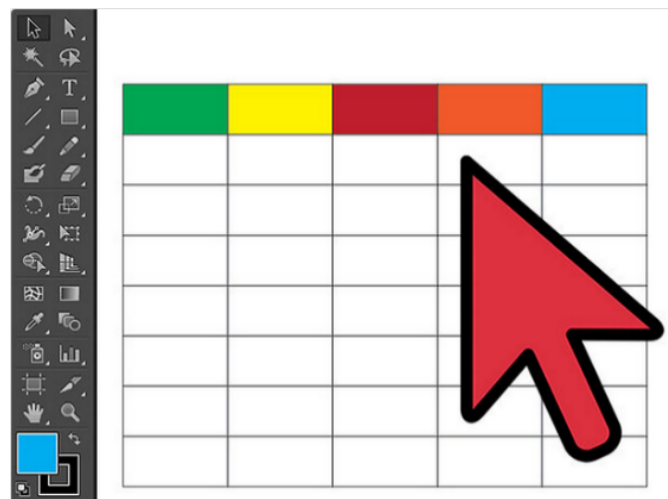
Creating table in Corel Draw

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.
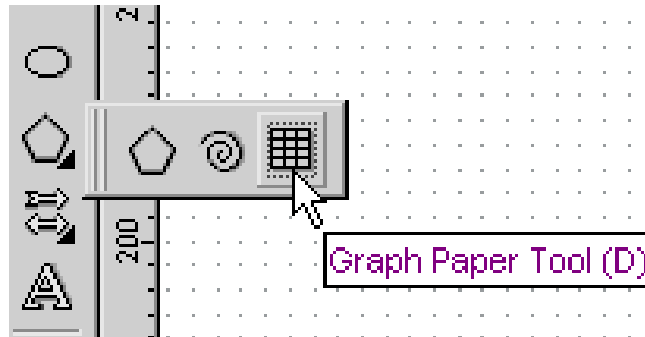
4- Enter the number of rows and columns in the graph paper tool property bar.

5- Click and drag to create the table of desired size.
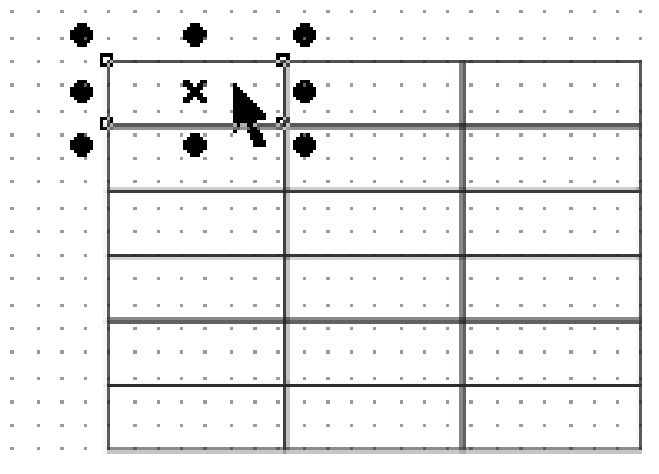
6- Just Ctrl+Click on cells to select and then specify the color or any other formatting.
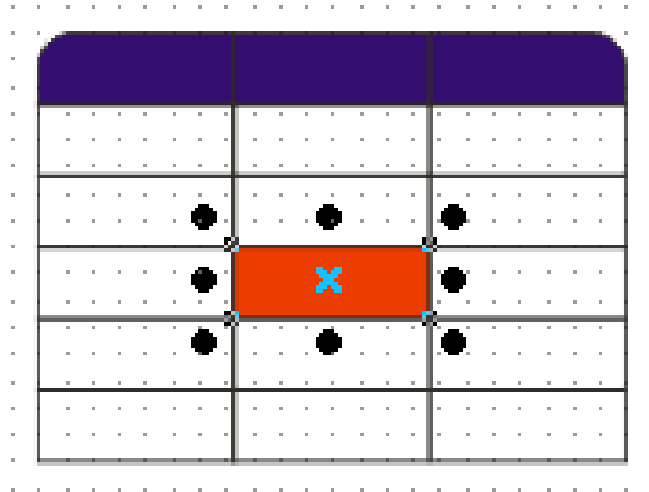
7- Fill in the data into the table and you are done.

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.
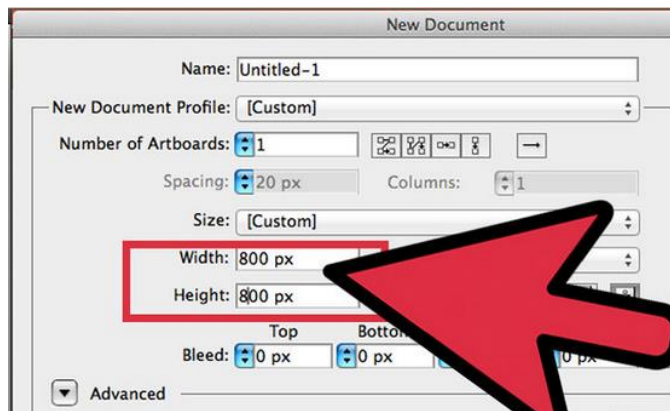
3- In our example we choose sketch of a hamburger.
4- Now create a new layer, use the "Ellipse Tool" on the toolbar. set the fill on toolbar to "none" and set the stroke color to "black" and the stroke weight to 1. Place the shape on the sketch following the sketch.
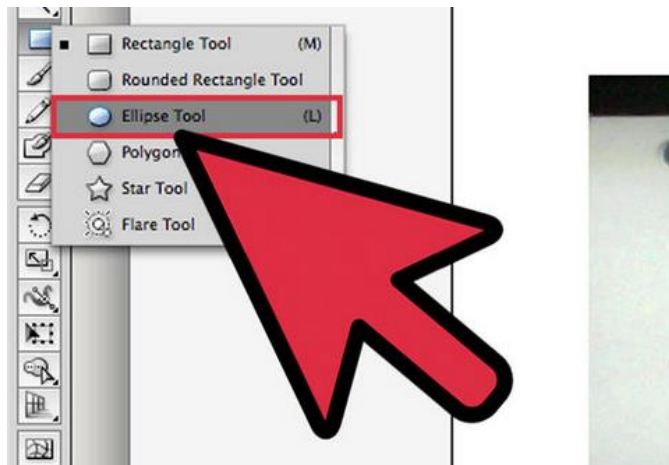
5- Create the other shapes for your sketch. Use "Pen Tool" to create a tomato slice, cheese and bread. Use "Pencil Tool" to create the meat and vegetable fillings.

Do you know!

Draw a sketch by hand or you can draw sketch in adobe Photoshop and open that sketch in Adobe Illustrator.
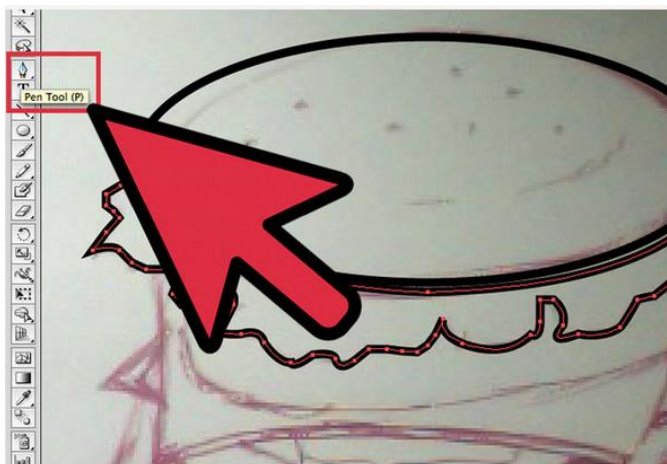
6- Draw all the shapes for ingredients on Hamburger.
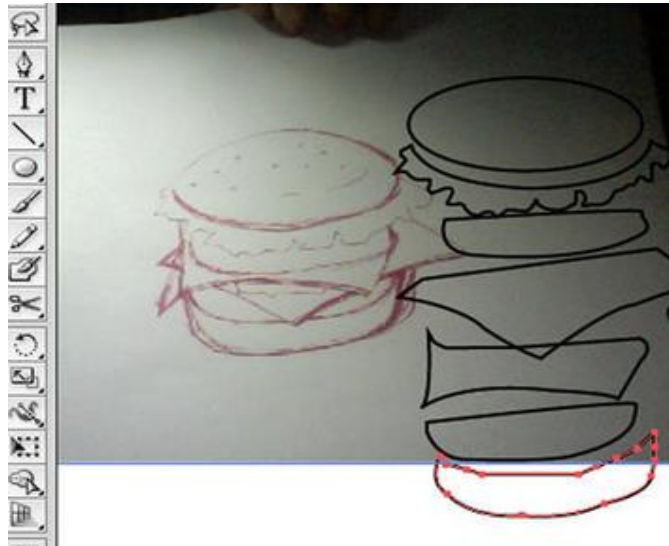
7- A dd color to the ingredients. Use the "Gradient Tool" to add color to two all the layers.
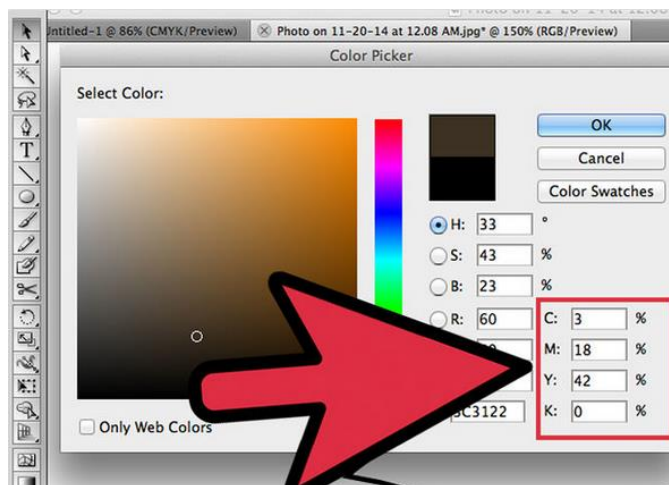
8- Add sesame seed on the top of burger using pen tool and you are done with the diagram.
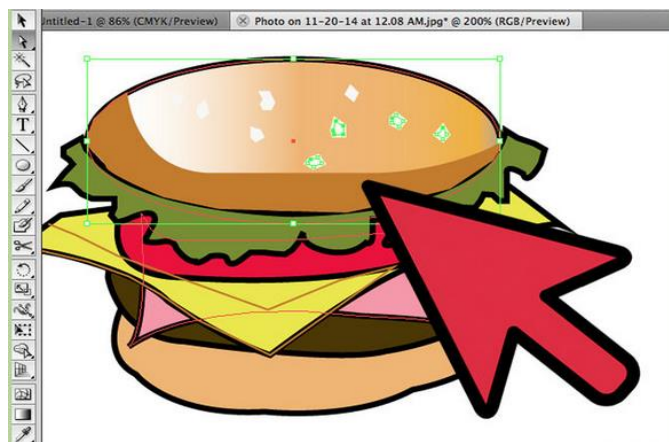
2. Apply Colors to Objects

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
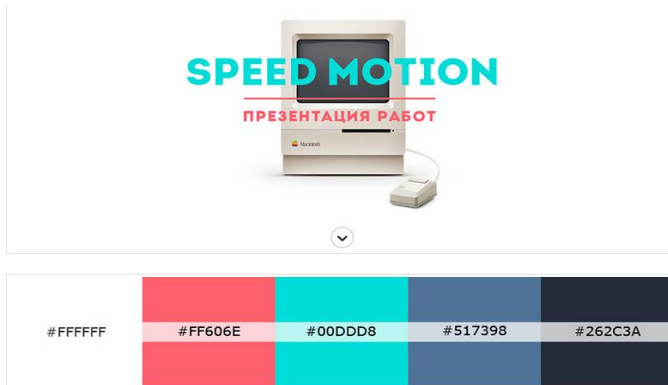
Different color used for objects

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.
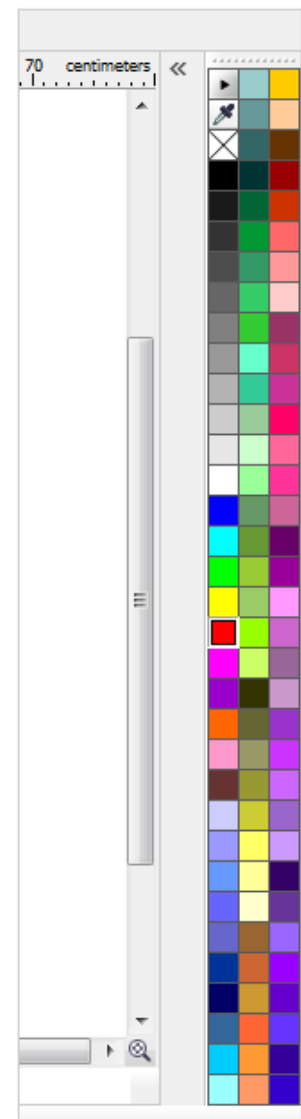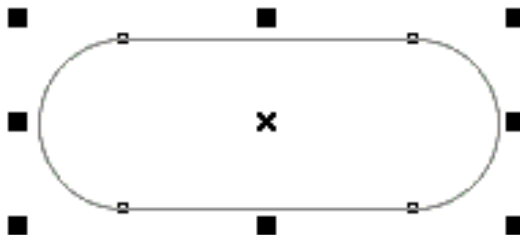
Fountain Color Fill

1- Click at the object to select it.

2- Choose the Interactive Fill tool from the Interactive Fill flyout in the toolbox.
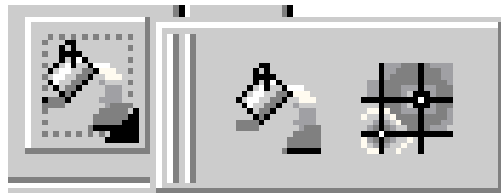
3- Using the default settings you can get a gradient fill from black to white. From the toolbar you can choose what type of fill as shown below

No Fill
No Fill
Uniform Fill
Linear
Radial
Conical
Square
Two Color Pattern
Full Color Pattern
Bitmap Pattern
Texture Fill
Postscript Fill
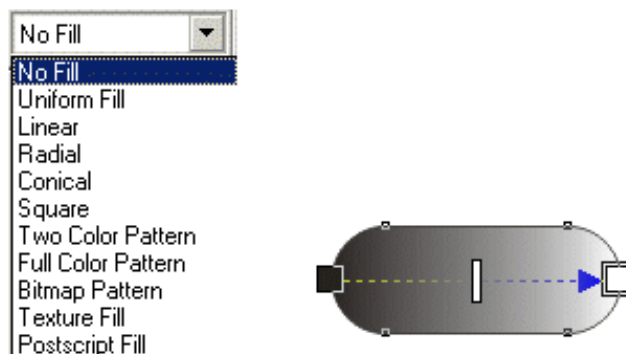
4- Drag and drop colors onto the handles of the fill to change the colors.
5- Move the drag handle on the fill to alter the gradients of the fill.

Remember

Click at the dotted line to add more color handles. That will give a multicolor gradient.

Teaching and Learning Material: Information Technology (Computer Graphics – Print)
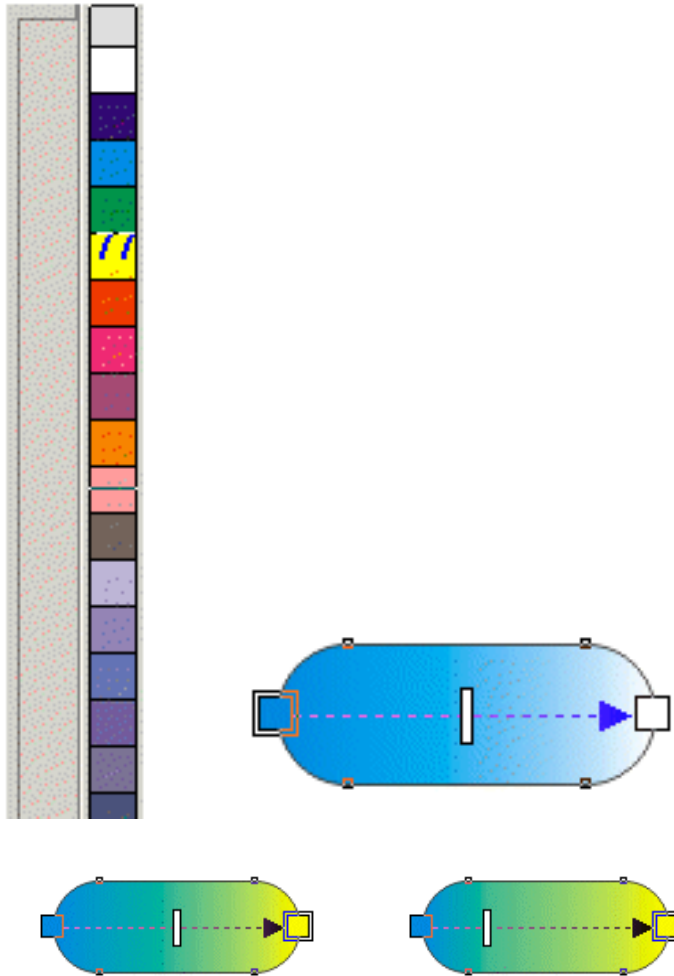
Summary of Module

- 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:	What is color cast?
Answer	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.
FAQ 2:	Why do we use threshold to remove color cast?
Answer	Threshold helps you to point the lightest and darkest area in your image.
FAQ 3:	What are visual effects?
Answer	Visual effects are used to enhance and give special effects to an image.
FAQ 4:	Why do we use transformation?
Answer	Transformation is used to change the geometry of the objects. It rotates, skews, distort 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 color to the same focal plane, and/or when wavelengths of color are focused at different positions in the focal plane.
FAQ 8:	Describe Vignetting?
Answer	Vignetting 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 – Print)

Module 5: Preparing Pre-Press Job

Learning Outcomes

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

- Understand the printing process

- Use crop and registration marks

- Understand the relation of printing plates and document size.

- Understand the formats used for publishing artwork

- Use appropriate storage medium for storing and publish the artwork

- Prepare CD or DVD

Teaching and Learning Material: Information Technology (Computer Graphics – Print)

Learning Unit 1: Setting Bleed, Margins, Gutter and Slug for Cropping (Printing)

Overview

This unit describes the specification and elements to be included in a document before printing so the printer will provide your final project as intended. After the completion of this learning unit, you will be able to demonstrate the process of applying bleeding, standard margins, gutter settings and slug on the image to be printed.

1. Bleeding and Documents that Require Bleeding

Introduction to Bleed

Bleed is a printing term that is used to describe a document which has images or elements that touch the edge of the page, extending beyond the trim edge and leaving no white margin. When a document has bleed, it must be printed on a larger sheet of paper and then trimmed down.

The example below shows how a document should be set up with bleed.

Bleed
Bleeds are images that extend beyond the live area of the page (and beyond the trim marks) to guarantee clean edges.

The Dotted Line Shows where the Card is Cut

Documents that Require Bleed

Common documents and their measurement of bleed in inches:

- 3.5" x 2" business card --->   3.75" x 2.25"
- 4" x 6" postcard   --->   4.25" x 6.25"
- 5" x 7" invitation   --->   5.25" x 7.25"
- 8.5" x 11" sheet   --->   8.75" x 11.25"
- 11" x 17" sheet   --->   11.25" x 17.25"

- Un mounted posters do not require bleed
- Mounted posters require 0.25" bleed on each side

2. Procedure of Applying Bleed to Extend the Image Background Color

Applying Bleed in Adobe Photoshop has Following Steps

1- Launch Adobe Photoshop as
   Start Button -> All Programs ->Adobe Photoshop

> **Remember**
>
> The best way to apply bleed is to apply bleed at the start of creating image.
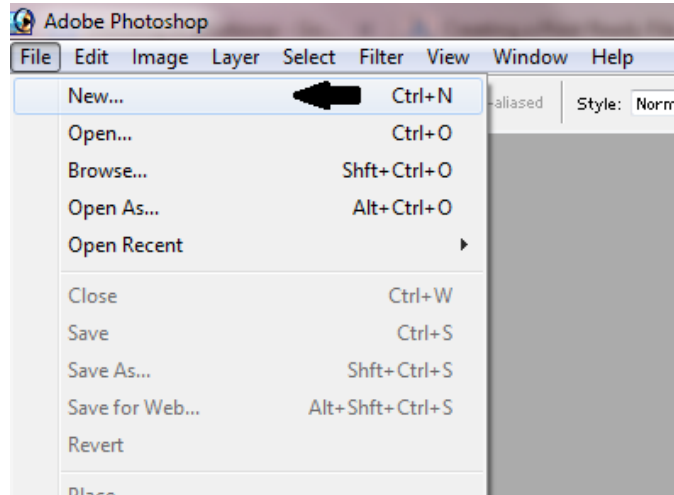
2- Choose file->New. New dialogue box will appear.
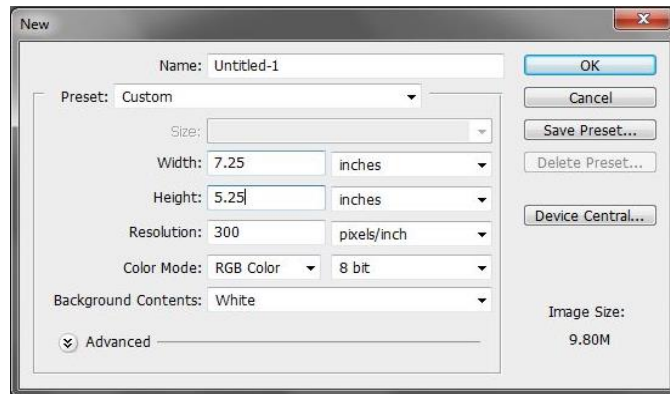
3- Set the new document's size and resolution. Remember to add the size of the bleed to the document size. For example, if final document size will be 5 by 7 inches, and the required bleed is 0.25 inch, set the document width to "5.25 inches" and the height to "7.25 inches and click OK.

Applying Bleed in Corel Draw

1- Open the Image in Corel Draw
2- Click Layout > Page Setup...
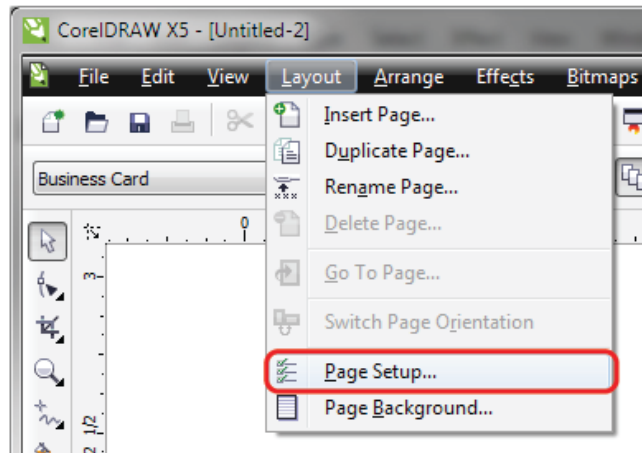
Do you know!

If in your image you have a solid color background, you will have to apply bleed on all the four sides. If there is just some artwork in your image that touches just one side then you will have the bleed just that one side.

3- In the Bleed: box, type in 0.125 and check "Show bleed area"

4- Click Ok
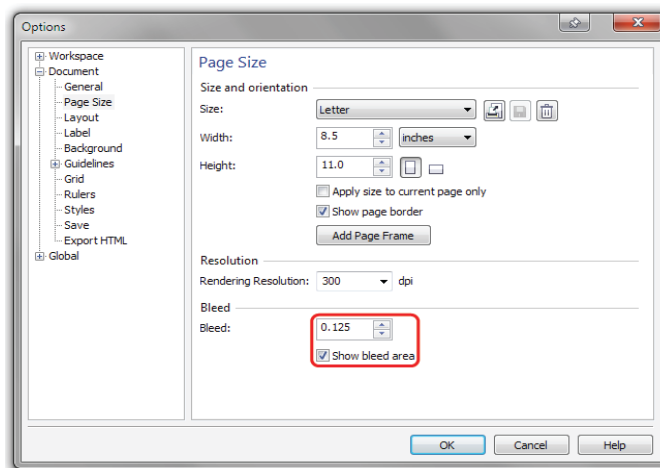
Do you know!

If in your image you have a solid color background, you will have to apply bleed on all the four sides. If there is just some artwork in your image that touches just one side then you will have the bleed just that one side.

3. Procedure of Applying Margins to the Document

Applying Margins in Corel Draw

1- Open the Image in Corel Draw

2- Click Layout > Page Setup...

Remember

Visually margins cage the content and support the structure of a layout.
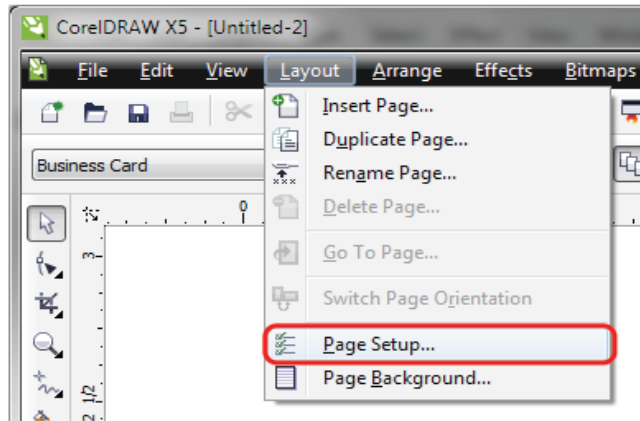
3- Do the following step:

    a.   Click the + to expand Guidelines

    b.   Click Presets

    c.   Click the User Defined Presets round button

    d.   Check "Margins"

    e.   Type in 0.125 into the Top and Left boxes (if mirror margins is checked it will fill in the rest)
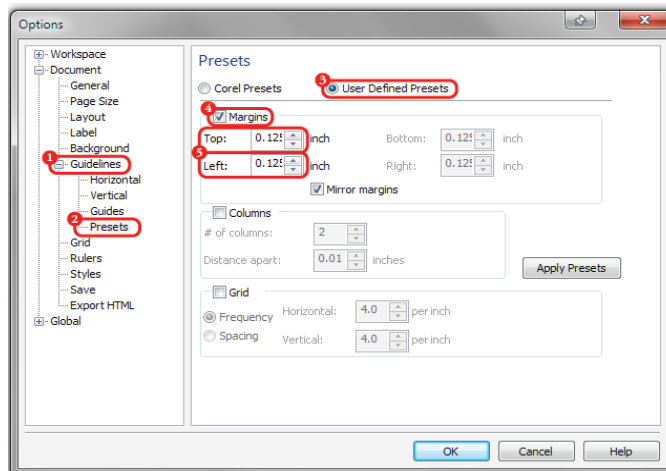
4- Click Ok

Applying Margins in InDesign

Remember

Default page margin is 1 inch in all four sides.

1-   Launch InDesign

2-   Click File -> New -> Document
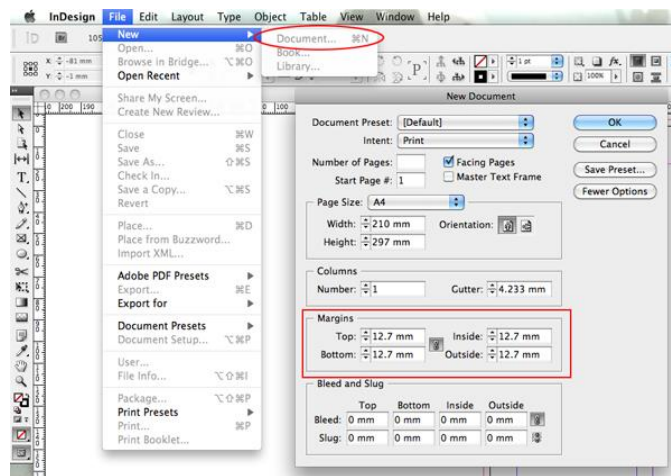
3- Go to the Margins section.
4- Enter the margin for top, bottom inside and outside.
5- Click Ok

To Redefine Margins in InDesign

1- Open the document in InDesign
2- Select the pages to be edited as:

    a. Go to window -> pages
    b. Hold down Shift button and click at the pages you need.
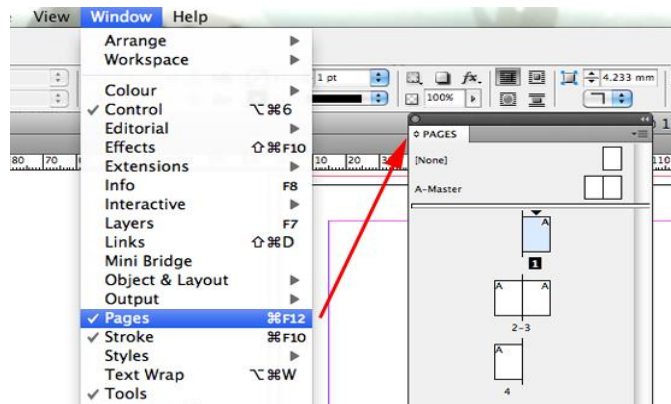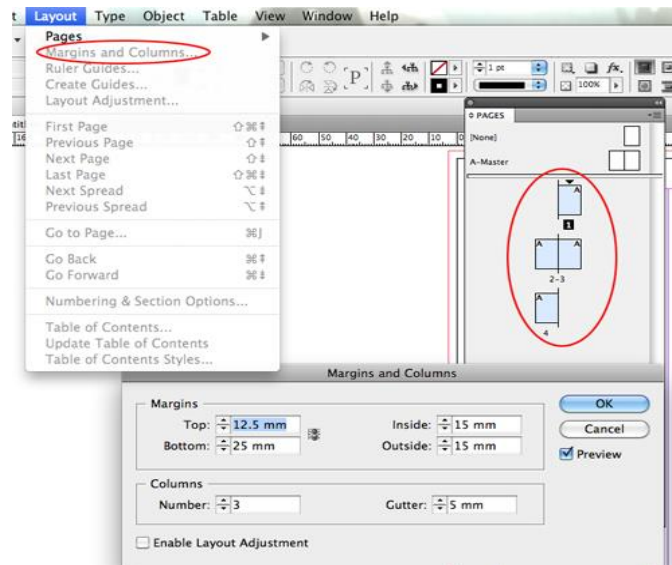
3- Go to Layout->Margins and Columns.
4- Set new values for Margins.

4. Procedure of Gutter Setting for the Document to be Printed

Setting Gutter in InDesign

1- Launch InDesign
2- Click File -> New -> Document

Gutter

The gutter margin refers to the additional margin added to a page layout for binding process.
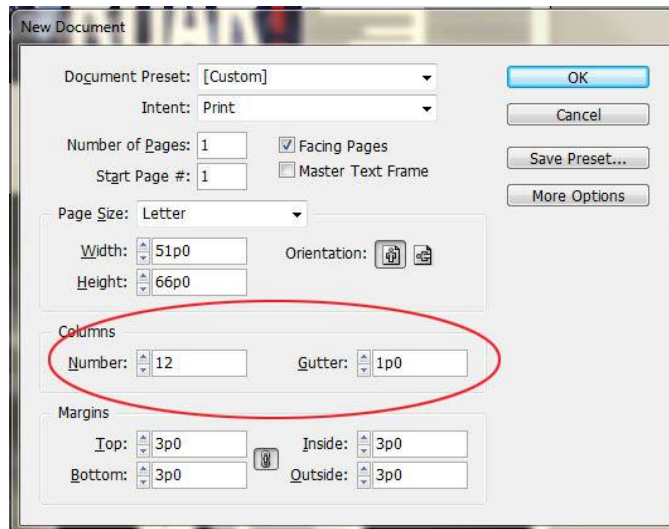
3- Go to the Columns section
4- Enter the gutter value
5- Click Ok

To Redefine Gutter in InDesign

1- Open the document in InDesign
2- Select the pages to be edited as

    a. Go to window -> pages
    b. Hold down Shift button and click at the desired pages.
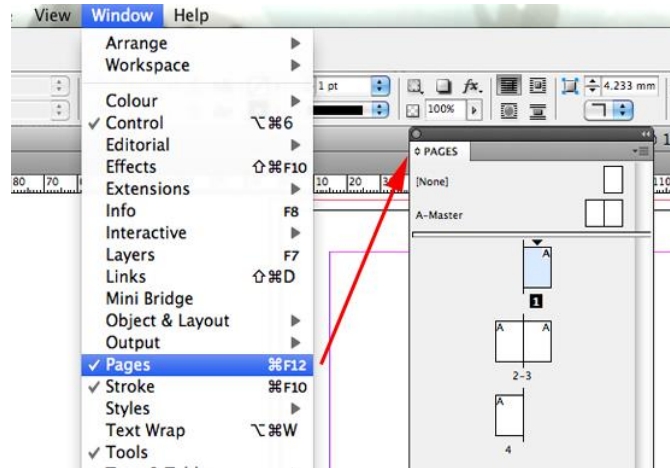
3- Go to Layout->Margins and Columns
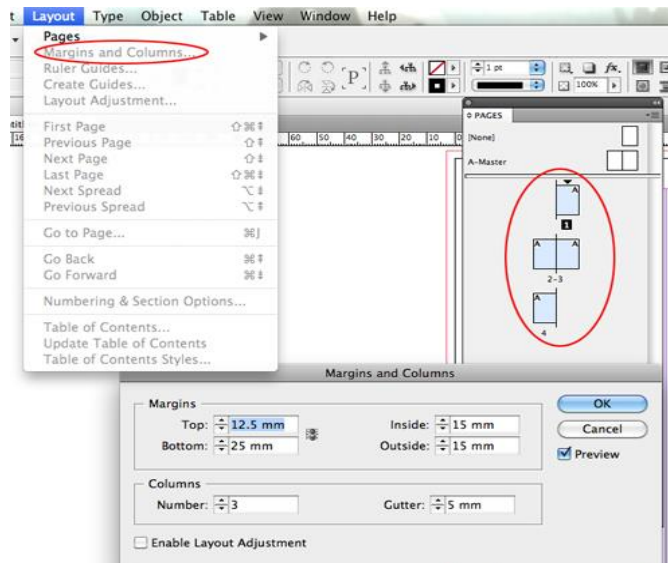
4- Set new value for gutter

5. Procedure of Setting Slug

Setting Gutter in InDesign

1- Launch InDesign
2- Click File -> New -> Document

Slug

Slug area is an area outside the margin and bleed that contains printing information, customized color bar information, or displays other instructions.

Remember

Slug is normally used to identify a document. It is used to write notes to the printer and/or other people working on the document
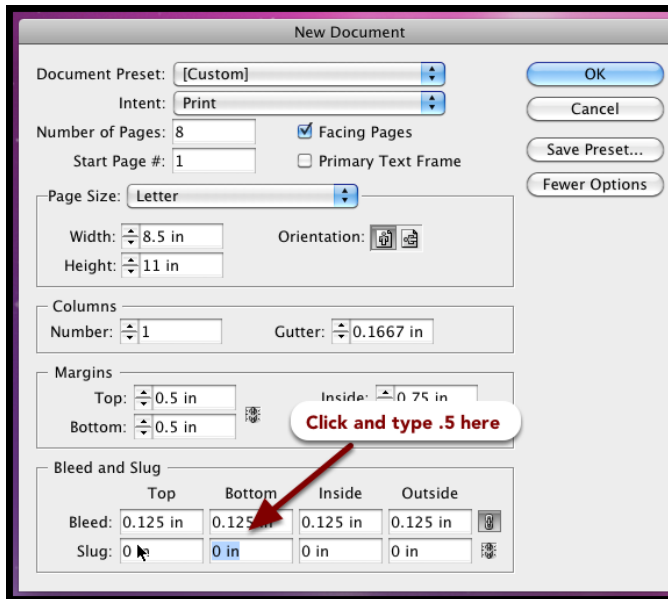
5- Click Ok

3-   Go to the Bleed and Slug section

4-   Enter the Slug value in top, bottom, Inside [right] and Outside [left]

Learning Unit 2: Apply Cropping and Registration Marks

Overview

This unit describes the concepts of crop marks or trim marks. After the completion of this learning unit, you will be able to use of crop marks, in a way to make it easy to trim the document and set the final intended size of the document.

1. Use of Crop Marks or Trim Marks

When a document is prepared for printing, a number of marks are needed to help the printer to perform a number of jobs to be executed before printing. For example the marks to determine where to trim the paper after printing. Selecting any page-mark option expands the page boundaries to accommodate printer's marks, bleed (the parts of text or objects that extend past the page boundary to account for slight inaccuracy when trimming).

| **Crop Marks** |
| Crop marks are the lines printed on the corners of the print representing where the paper will be trimmed after printing. |

One of these marks is the crop marks. Crop marks which are also known as trim marks, are the lines printed in the corners of your publication's sheet or design sheet to show the printer where to trim the paper after the printing process is complete. Crop marks or trim marks are used by commercial printers for creating bleeds where an image or color on the page needs to be extended all the way to the edge of the paper.
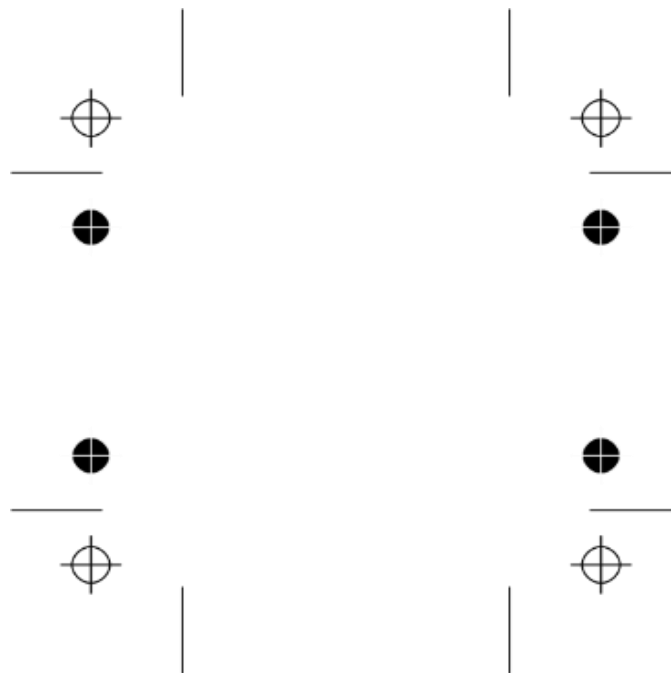
Crop Marks or Trim Marks

The reason why these marks are used is that printers generally can't actually print to the very edge of the paper, so instead of printing on a larger sheet of paper and then trim it down to the correct size, and crop marks are used to define where to trim. So, to print crop marks, you must print on a paper size that is larger than the page size you have set for your publication.
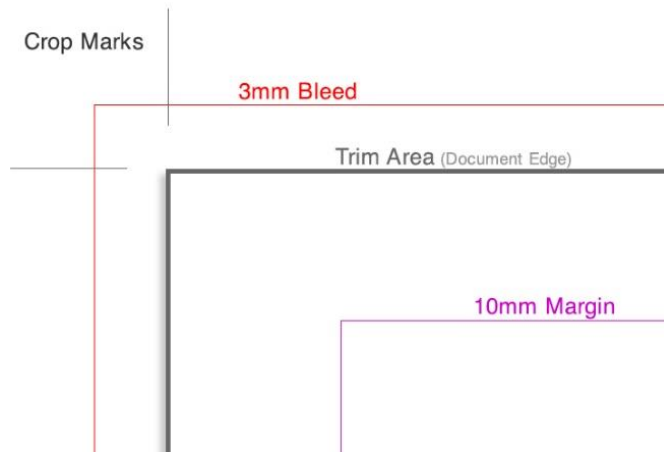
Crop Marks, Bleed, Trim Area, Margin Marks

2. Benefit of Using Crop Marks

When to Apply Crop Marks?

Remember
While using crop marks, the paper size used for printing should be larger than the intended page size so that after trimming the page size does not get shorter.

For example while creating a banner and printing it on desktop printer using letter-size or legal-size paper, publisher will print the banner across several sheets of paper that you need to cut and paste or tape together. Crop marks make this process much easier, if you want to create bleeds in your publication. Printing the crop marks makes it much easier for trimming the sheet back to create the bleed.

Basically, whether there is a bleed or not, any piece that will be trimmed after printing needs Crop Marks. Crop Marks are generally added with the same software that was used to create the original design. When your printer receives the artwork, it is printed on the paper that is larger than the actual document size desired. Then, using the Crop Marks as a guide, printer trims the paper down to its final size.

Crop Marks are extremely important to ensure the project is trimmed in the proper place and to the proper size. As a commercial printer, we see a lot of artwork submitted with the crop marks omitted and/or bleeds improperly set up, which unfortunately delays the printing process.

3. Using Trim Marks to Set the Final Intended Size of the Document or Design

Trim marks can also be defined as the sets of two right angle dashes in the four corners of image which allows the printer to cut stacks of the finished job accurately, trimming away anything not desired on the finished print but which was useful while going through the print process, including the printer's marks. This also includes bleeds.

As the trim marks define where the document will be trimmed after printing, the actual size of the document before trimming should be kept larger. So the trim marks also shows how large will the page or document look in the final stage.
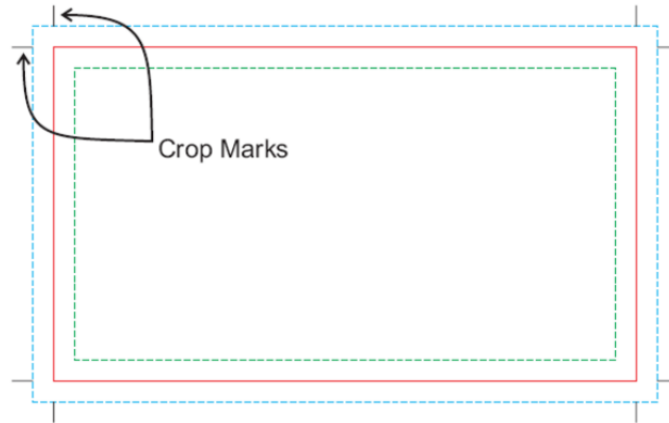
Crop Marks, Bleed and final size of the page

Learning Unit 3: Apply USP Guidance

Overview

This unit describes the concepts of Unique Selling Point guidance. After the completion of this learning unit, you will learn the relation of printing plates, document size, rulers and the process of changing ruler settings and document size or paper size for USP.

1. Understand the Use of Rulers

Rulers

Ruler
The ruler is a measurement tool found with some software programs that allow the program's user to align graphics, text, tables, or other elements on a page.

Rulers are widely used in graphic software to position images or elements precisely in an artwork or design. When you make the rulers visible, they appear along the top and left side of the active window. When you move the rulers, the markers show its location. You can change the origin of rulers to measure from a specific point in the image.

You can show rulers in Adobe Photoshop as

1-   Open your image in Adobe Photoshop.
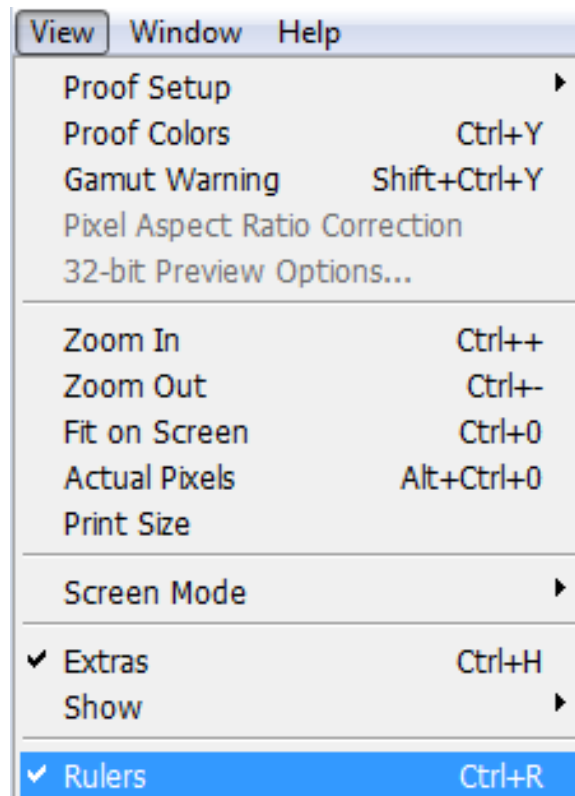
2-   Click at View->Rulers.

Change Ruler's 0 Origin in Adobe Photoshop

1- Position the mouse on the intersection of horizontal and vertical rulers on the top left corner.
2- Drag diagonally to the image, a set of cross hairs appears, marking the new origin on the rulers.
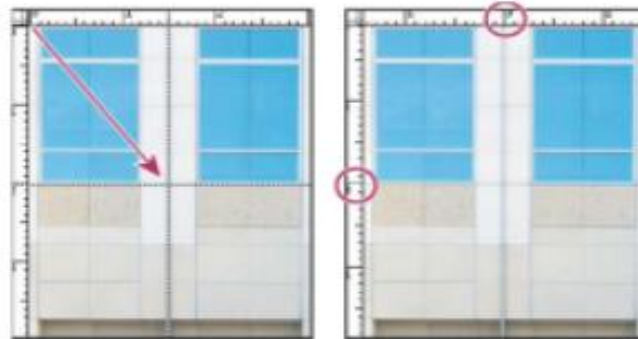
Dragging to create new ruler origin

3- To reset the origin of the ruler, double click the upper left corner of the ruler.

Change ruler's unit of measurement in Adobe Photoshop

1- Open the image in Adobe Photoshop
2- Show the rulers
3- Double click at one of the rulers, preferences dialogue box will appear
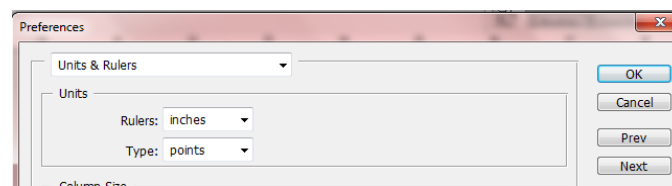
4- Change the unit and click OK.

2. Define Document Size and Paper Size for USP

As one of the main purpose of design is to convey the Unique Selling Point effectively, the design aspects should also be planned according to USP guidelines. One of the aspects that matters is the document size or paper size for the design containing USP. The document size should not be too large so that it makes design element too far away from each other leaving white space between them and in effect, breaking their connectivity. Document size should neither be too small that the design area becomes too congested or you would have to omit some important details in order to accommodate design elements in the available space.

Document size used should be large enough to hold all the necessary details leaving any extra detail. It should be able to convey Unique Selling Point to the target audience effectively. Document size or paper size should be cost effective and be appealing at the same time. Whatever paper size you use, make your design something that your customers will want to pick up or want to read and comprehend.

Another factor that affects the paper size is that the size of the artwork determines the size of the press. The size of the press determines the length of the run. Presses only earn money when they run.

Learning Unit 4: Prepare and Publish Artwork

Overview

This unit describes the concepts and practices involved in preparing the artwork for publishing. After the completion of this unit, you will be able to demonstrate the storing of artwork on CD or DVD. Also you will learn the guidelines for the submission of artwork and the formats that can be used for preparing artwork for publishing.

1. Procedure of Storing Data on CD/DVD or Other Storage Devices

Remember

Before send your artwork for publishing, always save a backup of your work at your place.

After your artwork is complete, in order to submit the data for publishing, you need to store it on some storage device like CD/DVD or USB flash drive.

Saving Artwork on CD/DVD

You can save your data on CD/DVD as

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 desired files into the empty disc folder. The files are copied as you drag them
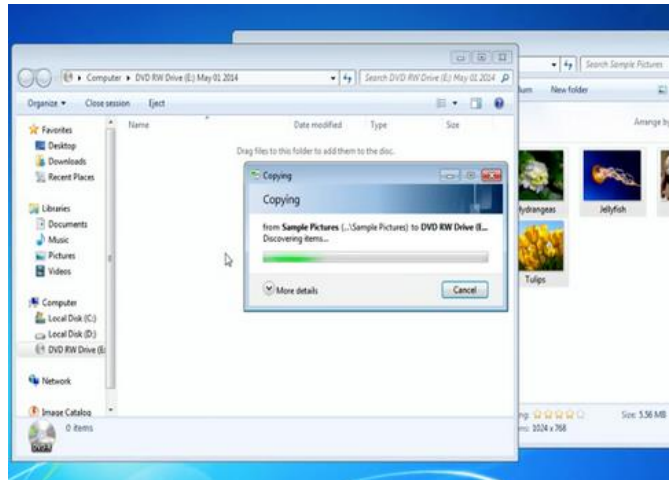
6- Click at close session that will make the CD/DVD ready for use on other computers.

You can save your data on the USB flash drive as:

1- Insert USB flash drive into the port at your computer

Do you know!

You can also use some specific software for burning data at CD/DVD that will give you even more control over the burning speed.

2- Right click at the file to be copied and click at Send to
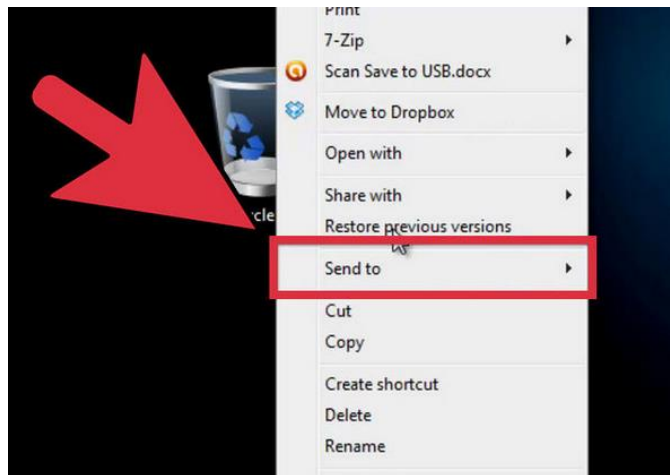
3- Click at your removable device from the list of devices and a copy of the file will be saved in the removable disk drive
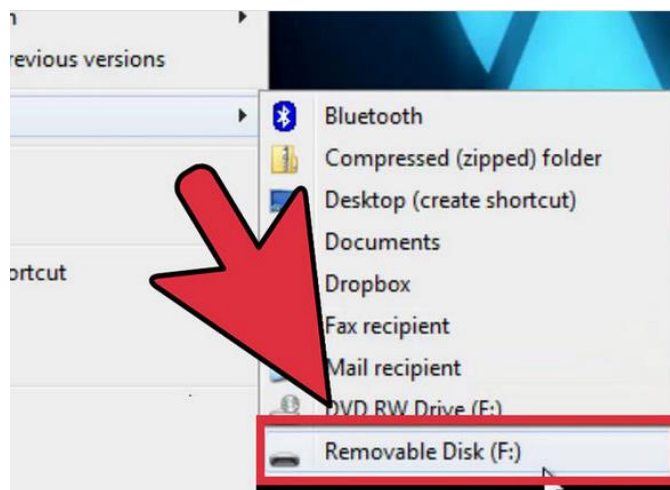
4- When finished, click on the icon with a small flash drive with a check mark in the system tray to eject your hardware

Teaching and Learning Material: Information Technology (Computer Graphics – Print)
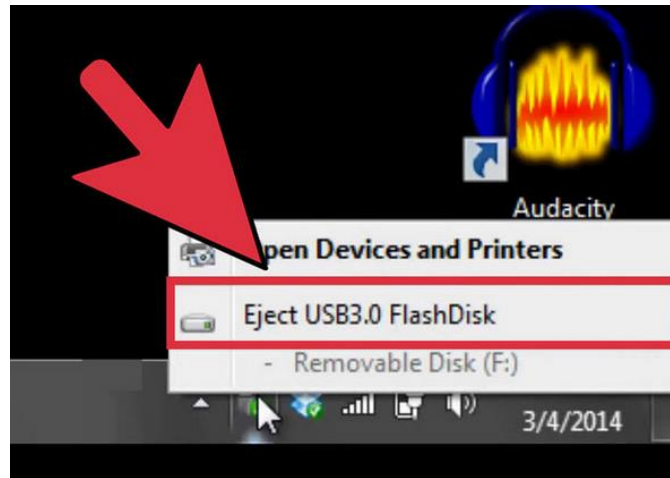
5- Remove the USB flash drive from the USB port

2. Submission Guidelines for Artwork

When preparing your files for printing be sure to check your files for color, fonts and file resolution. There are a few more things to be checked before sending them for print.

1. Provide crop marks.

2. Allow for bleeds; 1/8 inch beyond the borders.

3. Provide all fonts or convert fonts to outlines.

4. Make all colors Spot or CMYK (each color equals a plate).

5. Supply all linked files (scans, photos, and artwork).

6. Provide a High Resolution PDF or hard copy proof.

7. Make sure the size is correct.

8. Eliminate all unnecessary files.

9. Give your contact information: (e-mail, phone, fax, and contact name). So that they can contact you if there is a need.

10. Tell them what kind of a proof you want (pdf or printed)

11. Spell check all files

12. Check the quality of the pictures included in your document or design, a 72 dpi file resaved to 300 dpi will still print badly. It needs to be created at 300 dpi to start with.

13. Before submitting your files please check to be sure it folds correctly and holes/die cuts do not interfere with artwork.

3. Formats Used for Preparing Artwork for Publishing

It is recommended that electronic artwork files be submitted in one of our following preferred formats for publishing.

Format
A file format is a standard way that information is encoded for storage in a computer file.

TIFF (Tagged Image File Format)

This format breaks an image down into pixels. The more pixels there are the sharper the final image will be. This is what is meant by higher resolution. This is the most widely supported format across Windows and Mac platforms. This format is recommended for photographic images.

PS and EPS (PostScript and Encapsulated PostScript)

These formats are generally resolution independent. This means there are virtually no limits to scaling for line art as long as the line weights are not defined as "hairline". They can also contain TIFF images. These should be high resolution (as above). All fonts should be embedded. Minimum line weight is 0.3pt for black lines on a white background. This format is recommended for line art and combinations of photographs and labeling.

PDF

This format is very similar to EPS. Before saving an image as a PDF it is important to make sure that the fonts are embedded and that the original images are at the correct size and resolution. To check this visually you can zoom in on the PDF. As PDF is a non-editable format, you may need to provide an editable version if any changes are required.

JPEG

JPEG is a good format for images intended only for online publication. It is a compressed format which means it discards some color information. This may not be noticeable on a monitor but is more apparent in print, although it is still adequate for print in most cases.

GIF

GIF is a format that can be used for images containing few colors. This is a format that should only be used for images intended for online publication.

Summary of Module

- Bleeds are images that extend beyond the live area of the page (and beyond the trim marks) to guarantee clean edges.

- Margins are the guides in your document around the text or artwork that make and support the structure of the document.

- The gutter margin refers to the additional margin added to a page layout to compensate for the part of the paper made useless by the binding process.

- Slug is normally used to identify a document. It is used to write notes to the printer and/or other people working on the document.

- Crop marks are the lines printed on the corners of the print representing where the paper will be trimmed after printing.

- The ruler is a measurement tool found with some software programs that allow the program's user to align graphics, text, tables, or other elements on a page.

- After your artwork is complete, in order to submit the data for publishing, you need to store it on some storage device like CD/DVD or USB flash drive.

- You can send your artwork for publishing in TIFF, EPS, PDF, JPEG, GIF etc.

Frequently Asked Questions (FAQs)

FAQ 1:	What will happen if we don't use Bleeds?
Answer	If you don't use Bleed, there will be a risk of leaving a white space edge after printing.
FAQ 2:	What will happen if Bleed is always applied on all four sides?
Answer	If in your image you have a solid color background, you will have to apply bleed on all the four sides. If there is just some artwork in your image that touches just one side then you will have the bleed just that one side.
FAQ 3:	What is Margin?
Answer	Margins cage the content and support the structure of a layout.
FAQ 4:	What is Gutter setting?
Answer	The gutter margin refers to the additional margin added to a page layout to compensate for the part of the paper made useless by the binding process.
FAQ 5:	What is Slug?
Answer	Slug is an area outside the margin and bleed that contains printing Information, customized color bar information, or displays other instructions.
FAQ 6:	Why are crop marks helpful?
Answer:	Crop marks are helpful because they help printer know where the page will be trimmed after printing.
FAQ 7:	What is the purpose of using ruler?
Answer:	Rulers help in graphic software to position text and images at precise location.
FAQ 8:	What is EPS file format?
Answer:	These formats are generally resolution independent. This means there are virtually no limits to scaling for line art as long as the line weights are not defined as "hairline".

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.   Bleed is used for _____.

a.   High Quality Printing   b.   Clean Edges after print

c.   Posters Printing   d.   Tough Printing

2.   Best time to apply Bleed is _____.

a.   At the time of printing   b.   During Image editing

c.   At the start   d.   No Limitation

3.   While Printing book, Gutter of both pages is at _____.

a.   Top Side   b.   Bottom Side

c.   Inner Side   d.   Outer Side

4.   Slug area _____.

a.   Arrange the document   b.   Contain margin Information

c.   Supports structure   d.   Contains notes for printer

5.   Arrangement of bleed, slug and margin is _____.

a.   Bleed, Margin, Slug   b.   Slug, Bleed, Margin

c.   Margin, Slug, Bleed   d.   Slug, Margin Bleed

6.   Crop marks are used by commercial printer for creating _____.

a.   Bleed   b.   Slug

c.   Margin   d.   Slug and Margin

7.   The origin of the ruler is changed to _____.

a.   Resize design elements   b.   Measure from a specific point

c.   Move design elements from one point to other   d.   Resize document

8.   Which of the following is not a recommended format for artwork _____.

a.   TIFF   b.   JPEG

c.   Zipped   d.   PDF

Answer Key

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

Module 6: 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

- Install and configure required driver

- Install and configure input/output devices

- Connect various devices using appropriate ports and cables

Learning Unit 1: Install Graphics Software

Overview

In this leaning unit, you will learn the installation steps for various graphic software. After the completion of this learning unit, you will be able to demonstrate and practice the installation of Adobe Photoshop, Corel Draw, Adobe Illustrator and Adobe InDesign. Also you will be able to configure these software and get familiar with the work environment.

1. Procedure of Installation of Graphic Software

System Configuration Required for Adobe Photoshop CS 6

Following system configurations are recommended 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.

> **Adobe Photoshop**
>
> Adobe Photoshop is a raster graphics editor developed and published by Adobe Systems for Windows and OS X.

Installation of Adobe Photoshop CS 6

1- Insert the Adobe Photoshop CD and open the folder containing the file.
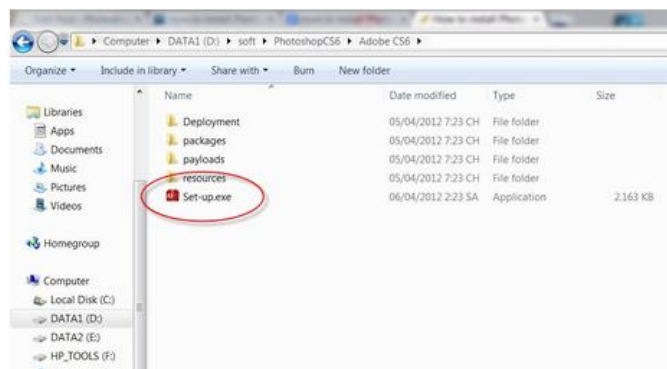
2- Right click at setup and then click at Run as administrator.

Do you know!

Installer of software is a software component which is responsible for the installation, maintenance and removal of software.
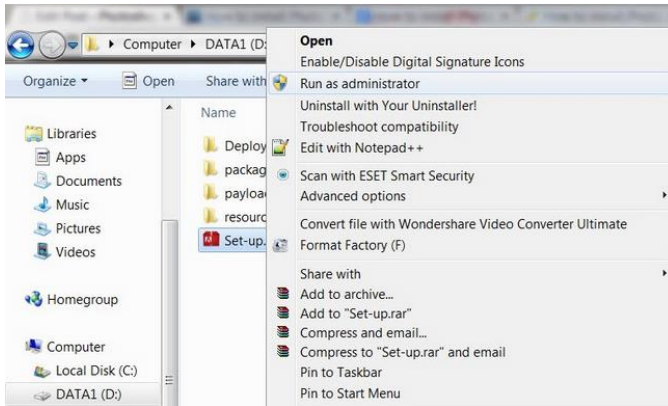
3- Wait for the initializing of files.
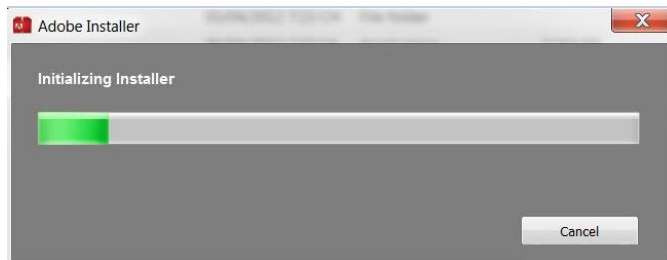
4- We have 3 options: Install with serial number, start my subscription, install a trial. You can install a trial to use 30 days free. After that you can buy license and add key to active product. If you have a key, you should choose Install with serial number.
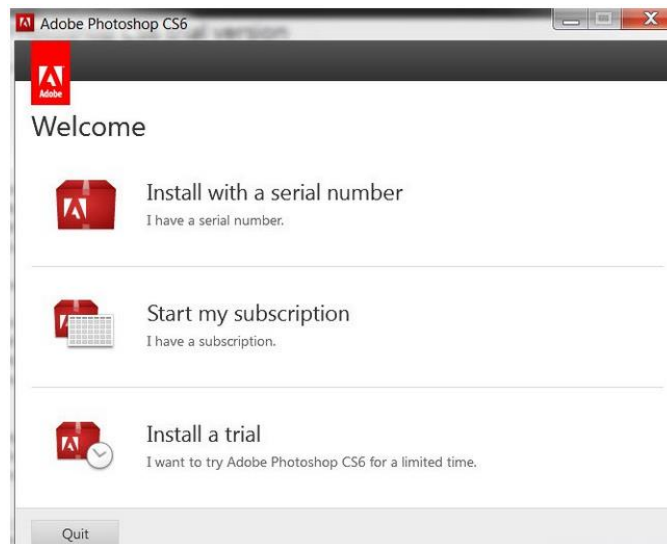
5- After choosing option setup, you will see a new window. You have to accept the adobe license agreement.
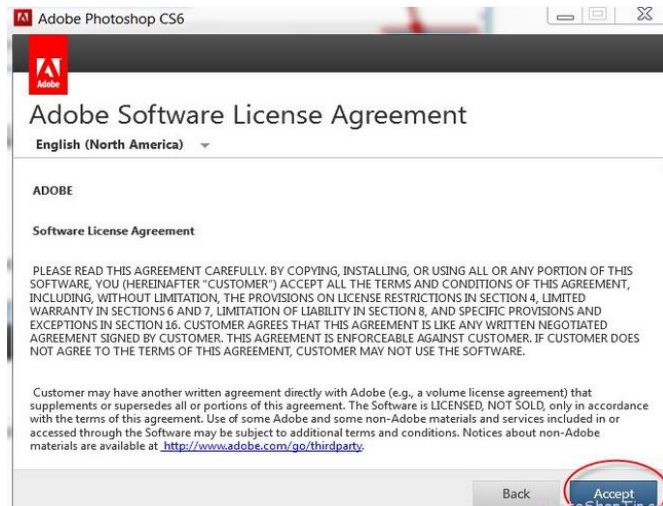
6- Select the Language.
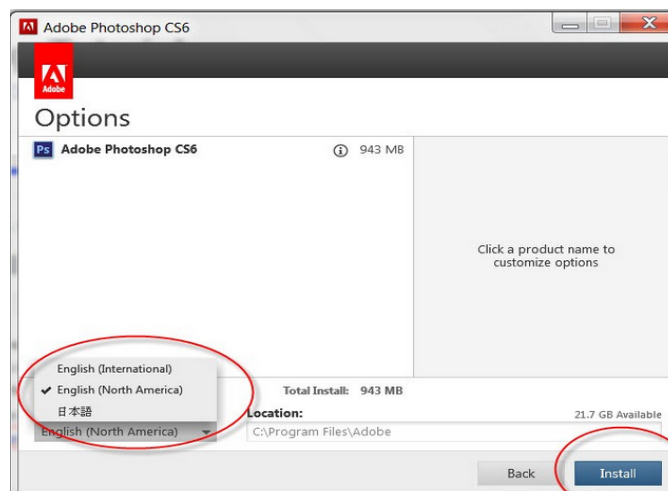
7- Wait for several minutes for the installation.
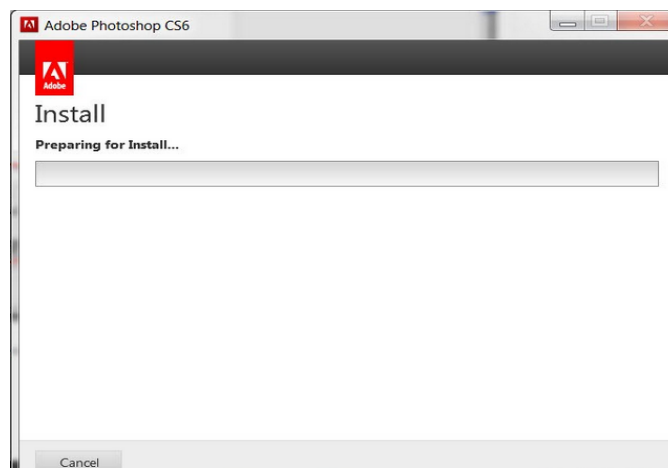
8- Click at close after installation is complete.
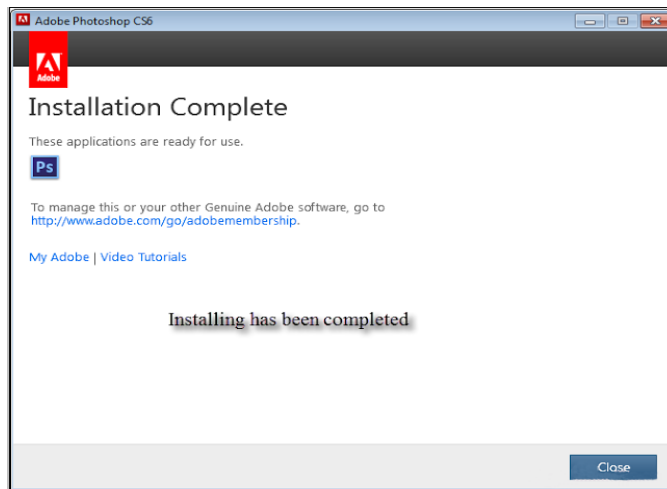
9- To open Adobe Photoshop, click the Start menu button, point to All Programs (or Programs), and click Adobe Photoshop.

Adobe Photoshop Work Environment
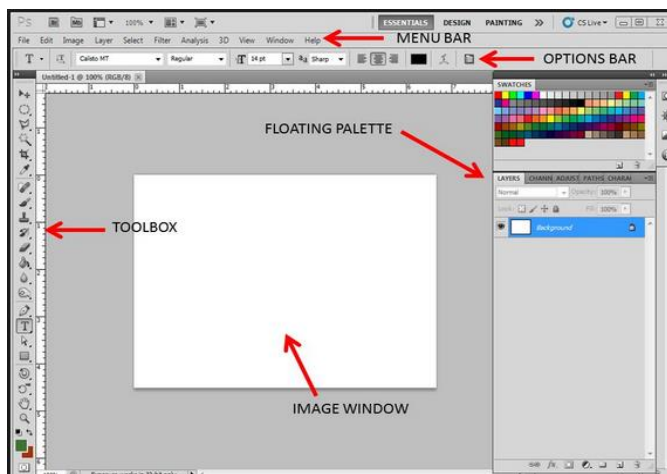
1- **Tool Box**

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**

Palettes show 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.

System Configuration Required by CorelDraw X6

- 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.

Installation of CorelDraw X6

1- Insert the installation disc in your DVD drive.
2- The AutoPlay window should prompt you on what action to perform.

3- Open the folder and double click at Setup file.
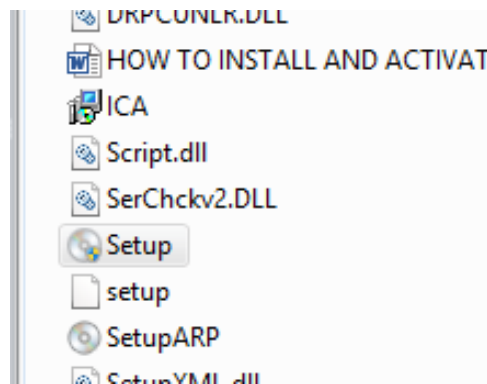
4- Setup will initialize the installation.

CorelDraw

CorelDraw is a vector graphics editor developed and marketed by Corel Corporation of Ottawa, Canada.
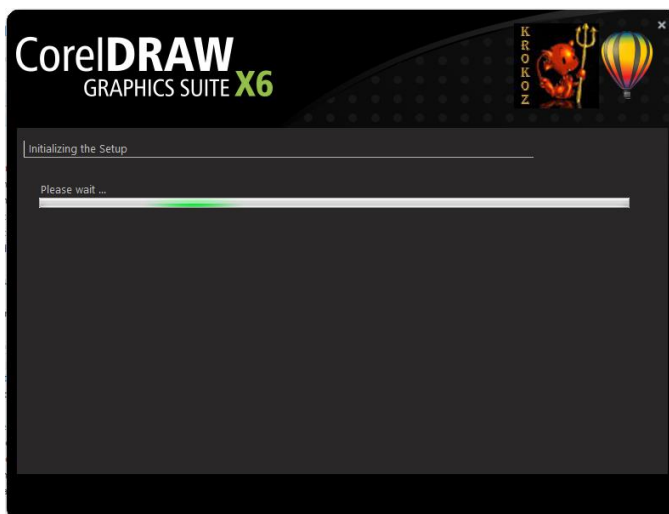
5- Accept the license terms and click at Next.
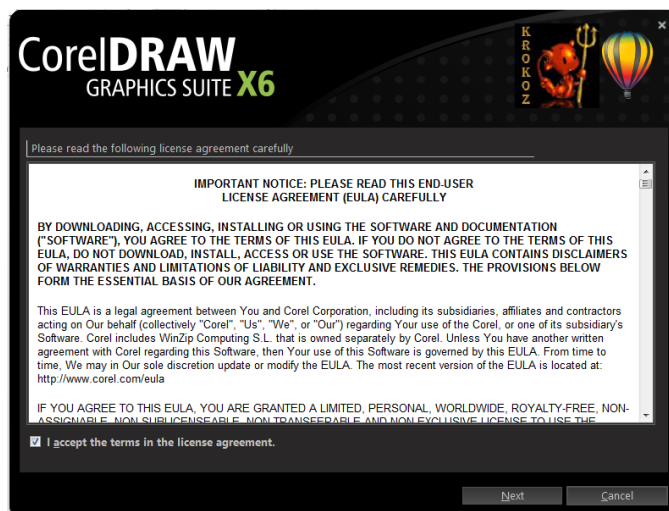
6- Enter the user name and enter the serial key.
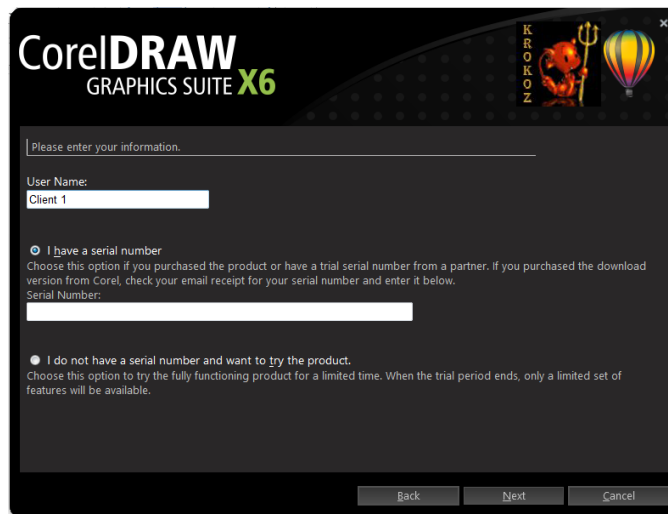
7- Click at Typical Installation.
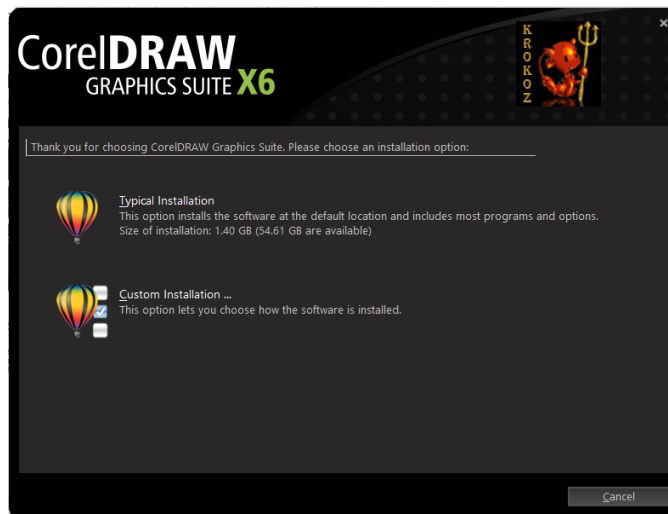
8- Wait for the installation to complete.

Remember

Custom installation allows you to choose among the components of installation you want to install.

9- Click at Finish after the installation is complete.
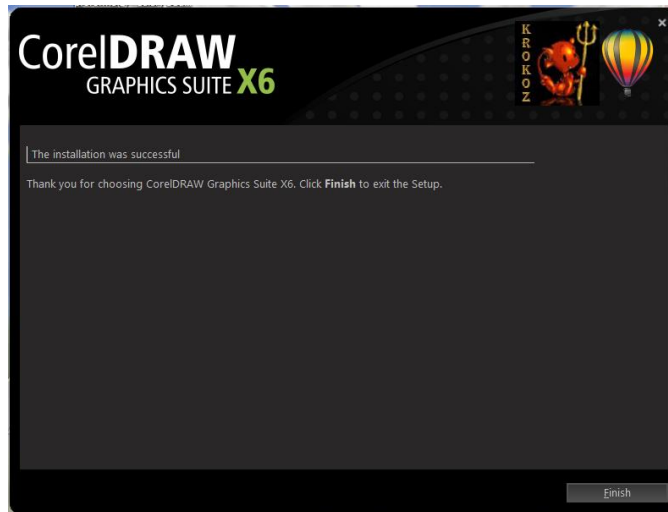
10- To open CorelDraw, click the Start menu button, point to All Programs (or Programs), and click CorelDraw X6.

Introduction to CorelDraw

CorelDraw is a vector based drawing program or software that makes it easy to develop professional artwork from simple logos to complex technical illustrations.

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. Each object is a self-contained entity, with properties such as color, shape, outline, size and position on the screen included in its definition.

CorelDraw Interface

Do you know!
Drawings in Corel Draw are vector based because objects drawn are defined mathematically as a series of points joined by lines. Graphical elements in a vector file called objects.
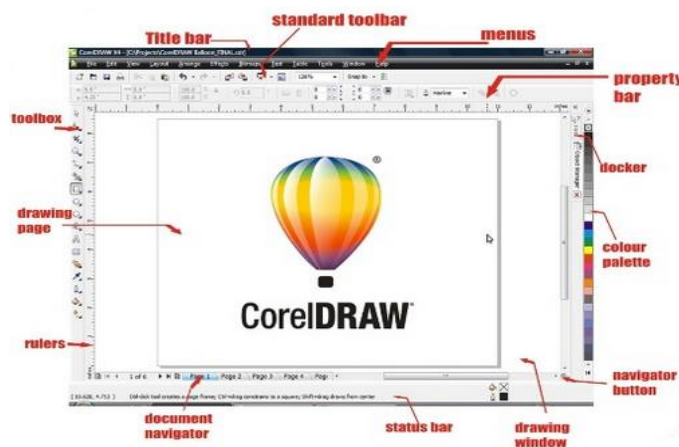
1- Title Bar

It shows you title (name of document if saved) otherwise it will automatically title as "Graphic1".

2- Menus

Menus contain pull-down options.

3- Standard Toolbar

Contains shortcut to menus and other commands.

4- Property bar

A context sensitive toolbar that shows commands relating the active tool or object.

5- Toolbox

Contains tools for creating, filling and modifying objects in a drawing.

6- Rulers

Horizontal and vertical borders that are used to determine the size and position of objects in a drawing.

7- Document Navigator

Contains controls for moving between and adding pages.

8- Color Palettes

Contains color swatches.

9- Status bar

Contains information about object properties such as type, size, color, fill and resolution. It also shows the current mouse position.

10- Docker

Contains available commands and settings relating to a specific tool, effect or task.

11- Navigator Button

Open a smaller display to help pan around a drawing page.

12- Drawing Page

The printable area of the workspace.

13- Drawing Window

The area outside the drawing window bordered by the scroll bar.

System Configuration Required by Adobe Illustrator CS 6

- Intel Pentium 4 or AMD Athlon 64 processor

- Microsoft Windows 7 with Service Pack 1, Windows 8, or Windows 8.1

- 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).

- Optional: To use GPU Performance: 1 GB of VRAM (2 GB recommended); and latest drivers for optimal performance

Installation of Adobe Illustrator CS6

1- Insert Adobe Illustrator CD/DVD.
2- Open the CD/DVD drive Adobe folder and find the setup file.
3- Double click the setup file and click at Run if prompted.
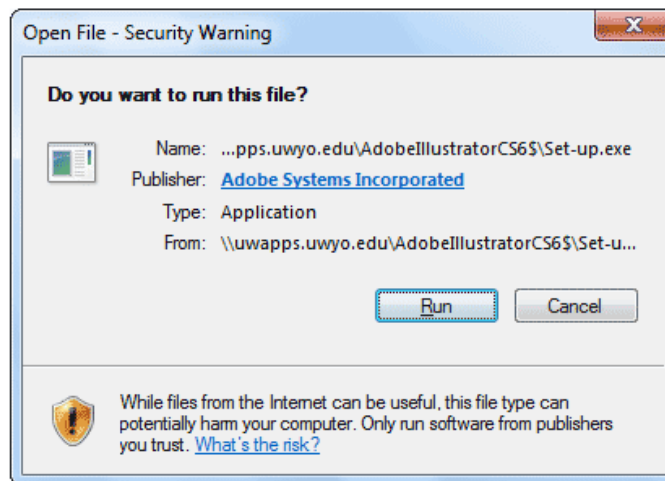
4- In the Welcome window click Install
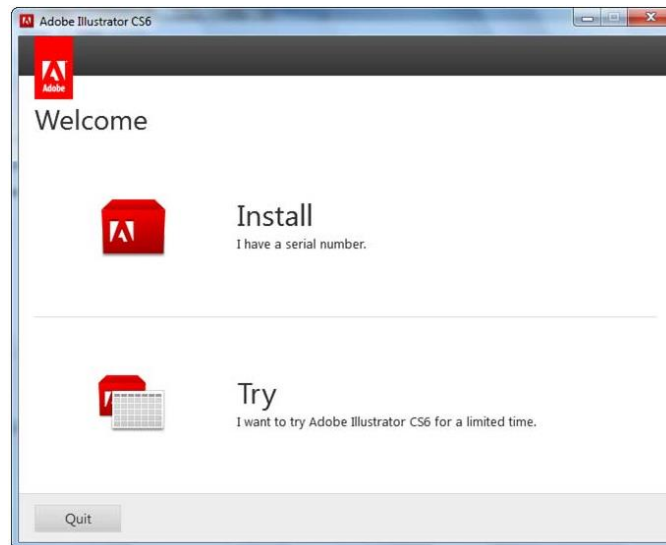
5- Read the adobe license agreement and click Accept.
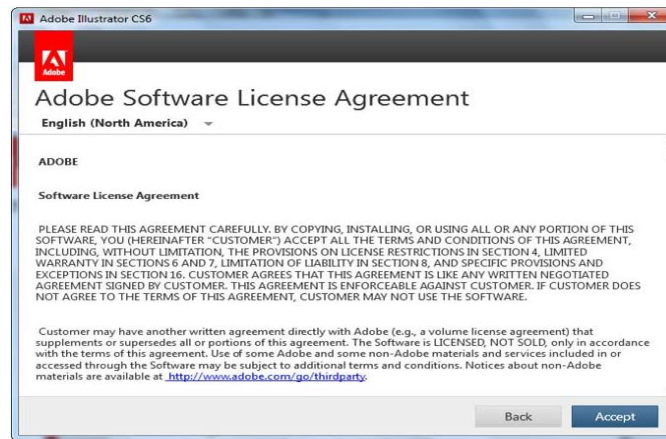
6- Enter the serial number and click Next.
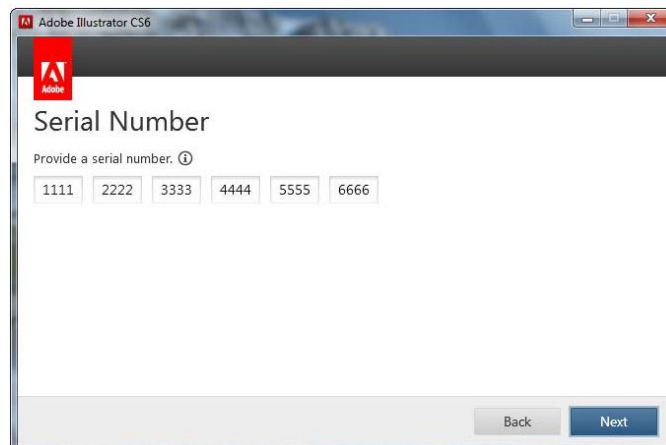
7- Click at Sign in Later in the Sign in Box.

| Remember |
| --- |
| Click at Sign in now if you have some Adobe ID otherwise click at Sign in later |
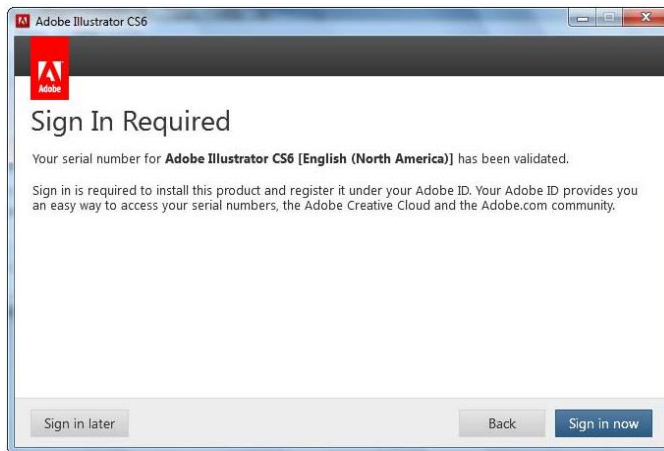
8- Click at Install in options window.
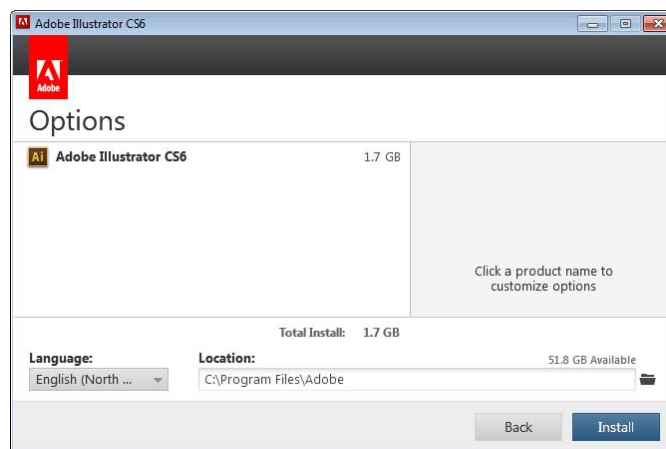
9- Click at close when the installation is complete.
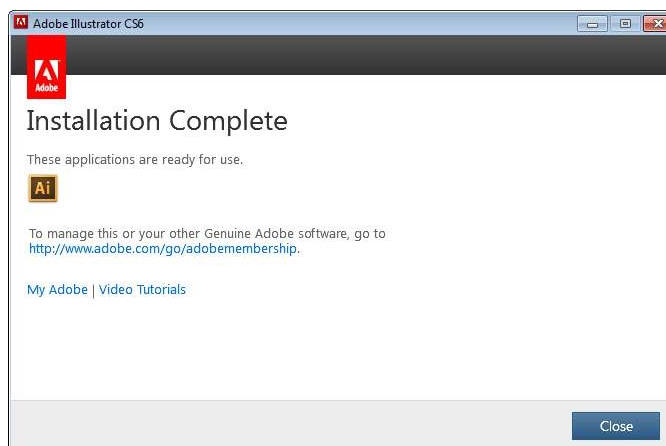
10- To open Adobe Illustrator, click the Start menu button, point to All Programs (or Programs), and click Adobe Illustrator.

Adobe Illustrator Work Environment
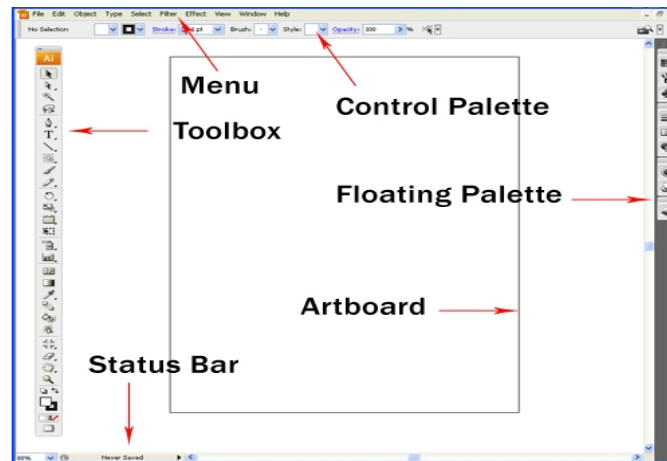
Do you know!

Floating palettes are small windows that "float" above an application's windows. Usually they contain buttons and tools for executing commonly used functions or changing editing modes.

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

Adobe Indesign is a desktop publishing software that can be used to create works such as posters, flyers, brochures, magazines, newspapers, and books.

System Configuration Required by Adobe InDesign CS6

- 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.

Installation of Adobe InDesign CS6

1- Insert Adobe InDesign CD/DVD.
2- Open the folder containing the installation files and double click at setup.exe.
3- Click at Run if some security warning arises.
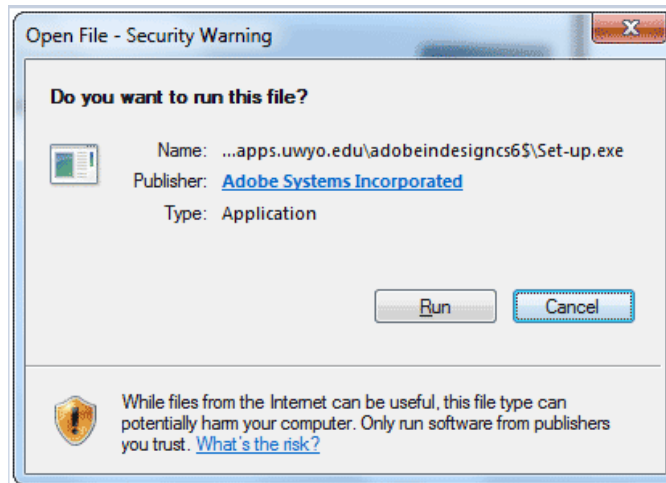
4- At the welcome screen, click at Install.
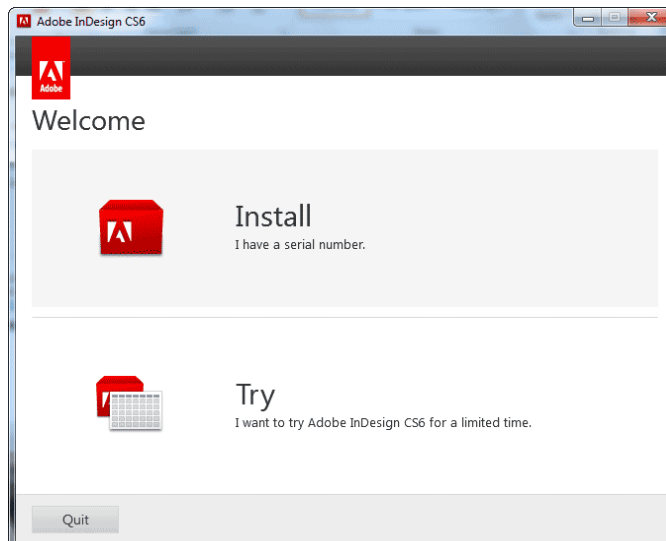
5- In the Adobe InDesign License Agreement window, click at Accept.
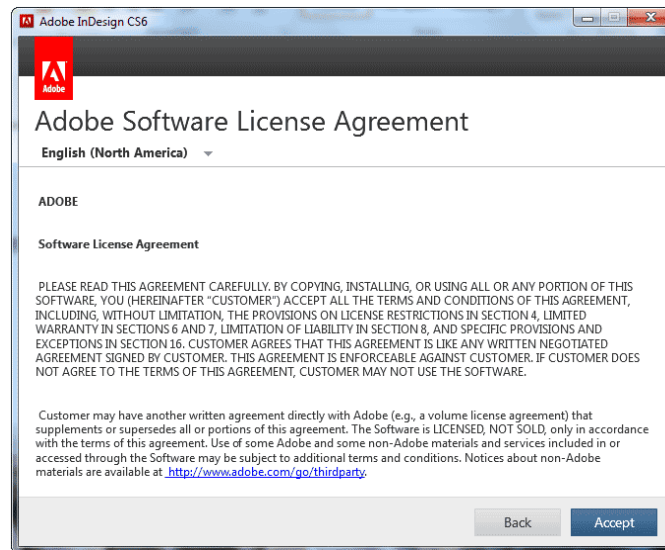
6- In the serial number window, enter the serial number.
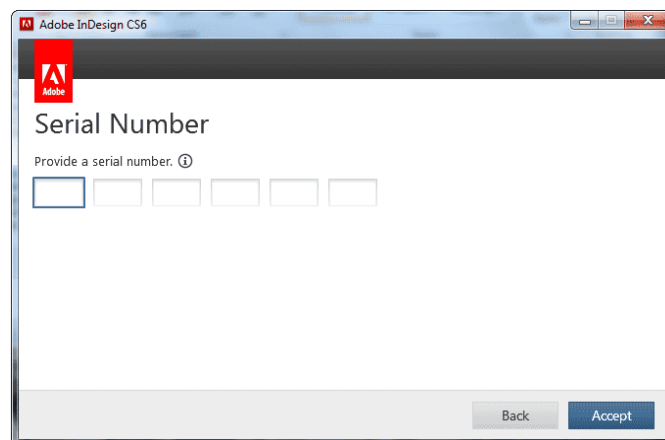
7- In the sign in window, click at Sign in Later and if you already have email address and password, click at Sign in Now.
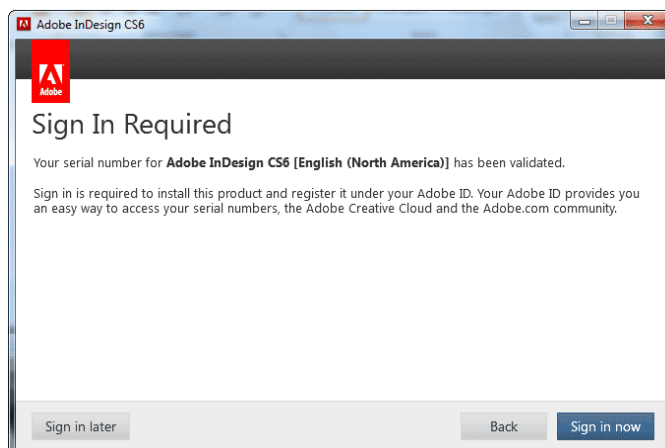
8- In the options window, select the components to be installed, select the language and click at Install.
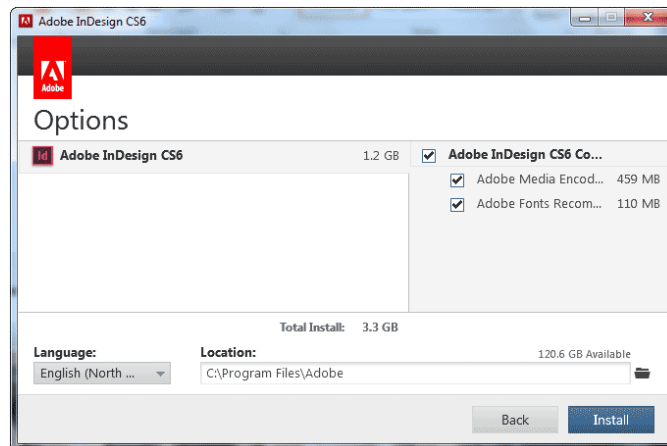
9- If you get a prompt for User Account Control, Click at Yes.
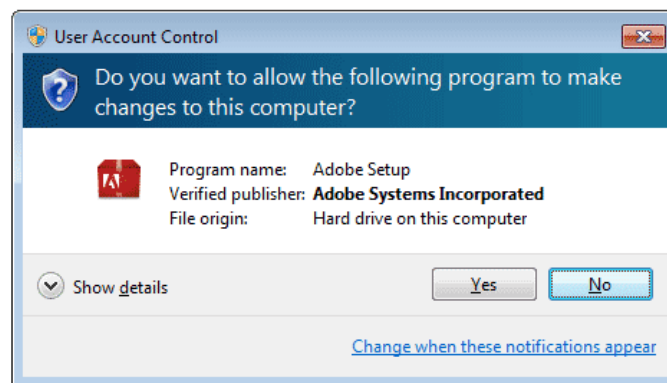
10- Wait for the installation to complete and after the installation is complete, click at Close.
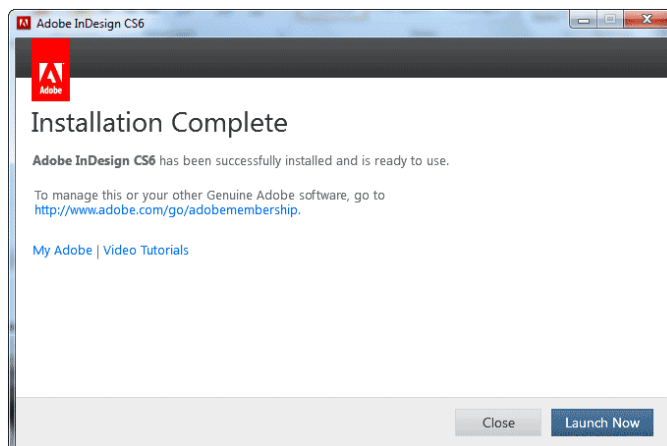
11- To open Adobe InDesign, click the Start menu button, point to All Programs (or Programs), and click Adobe InDesign CS6.

Adobe InDesign Work Environment
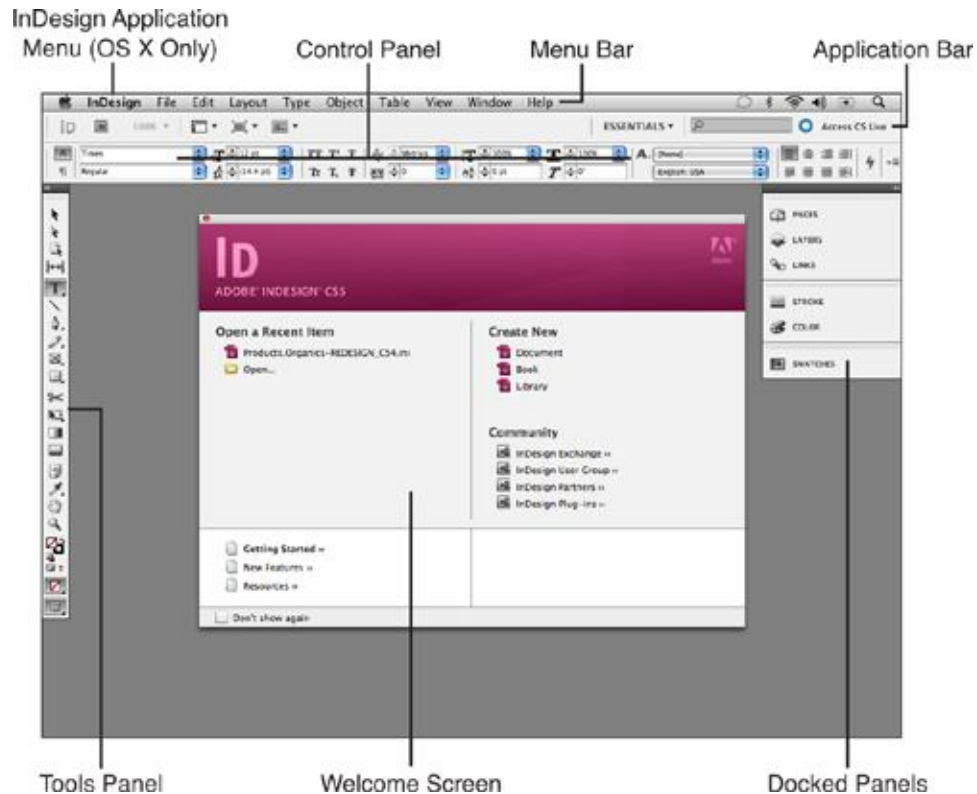
- **Menu Bar**
  You can access any of the menu list options by clicking any of the word headings in the menu bar for example file, edit, layout etc.

- **Application Bar**
  View options, zoom percentage, screen mode, and arrange options are all available from the Application Bar drop-down lists.

- **Control Panel**
  Options for the tool you currently have selected in the Tools panel always appear here.

- **Tools Panel**
  You can access any of the InDesign tools by clicking one of the icons shown in the Tools panel.

- **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.

- **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

Learning Unit 2: Install/ Uninstall Operating System

Overview

Remember
Format will erase all the data on your partition.

This unit describes the procedure of the installation and uninstallation of operating system. After the completion of this learning unit, you will be able to install operating system on the computer using DVD of operating system. And also you will come to know about the upgrade of operating system.

1. Procedure of Installing Operating System

Below are the installation steps for the installation of Window 8

1. Insert the Window 8 DVD in the DVD ROM.

2. Restart the computer.

3. Press F12 or the key shown on the first screen on computer for boot menu.

Boot Menu
Boot Menu allows you to choose from the list of booting devices like CD/DVD, USB, Ethernet etc.
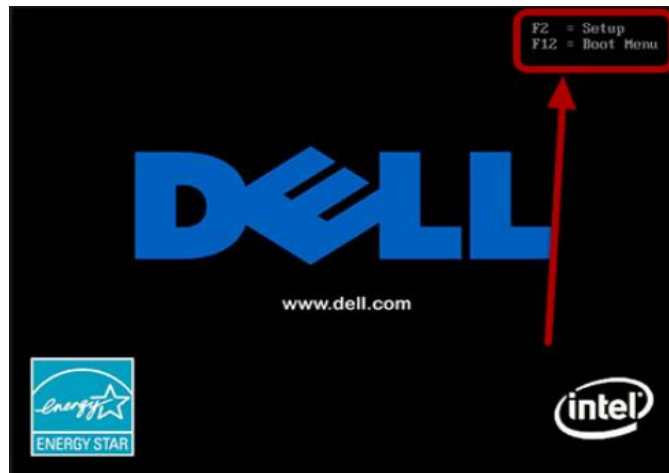
4. Select CD/DVD ROM option in the boot menu.

Remember
While installing using DVD, computer will ask you to press any key to boot from CD/DVD. Don't press any key and let the computer start by itself.

Teaching and Learning Material: Information Technology (Computer Graphics – Print)
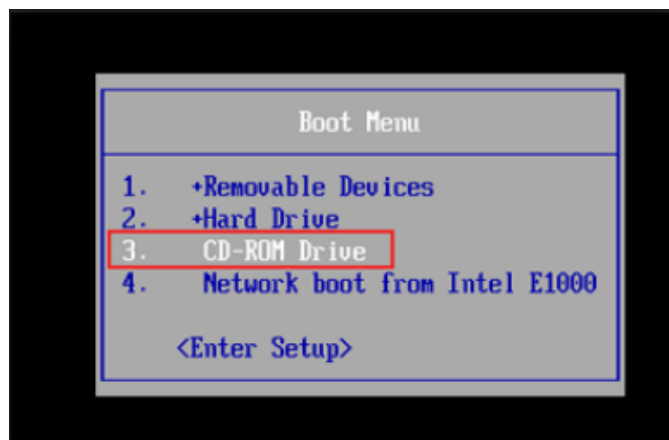
5. Wait for setup to initialize.
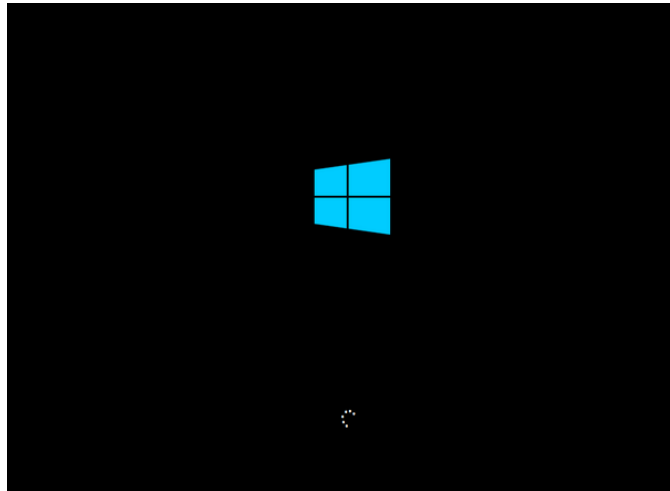
6. Select language, time and currency format and keyboard layout.
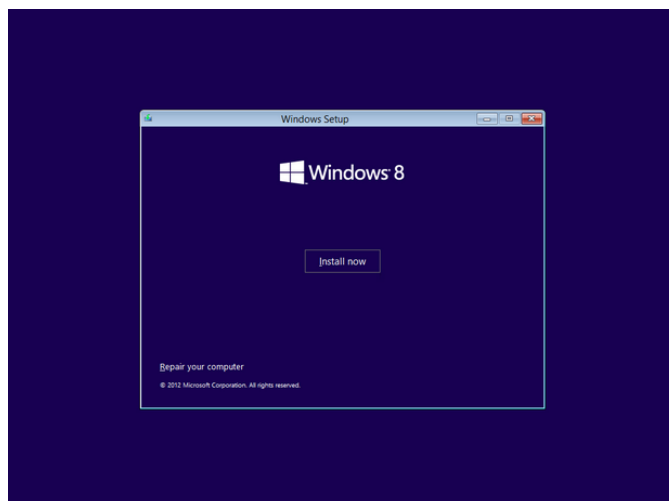
7. Click at Install

8. Enter the product key and click Next.
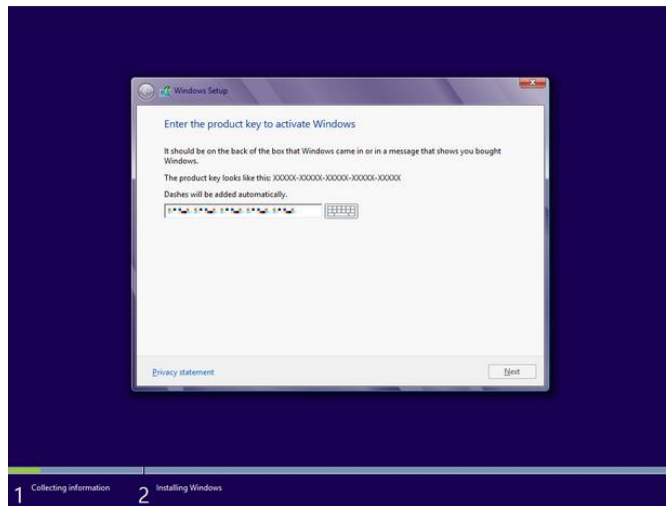
9. Accept the license terms and click Next.
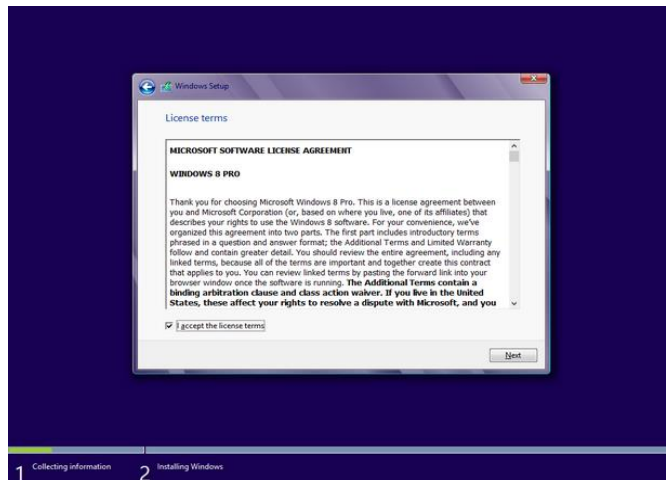
10. Click at Custom Install for a clean installation.

Remember

Custom installation allows you to perform clean installation where you overwrite the previous operating system.
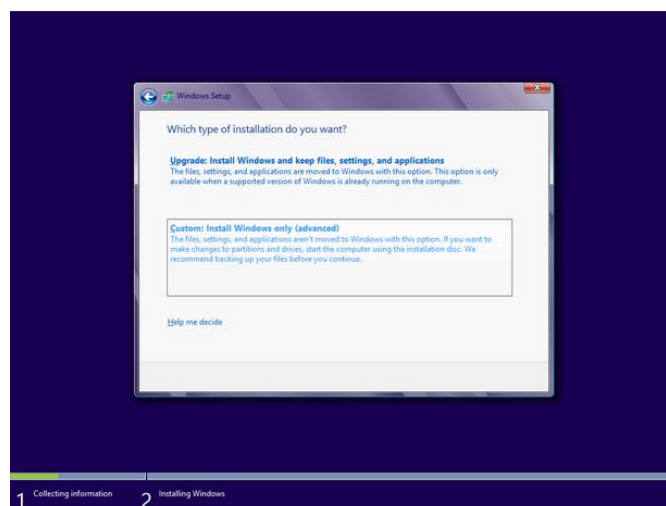
11. Click at the desired partition.
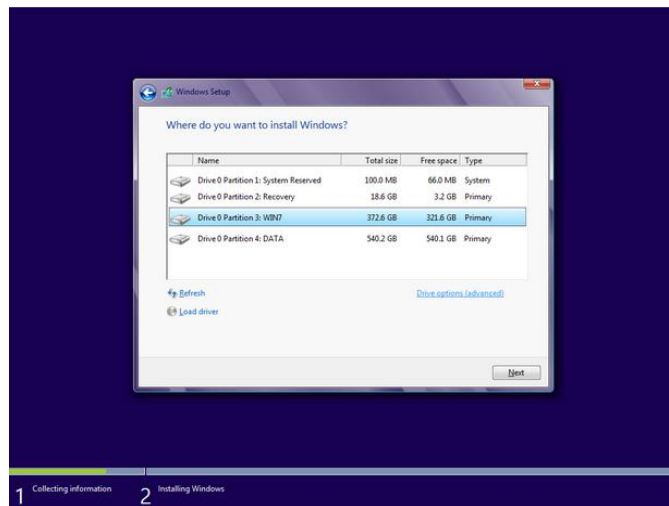
12. Click at drive options and format.
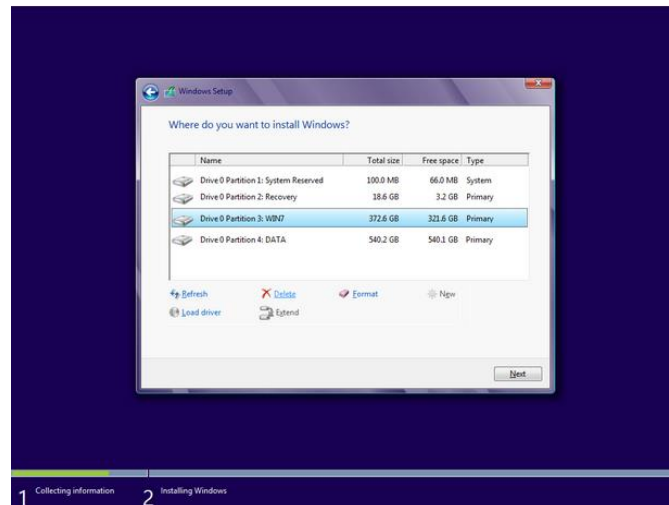
13. Click at Ok and then click at yes
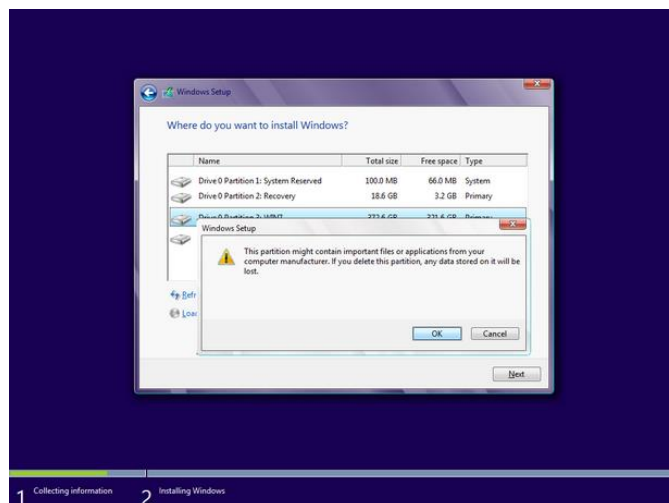
14. Wait for the files to be copied.
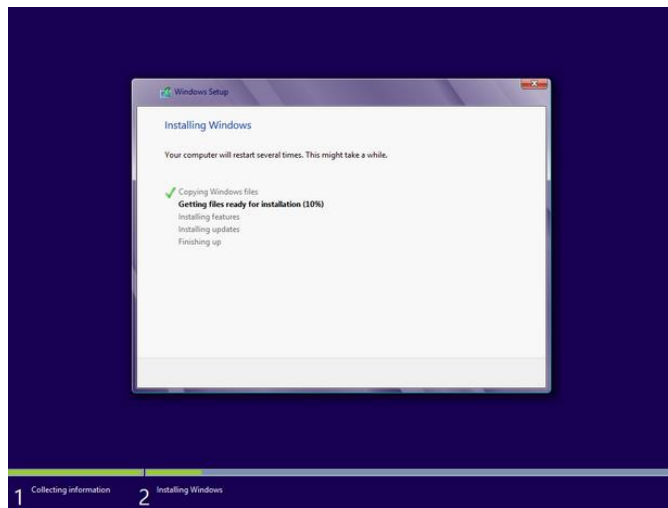
15. Click at restart Now.
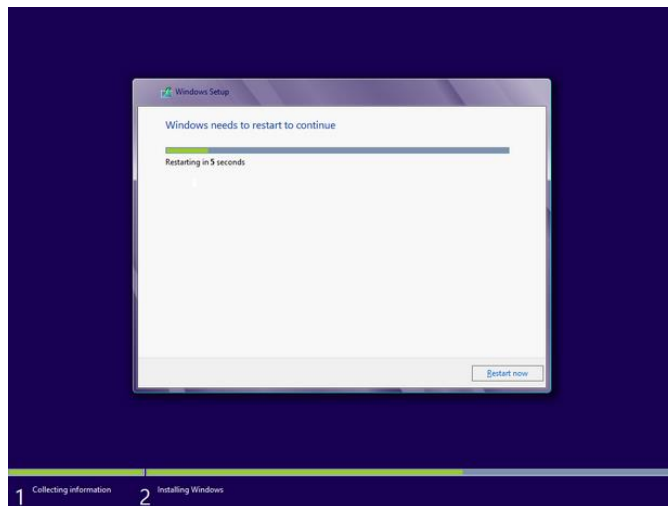
16. Wait for the devices to get ready.
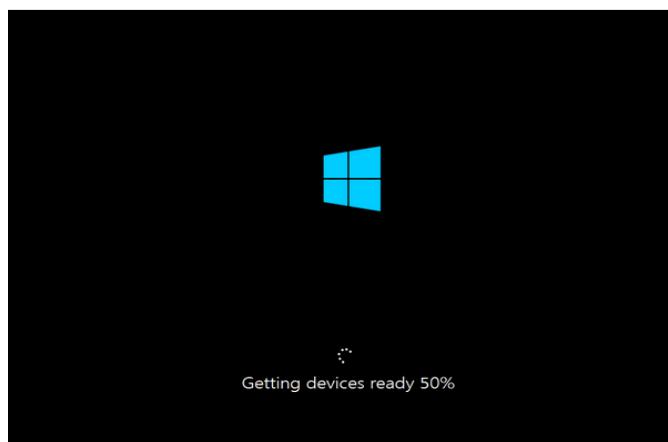
17. After restart, personalize window will appear. Select a color, enter a PC name and click at Next.
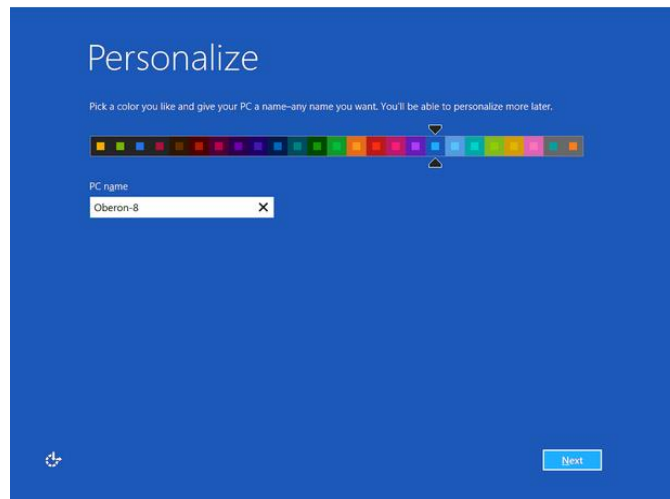
18. Click at Use Express Settings button.
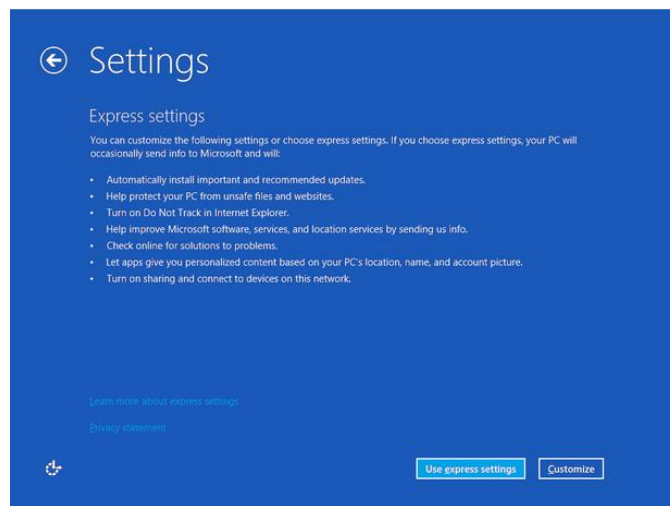
19. Enter your Hotmail ID and click at Sign in.
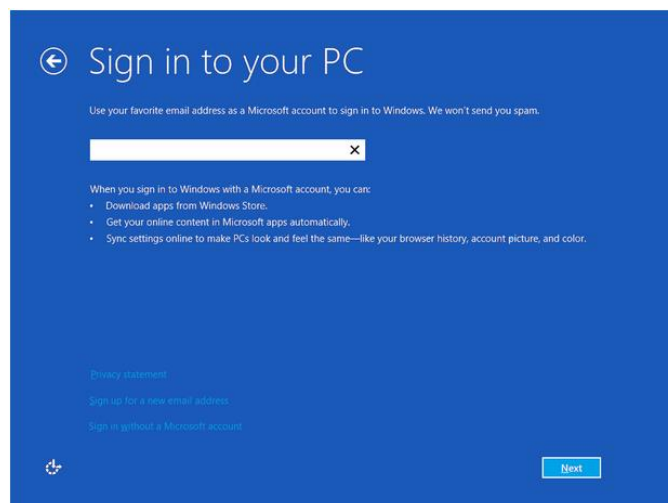
Remember

Click at Sign in without a Microsoft account if you don't have a Hotmail ID. And enter a local username and password for your PC.

20. Wait for a few minutes to get the PC ready.
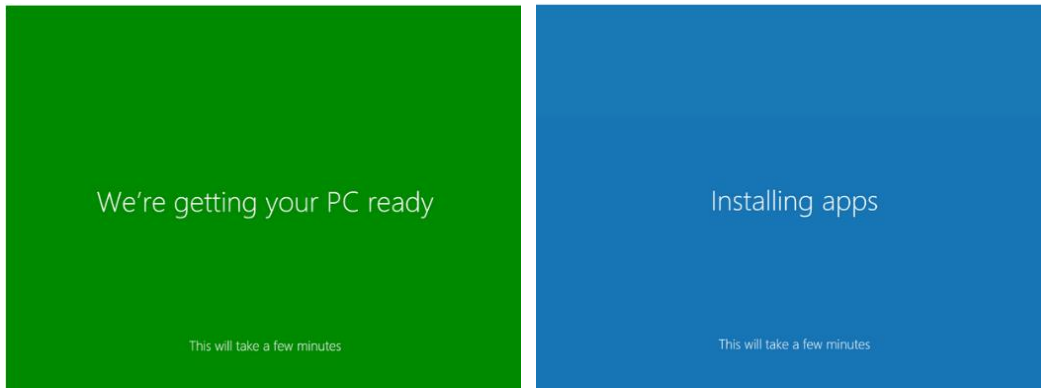
21. After completing installation your PC will look like.

2. Procedure of Un-installing Operating System

Dual Boot

Dual boot means having different operating systems installed on different partitions on the hard drive

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.

Uninstalling an operating system is very simple.

1-   Insert the window CD/DVD.
2-   Boot from the CD/DVD as shown above.
3-   Carry out the steps 5 to 10 as described in the above procedure.
4-   When it shows the list of partitions to select the desired partition for window installation, click at the partition that contains the operating system you want to uninstall.
5-   Click at drive options.
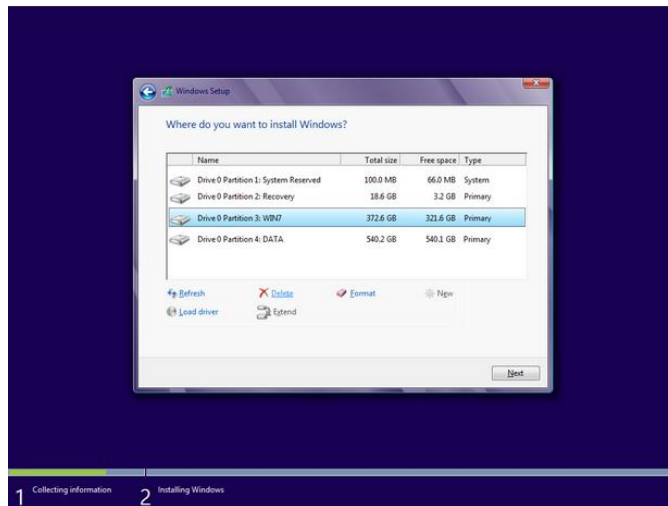
6- Click at format and then click at yes when the warning comes up.
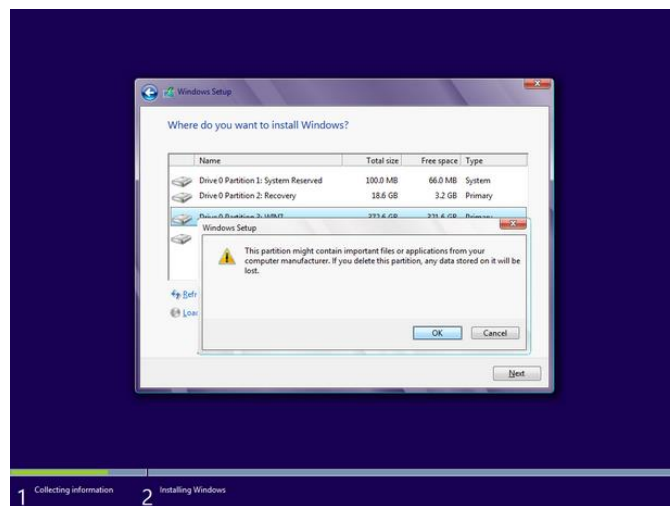
7- Close the setup and now you can reuse your partition for any other operating system.

3. Upgrade and Configuration of Operating Systems

One of the most common methods to move from one version of Windows to another is by doing an upgrade. The major advantage of doing an in-place upgrade is that you don't have to reformat your hard drive. The new operating system will simply replace your previous installation, and you'll be able to keep all of your files and programs. This process takes the least amount of time. Also, you're not prompted to enter a product key, at least for those users upgrading from previous version of windows.

Upgrading from window 7 to window 8

1- Insert the installation disc.
2- Boot from window 8 DVD as described in above method.
3- Repeat the steps 1 to 9 just as described above.
4- When it asks for upgrade or custom install, click at upgrade.

Do you know!

Upgrade Assistant is a free download that scans your PC, desktop apps, and connected devices to see if they'll work with a later version of Windows, and then provides a free compatibility report
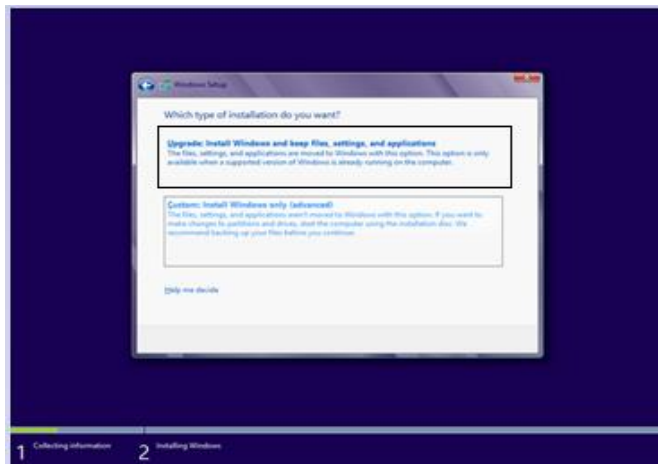
5- Now it will check for the compatibility of the programs and devices and ask you what to keep. Select your option.
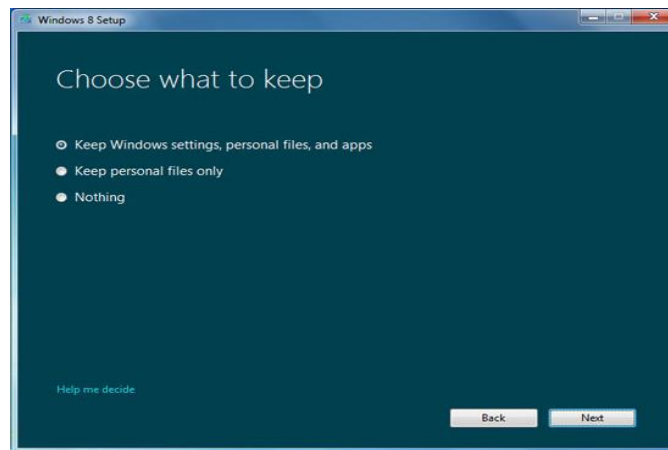
6- Click at Install. When you click Install, Windows 8 begins installing itself, restarting your PC several times during the process.

7- Now repeat the steps from 17 to 20 in the above method (installation of operating system) until you get upgraded operating system.

All the compatible programs and personal files will remain intact in the upgrade process.

Learning Unit 3: Install/ Configure Drivers, Input/ Output Devices

Overview

In this leaning unit, you will learn about device drivers, installation and configuration of device drivers and input output devices. After the completion of this learning unit, you will be able to demonstrate and practice the installation and configuration of device drivers. Also, you will understand plug n play devices.

1. Explain Installation and Configuration of Drivers

To install hardware devices on Windows, you must install the appropriate device drivers first. Here are some guidelines for installing and configuring device drivers.

Installation of Device Drivers

You can install device drivers in four ways.

1- **During the Windows Installation Setup**
Most of the Drivers are automatically installed for all detected devices during installation of Windows on your computer.

2- **Starting the Computer**
Whenever the computer is started, new devices are detected and their device drivers are automatically installed.

3- **Scanning for New Hardware**

a. Go to Control Panel.
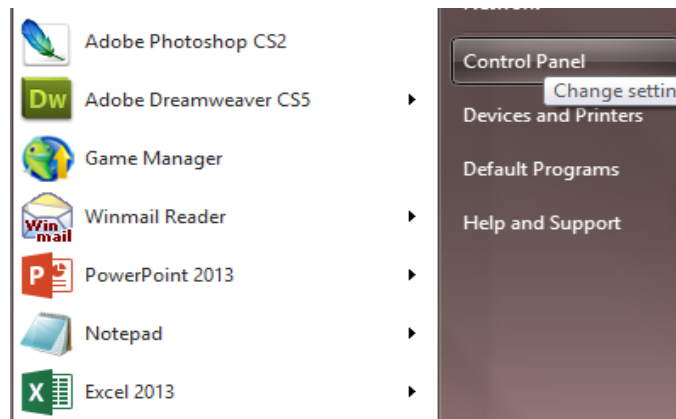
b. Click at Add a Device in the Control panel.

c. Let the computer search for the new devices through add device wizard and then click at the desired device and click at the desired device.

d. As you click at Next, computer will automatically install the device driver.
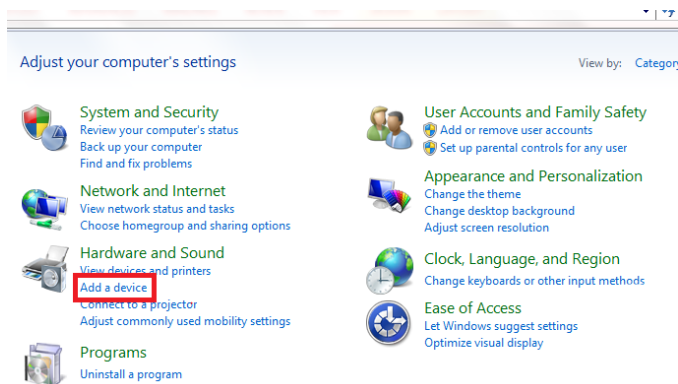
4- Manual Installation

a. Insert the CD/DVD containing the device driver or USB flash drive or open folder containing driver setup.

b. Double click at the Driver setup file and install the driver.

Note: You must have administrative permissions on the computer to install device drivers

Configuring devices using Device Manager

Device Manager displays information about all devices installed on your server. It displays a list of devices that were either detected or for which drivers are installed. The icon for the device indicates whether the device is working properly or not.

Normal icon indicates that the device driver has initialized successfully while an Exclamation point ⚠ on icon would mean that device is incorrectly configured and a Stop sign ❌ on icon means that device could not be initialized due to hardware conflicts.

To resolve hardware conflicts and to override the resources or the device driver that were assigned to a device, follow these steps:

1- Start Device manager by typing 'Devmgmt.msc' in the Run dialog box.
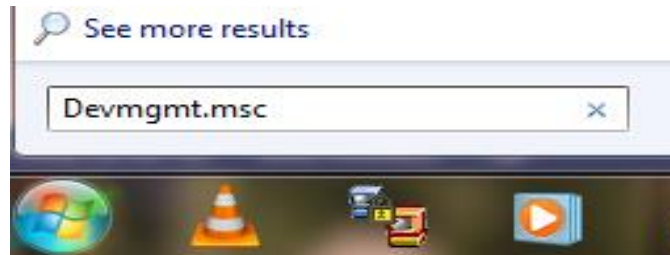
2- Right-click the desired device and select Properties.
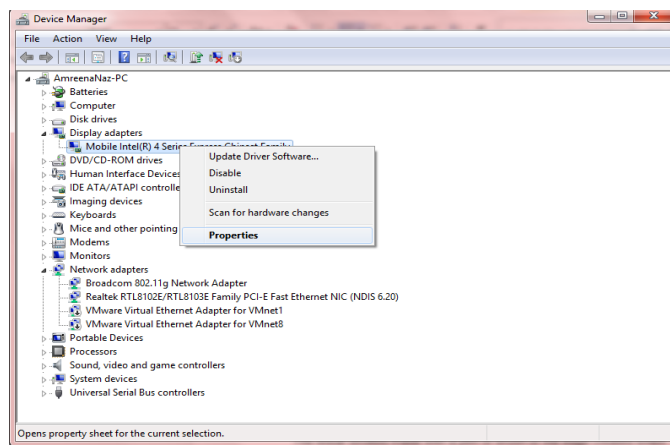
3- Click the Resources tab on the Properties dialog box.
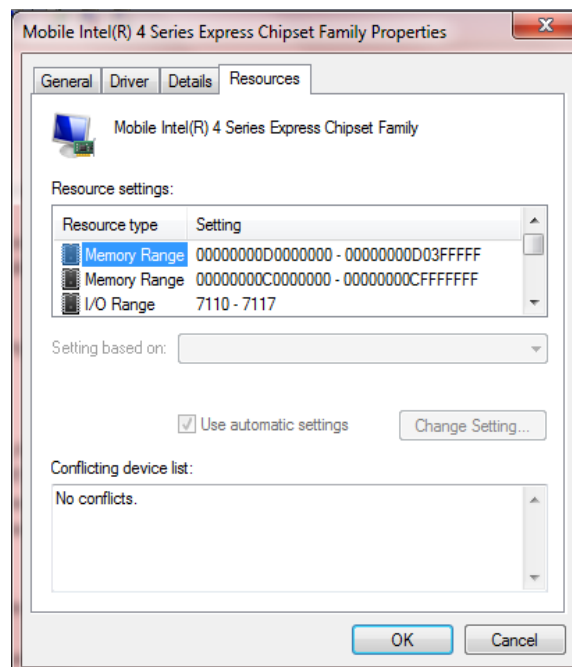
4- Click the resource to be changed and then clear the "Use automatic settings" checkbox.
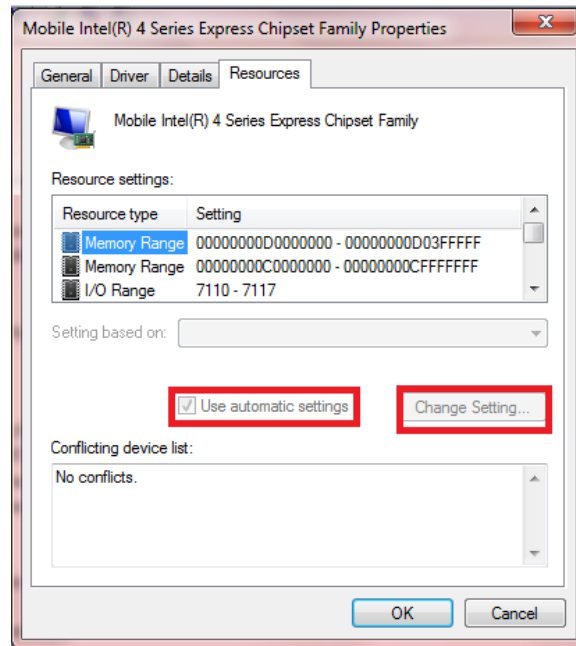
5- Click Change Setting and then change the value of the setting to the desired value.

Updating and Removing Device Drivers in Device Manager

You often have to update the existing device drivers or remove them from your computer.

To update a device driver:

1- Start Device Manager by typing 'Devmgmt.msc' in the Run dialog box.
2- Right-click the desired device and select Properties.
3- Click the 'Driver' tab and then click the Update Driver button.

Remember

If your driver update fails, you can roll back your driver to discard to the changes made.

Teaching and Learning Material: Information Technology (Computer Graphics – Print)
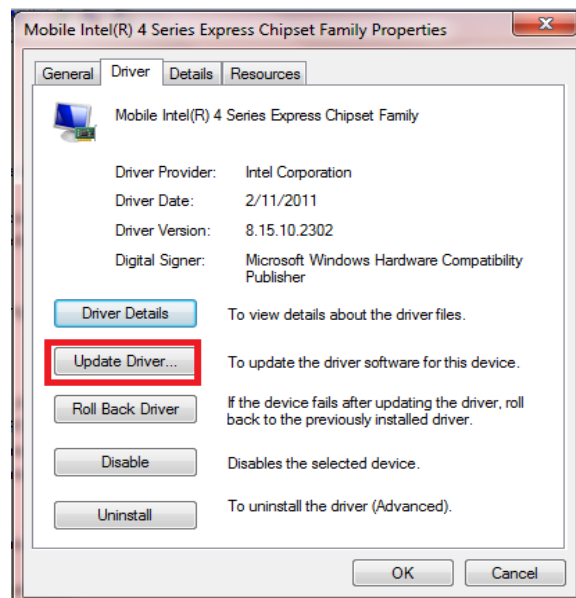
To Remove a Device

1- Start Device Manager by typing 'Devmgmt.msc' in the Run dialog box.
2- Right-click the desired device and select Properties.
3- Click the 'Driver' tab and then click Uninstall button.
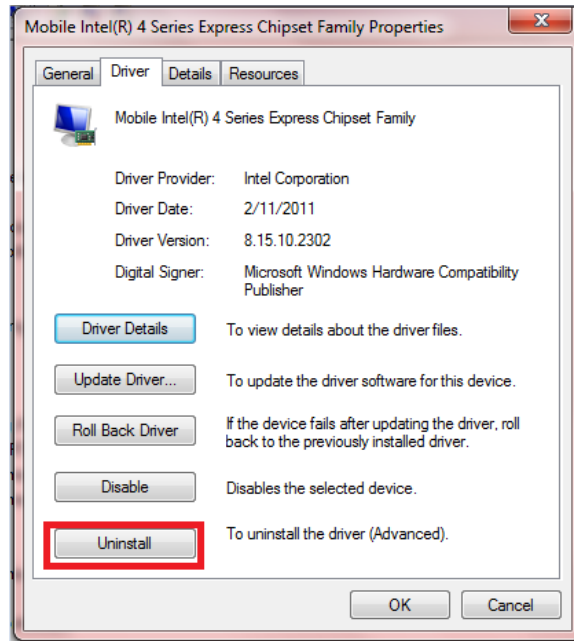
2. Explain Installation and Configuration of Input / Output Devices

It is necessary to be able to implement, manage and troubleshoot I/O devices such as printers, cameras, scanners, multimedia devices, mouse, keyboard and smart card reader and install, configure and manage modems, handheld devices and network adapters.

Installation of Input Devices

Input devices like keyboard, mouse are automatically installed when you connect these devices to your computer.

Input Devices

Input devices are the devices that you use to feed information to the computer system. For example, Keyboard, Mouse

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 open 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
Output devices are components that retrieve information from the computer. For example, Monitor, Printer etc.

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

1- Connect the printer to power supply and computer
2- Open control panel from start menu.
3- Click at devices and printer in the control panel.
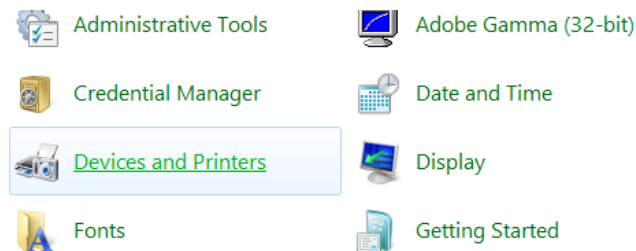
4- Click Add a printer.

5- In the Add Printer wizard, click Add a local printer.
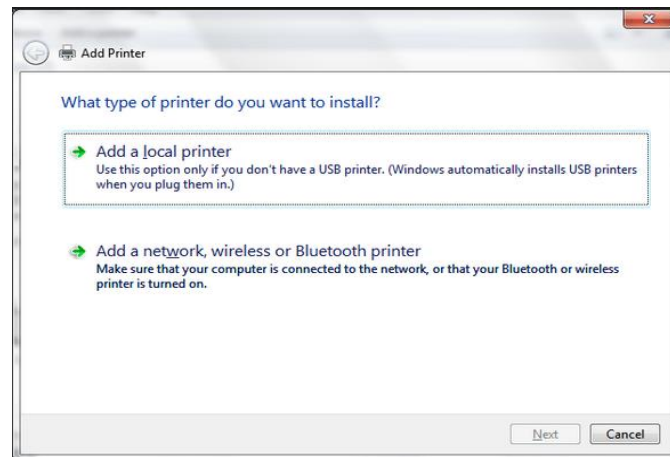
6- On the Choose a printer port page, make sure that the Use an existing port button and the recommended printer port are selected, and then click Next.
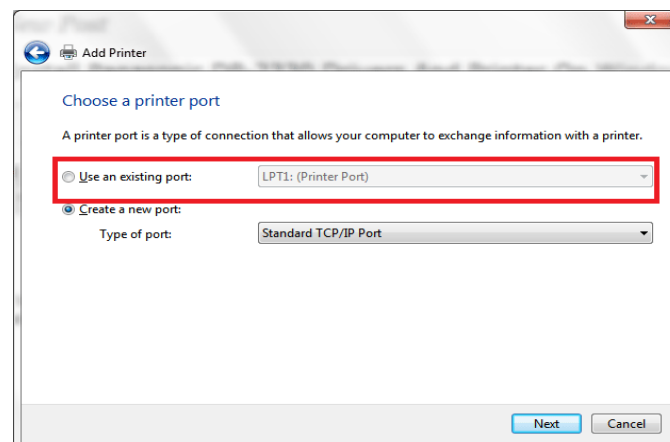
7- On the Install the printer driver page, select the printer manufacturer and model, and then click Next.
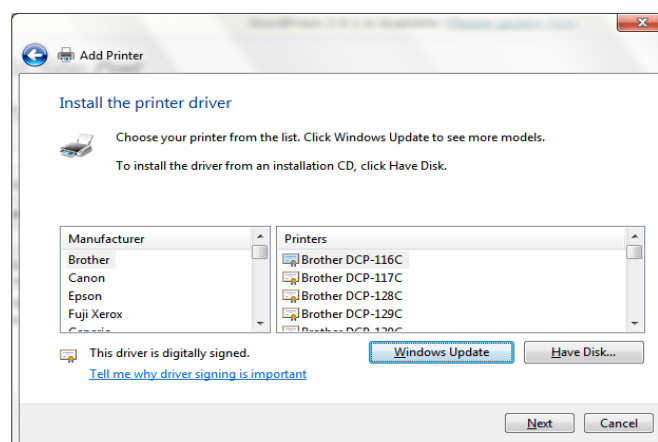
Remember

You can get the device driver either in the CD/DVD came from manufacturer, download from manufacturer website.

8- If your printer isn't listed, click Windows Update, and then wait while Windows checks for additional drivers.
9- If none are available and you have the installation CD, click Have Disk, and then browse to the folder where the printer driver is located.
10- Complete the additional steps in the wizard, and then click Finish.

Configuration of Input/output Devices

Input/ Output Devices can be Configured in the Device Manager as.

1- Start Device manager by typing 'Devmgmt.msc' in the Run dialog box.
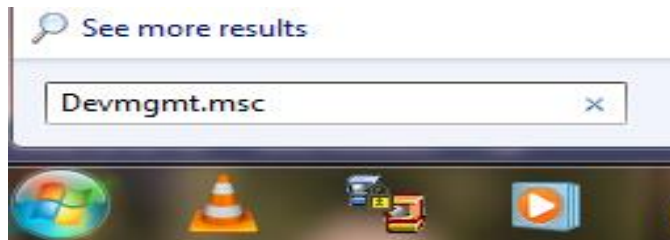
2- Right-click the desired device and select Properties.
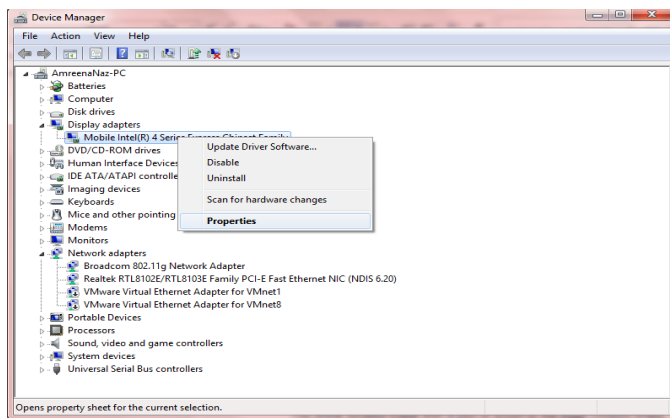
3- Click the Resources tab on the Properties
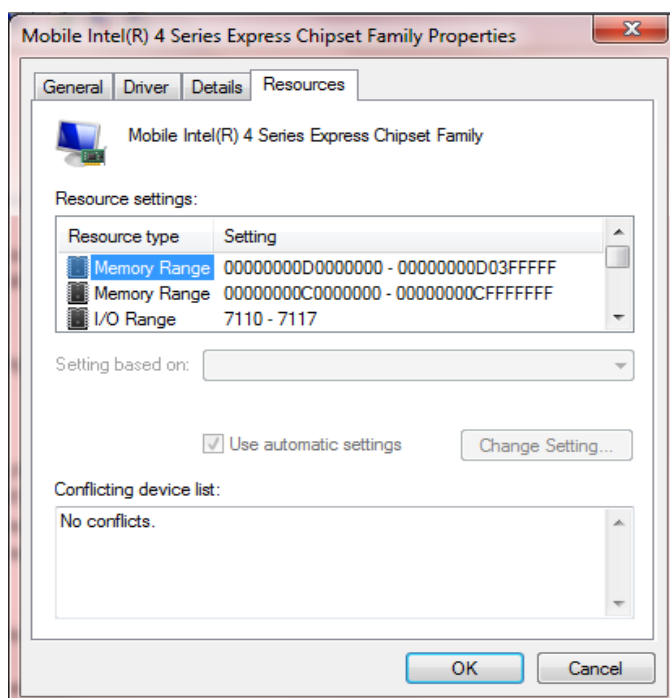
Learning Unit 4: Connect Devices to Ports Using Appropriate Cables

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 come to know about different types of connectors, differentiate between cables and port which connect the devices to the computer.

1. Understand the Different Types of Connectors

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.

Mondir Connectors

Monitor Connectors

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.

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 connectors.

Installation

Installation of a computer program (including device drivers and software), is the act of making the program ready for execution.

Connectors

Connectors, normally called "input-output connectors are interfaces for connecting devices by using cables.

Device Driver

A device driver is a program that controls a particular type of device that is attached to your computer.

Parallel/Printer Connectors

This is the connector used by most printer cables.

CN36 (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

This is basically a 4-pin Firewire/i.link/ connector.

This is a 6-pin Firewire/IEEE-1394 connector.

USB Connectors

USB type "A" connector connects to computer or USB Hub.

USB type "A" connector

USB type "B" connector connects to peripheral or to USB Hub.

USB type "B" connector

Mini USB 2.0 connector used on many new USB digital cameras.

Mini USB 2.0 connector

Audio/Video Connectors

S-Video connector, sometimes called S-VHS or Y/C video. There're 4 little pins in there, it's called a DIN4.

RCA (above) connector. Standard stereo connector.

Fiber Optics Connectors

SC connector, fiber optic network connector.

ST connector, fiber optic network connector.

MTRJ fiber optic network connector

2. Differentiate Between Different Types of Cables

It is important for you to know about the different kind of 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.

VGA (Video Graphics Array)

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.

VGA Cable

DVI (Digital Visual Interface)

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.

HDMI (High Definition Multimedia Interface)

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

Do you know!
Nearly 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.

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.

From left to right: micro USB, mini USB, type B standard USB, and type A standard USB (both female and male)

IDE (Integrated Drive Electronics)

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.

IDE Cable

SATA (Serial Advanced Technology Attachment)
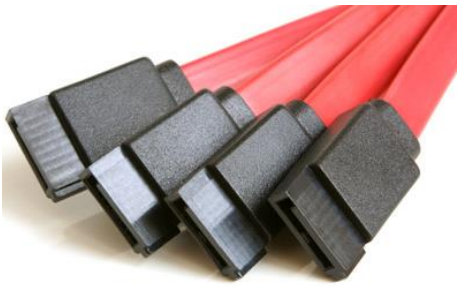
Newer hard drives will likely use SATA ports over IDE ports. Compared to IDE, SATA provides higher data transfer speeds. A standard SATA cable can be identified by two connectors, each having 7 pins and an empty notch. It looks like a subtle L-shape.

FireWire

The purpose of FireWire is similar to that of USB: high speed data transfer for computer peripherals.

FireWire Cable

Ethernet

Ethernet cables are used to set up local area networks. In most cases, they're used to connect routers to modems and computers.

Ethernet Cable

3. Explain Different 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.
3. Examples of external devices attached via ports are mouse, keyboard, monitor, microphone, speakers etc.

Following are few important types of ports:

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)			

Ports in Computer

Serial Port

- Used for external modems and older computer mouse
- Two versions : 9 pin, 25 pin model
- Data travels at 115 kilobits per second

Parallel Port

- Used for scanners and printers
- Also called printer port
- 25 pin model

PS/2 Port

- Used for old computer keyboard and mouse
- 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

- Connects monitor to a computer's video card.
- Have 15 holes.
- Similar to serial port connector but serial port connector has pins, it has holes.

Power Connector

- Three-pronged plug
- Connects to the computer's power cable that plugs into a power bar or wall socket

Firewire Port

- Transfers large amount of data at very fast speed.
- Connects camcorders and video equipment to the computer
- Data travels at 400 to 800 megabits per seconds
- Invented by Apple
- Three variants : 4-Pin FireWire 400 connector, 6-Pin FireWire 400 connector and 9-Pin FireWire 800 connector

Modem Port

- Connects a PC's modem to the telephone network

Ethernet Port

- Connects to a network and high speed Internet.
- 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

- Connect a joystick to a PC
- Now replaced by USB.

Digital Video Interface, DVI port

- Connects Flat panel LCD monitor to the computer's high end video graphic cards.
- Very popular among video card manufacturers.

Sockets

- Connect microphone, speakers to sound card of the computer.

HDMI (High Definition Multimedia Interface)

- Used to connect LED monitors and Multimedia projectors.
- Transfer audio and video through single line (Cable).

4. Define Plug and Play Devices

Plug & Play Devices

The term Plug and Play is used to describe 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 plug n play device or even tell the computer that a new device has been added. 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 on 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 usually refers to computer peripheral devices, such as keyboards and mice, but it can also be used to describe internal hardware. For example, a video card or hard drive may be a Plug and Play device, meaning the computer will recognize it as soon as it is installed. The only difference is that internal components usually require the computer to be turned off when they are installed, while external devices can typically be installed while the computer is running.

Summary of Module

- 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 (Graphics Processing Unit) performance using 1 GB of VRAM and higher resolution for monitor.

- Palettes 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.

- 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.

- 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 the processor requirement for most of the graphic software?
Answer	Intel® Core 2 or AMD Athlon® 64 processor; 2 GHz or faster processor
FAQ 2:	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 3:	What is status bar?
Answer	Status bar shows information and statistics about your document for example saving status, pages etc.
FAQ 4:	Why are drawings in 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:	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:	What is dual boot?
Answer	Dual boot means having different operating systems installed on different partitions.
FAQ 7:	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 8:	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 9:	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 10:	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

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 INCORRECT option. You can use installation media for window installation.**

a. CD/DVD

b. VGA Cable

c. USB Drive

d. Ethernet

2. **Option bar in Adobe Photoshop contains _____.**

a. Different Menus

b. Tools used for image creation

c. Options for a tool selected

d. Information about document

3. **Status bar contains _____.**

a. information and statistics about your document

b. Tools for editing the image

c. Options for a selected tool

d. All the menu options

4. **Operating system upgrade means _____.**

a. Installing a new operating system

b. Having more than one operating system

c. Having new operating system keeping personal data

d. Uninstalling operating system

5. **Software which is used to make a device ready to use is called _____.**

a. Device support

b. Configuration

c. Installer

d. Device driver

6. **Hermaphroditic plugs are_____.**

a. That can be inserted into each other

b. Male connectors

c. Female Connectors

d. Multi-purpose connector used for connections

7. **VGA cable is used _____.**

a. Computer Network

b. Power Supply

c. Connect Printers

d. To connect a computer to a monitor

8. **HDMI cable sends _____.**

a. Audio Signal

b. Video Signal

c. Both Audio and Video Signal

d. None of above

9. **USB 3.0 can transmit data at the speed _____.**

a. 4.8 Gbps

b. 4 Gbps

c. 3.8 Gbps

d. 4.8 Mbps

10. **FireWire cable is used for _____.**

a. Firewall connections

b. High speed data transfer

c. Connect internet

d. Both a and b

Answer Key

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

Teaching and Learning Material: Information Technology (Computer Graphics – Print)

Module 7: 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.

Teaching and Learning Material: Information Technology (Computer Graphics – Print)

Learning Unit 1: Understanding the Concept of Perspective

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

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.

Communication

It is the process of exchanging information or news etc.

Remember

A stakeholder is an individual or group who has an interest in the outcome of body of work.
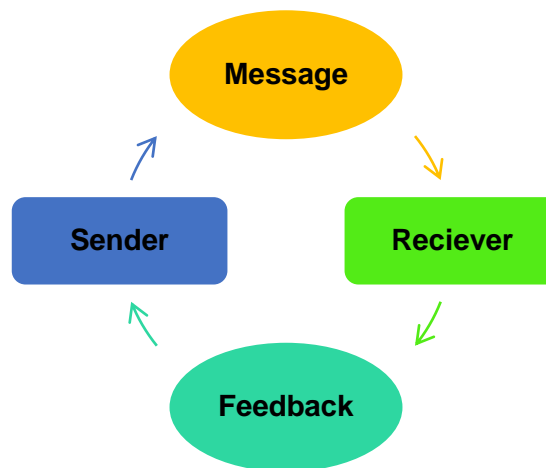
Illustration Showing Flow of Communication Process

Interpersonal Communication

Interpersonal communication is the communication we do every day to communicate and interact with other people, both individually and in groups. People who have strong interpersonal skills are usually more successful in both their professional and personal lives. It also refers to maintain a professional level of understanding of the situations your subordinates may be experiencing, and to interact with people on a personal level.

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

These are the skills we use to communicate and interact with each other and in the social environment, both verbally and non-verbally, through gestures, body language and our personal appearance.

Do you know!

Socialism is a process in which human infants begins to learn the skills and attitudes which make them an active member of their society. This is the most effective learning process known.
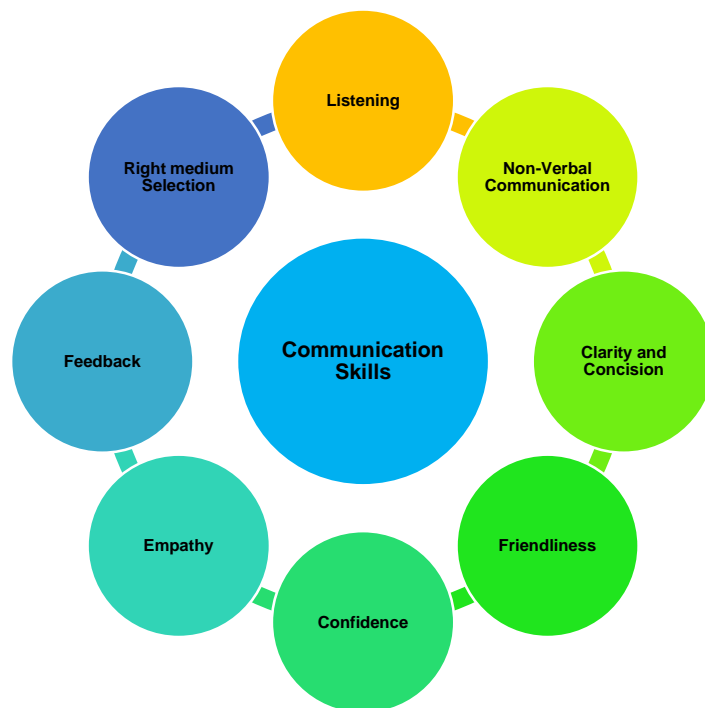
Illustration Showing Skills Used for Interacting with Society

Here is how you learn these skills to communicate with society.

1. Listening

In order for you to be a good communicator, you need to be a good listener first. Active listening means paying close attention to what the other person is saying, ask question to clarification, and rephrase what the person says to ensure understanding. Active listening helps you to better understand what the other person was saying thus help you to act appropriately.

2. Non-verbal Communication

Your body language, eye contact, hand gestures, and tone all convey a clear message. A relaxed and a friendly tone will make you appear approachable, and will encourage others to speak openly with you. Eye contact is also important; it tells the other person that you are focused on him and attentively listening to what he says. Also pay attention to other people's nonverbal signals. Sometimes these give a clear idea of what are they actually feeling.

3. Clarity and Concision

Try to convey your message in as few words as possible. Say what you want to say clearly and directly, whether you are talking to someone face to face, on the phone, or via email. If you ramble on, your listener will not be able to understand what you are trying to say.

4. Friendliness

By keeping a friendly tone while you talk, you can encourage the other people to talk to you openly and share their thoughts thus helping you to improve your communication.

5. Confidence

You should be confident in all of your interactions so that colleagues know that you believe in and will carry out what you are saying. It also makes your communication credible.

6. Empathy

Always respect other people's point of view even when you disagree with an employer, co-worker, or employee.

7. Feedback

Being able to appropriately give and receive feedback is an important communication skill. Managers and supervisors should continuously look for ways to provide employees with constructive feedback, they can do that through email, phone calls, or weekly status updates.

8. Picking the Right Medium

Selection of a right medium to communicate is very important. Important conversations are appropriate to conduct as face to face communication. If you need to communicate with a busy person such as your boss, you can email him. You can use telephone for usual conversations.

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 to Facilitate Understanding of Stakeholders

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.

It is important to establish an eye contact and to modulate body language based on the message. For example, a strict order can be conveyed better when communicated with a formal and stern body language as opposed to a casual and Friendly one.

Ask for acknowledgment after delivering your message in order to know what is actually perceived at the other side.

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.

> **Written Communication**
>
> A communication in which some written or documented text is exchanged between sender and receiver is called written communication.

For effective written communication you need to keep the following rules in mind:

- 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.

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.

Goals/Objectives
A specific result that a person or system aims to achieve within a time frame and with available resources.

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.

Feasibility Study
Feasibility study is an analysis of the viability of an idea.

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:

- Specific
- Measureable
- Achievable
- Relevant
- Time bound

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.

Learner's 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 with Colleagues, Peers and the Community

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.

Here are some ways to communicate better with your colleagues at work:

Listen Actively

Do you know!

Arms crossed and shoulders hunched, on the other hand, suggest disinterest in conversation or unwillingness to communicate.

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. While they're talking, don't interrupt them. You'll only be able to understand what they're trying to say if you listen to them closely and wait for them to finish speaking before you reply. Then ask questions to clarify any issues you may have. Most importantly, don't email or text while someone's talking to you.

Speak with Discretion and Talk Face to Face

Remember

People will judge your competency through your vocabulary. If you aren't sure of how to say a word, don't use it.

Face to face communication helps through building trust and openness, and it enables you to sense and understand someone's viewpoint and feelings. Also talk face to face to resolve disagreements or fix complex problems, and use clear, friendly and polite language.

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. If someone did a great job, offer positive reinforcement and also give them improvement tips without being mean or bossy.

Build and Earn Trust

Remember

People will perceive you as nervous and unsure of yourself if you talk fast.

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. Clear and concise communication will allow your colleagues to understand and then trust you. As a result, there will be more cooperation and less

conflict in the workplace. Your main objective for communicating with colleagues is to lay the foundations for trust.

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. Make sure that all communications, including your work emails, phone calls and meetings are professional and avoid using offensive language in the office.

Consider 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. If someone doesn't answer a call but responds quickly to an email, then use email to contact them. However, using email and social media makes it hard to determine the tone of a message. To avoid misunderstandings, it can sometimes be better to speak face to face.

Tell them how what you're Communicating is Relevant to them

Your communication is only relevant if it's related to what the other person wants, needs, fears or desires. Figure out how what you'll say or write is relevant to your colleague and then tell them about it. If what you're communicating is indeed relevant to them, then it will keep them listening to or reading what you're trying to say.

Keep Spoken and Written Communications Short, Simple and Direct

Don't expect your colleague to listen and read everything that you're trying to tell them because there's just not enough hours in the day. Try to avoid giving them complex explanations and recommendations with the expectation they will understand everything straight away. It's best to keep your communications short, simple and direct.

Overall, when communicating with your colleagues you should maintain confidentiality, and treat them as you'd like to be treated. It's also important to have open lines of communication between colleagues to better serve each other.

2. Monitoring and Critically Reflecting your Communication Skills

Monitoring Progress

- Evaluate information obtained from discussions with others by collected material, identifying opinion and possible bias.

- Organize information by identifying the various arguments and presenting your comprehension in a way that brings together information coherently.

- Communicate relevant information about a subject in a form that suits your purpose. For that;

  - Take a leading role in group discussions, clearly presenting your statement and using appropriate vocabulary and emphasis to make your points.

- Write properly formatted documents, structuring the material and presenting arguments and information in a logical sequence, and ensure that spelling, punctuation and grammar are accurate.

- Respond intelligently to contributions from others.

Monitoring
Observe and check the progress or quality of (something) over a period of time.

- Monitor and critically reflect on your use of communication skills including:

    - Obtaining feedback from others

    - Keeping choices in mind and note down their impact.

- Adapt your strategy to overcome difficulties and produce the quality of outcomes required.

Evaluating Strategy and Presenting Quality of Outcomes

- 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.

Learner's 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

Module 8: 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.

Teaching and Learning Material: Information Technology (Computer Graphics – Print)

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 values.

Four Values of Ethics and Conduct

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.

> **Responsibility**
>
> The state or fact of having a duty to deal with something or of having control over someone.

1- Aspirational Standards
2- Mandatory Standards

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. An environment where various thoughts and views are encouraged and valued.

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

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.

> **Remember**
>
> In the workplace, perceived injustice has been directly linked to burnout and job dissatisfaction.

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

Learner's 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: Planning of 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. Explain 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

Prototype
A prototype is an instance of a working product, representing all the specification of final project.

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

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.

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. Achieve Work Breakdowns

Dividing complex projects into simpler and manageable tasks is the process identified as Work Breakdown Structure (WBS). Usually, the project managers use this method for simplifying the project execution. In WBS, much larger tasks are broken down to manageable chunks of work. These chunks can be easily supervised and estimated.

Following are a few reasons to achieve work breakdown in your project.

- Accurate and readable project organization.
- Accurate assignment of responsibilities to the project team.
- Indicates the project milestones and control points.
- Helps to estimate the cost, time and risk.
- Illustrate the project scope, so the stakeholders can have a better understanding of the same.

Construction of Work Breakdown Structure

Identifying the main deliverables of a project is the starting point for a work breakdown structure. This important step is usually done by the project managers involved in the project. Once this step is completed, the subject matter experts start breaking down the high-level tasks into smaller chunks of work.

In the process of breaking down the tasks, one can break them down into different levels of detail. One can detail a high-level task into ten sub-tasks while another can detail the same high-level task into 20 sub-tasks.

Therefore, there is no hard and fast rule on how you should breakdown a task in WBS. Rather, the level of breakdown is a matter of the project type and the management style followed for the project.
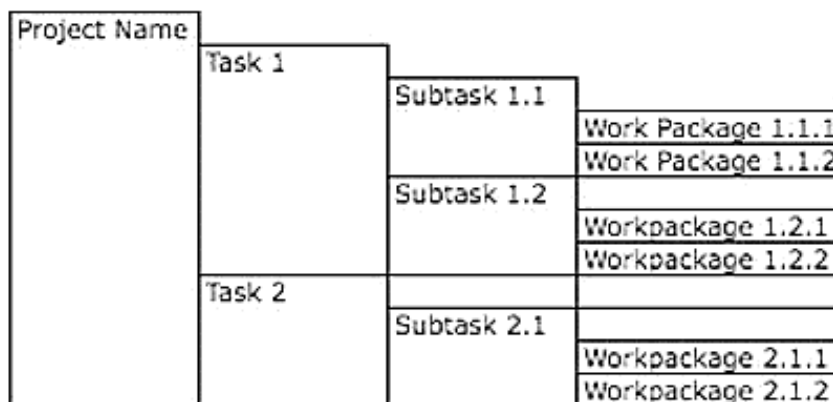
Module Work Breakdown Example

Goals of Work Breakdown

There are many design goals for WBS. Some important goals are as follows:

- Giving visibility to important work efforts.
- Giving visibility to risky work efforts.
- Illustrate the correlation between the activities and deliverables.
- Show clear ownership by task leaders.

Conclusion

The efficiency of a work breakdown structure can determine the success of a project. The WBS provides the foundation for all project management work, including, planning, cost and effort estimation, resource allocation, and scheduling.

Therefore, you should take creating Work Breakdown as a critical step in the process of project management.

5. 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.

> **Level Resource**
>
> Resource leveling is a (project management) "technique in which start and finish dates are adjusted based on resource constraints.

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 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 or Illegitimate Action to Appropriate Management

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:

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

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.

Remember

All key staff members should read and become familiar with the guide.

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.

Do you know!

Encryption is the conversion of data into a form that cannot be easily understood by unauthorized people.

Learning Unit 4: Understanding of Copyrights and Piracy

Overview

Infringement

It means violation of laws, regulations are agreement.

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

Copyright

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.

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

Do you know!

The unauthorized use or reproduction of another's work is called *Piracy*

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

- 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.

Remember

The objective and subjective components of the believability of a source or message is called *credibility*.

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