



**GALGOTIAS**  
UNIVERSITY

**School of Computing  
Science and Engineering**

Program: B.Tech CSE -GG

Course Code: CSGG4021

Course Name: Introduction to Graphics  
and Animation

## Course Outcomes :

| CO  | Title  |
|-----|--|
| CO1 | To understand the basics of computer graphics, different graphics systems ,applications of computer graphics and color theory.                                   |
| CO2 | To understand the various algorithms for scan conversion and two dimensional geometric transformations.  |
| CO3 | To apply the computer graphics concepts in the development of computer games, information visualization, and business applications and learn the use of OpenGL . |
| CO4 | To implement and understand the basic concept of various open source graphics tools like GIMP and blender etc.   |
| CO5 | To evaluate and compare the various image compression techniques and implement basic 3D modeling techniques.   |
|     |  |

## Course Prerequisites/Objective

### The objective of this course is to:

- To learn the basic concepts of graphics design. This includes color theory and application of graphics design.
- Be able to discuss the application of computer graphics concepts in the development of computer games, information visualization, and business applications.
- To develop a facility with the relevant mathematics of computer graphics, e.g., 2D/3D rotations using both vector algebra, and transformations and projections using homogeneous coordinates.
- To learn the principles and commonly used paradigms and techniques of computer graphics, e.g., the graphics pipeline, and Bresenham's algorithm for speedy line and circle generation

## UNIT-1

### Introduction

Graphic Design Overview, Graphic Design as a discipline, evolution of Graphic Design – Emergence of the design industry, Twentieth century design; Applications of Graphic Design, Skills & Design Illustration, Importance of color in graphics, Things to consider while choosing color in layouts – Color theory: Primary color, secondary color, tertiary color, Knowledge of colors – Harmonious colors, Complimentary colors, Color Models: RGB, CMYK, HSV

## Recap

- Skills and Design Illustrations
- What does a Graphic Designer do?
- Solutions to fundamental questions comes to Graphic Designer's mind

## What does a graphic designer do?

When he gets a graphic design job, be it a poster design, book design, web design, advertising, he has to start with asking himself the following **fundamental questions**:

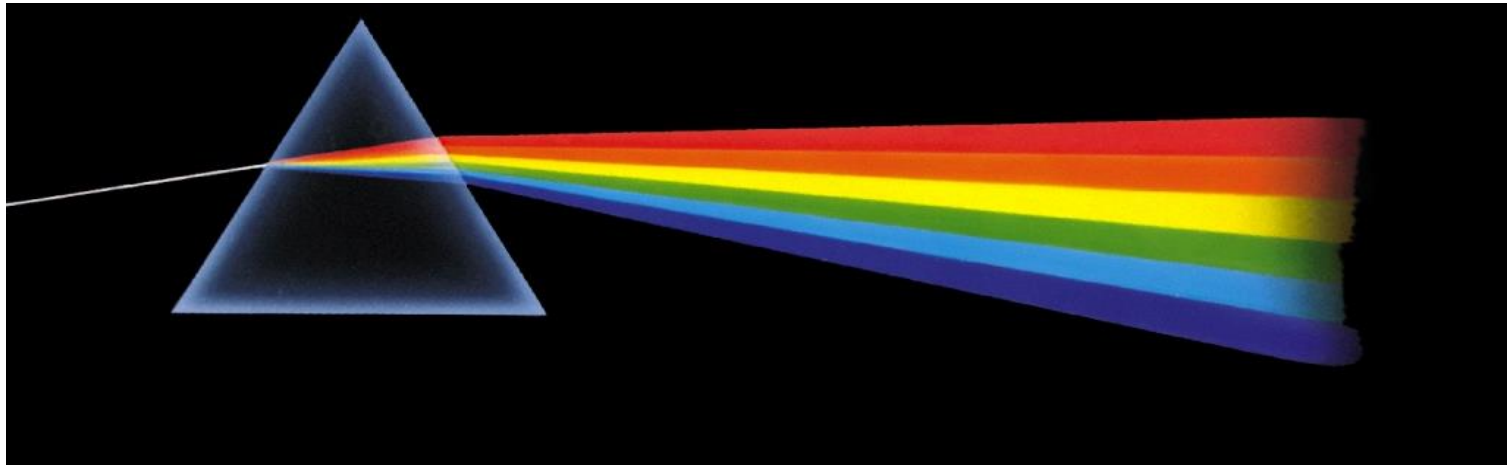
- What is the objective of the communication?
- What needs to be said first and then next and then after that? (levels of hierarchy)
- How do you want the eye to flow through the page?
- What is the tone of voice?
- Who are you speaking to?

## Solutions to these questions

Broadly speaking, the following tools are available to him to solve the aforementioned issues:

- Point
- Line
- Form
- Pattern
- Texture
- Space
- Size
- Typography
- Color
- Image

## Color



**Color is a property of light. A color spectrum is produced by a beam of light as it passes through a prism. Although the number of colors is unlimited...more than 10 million have been identified, and several hundreds have been reproduced by scientists.**



## Color

Color in layouts can convey moods, create images, attract attention, and identify objects.

When selecting colors for a publication or a web page, think about what you want the color to do and what is appropriate for your purpose.



Colour has the ability to immediately conjure up emotion



Colour is used to highlight important elements such as headlines and subheads.



Provoke emotion.



Colour is one of the most important elements in creating a corporate identity.



Colour can be used to represent ideology.



Knowledge of colour complementaries and harmonies are used to create composition.

## Importance of Colors in Graphics Design

- Color plays a major part in the correct reflection of your brand. This visually obvious yet subtle application has a significant impact on the way a brand is perceived by the public. No matter if you're designing a brand for yourself, a small company, or a corporation the effects of color will not discriminate based on how much cash you have to start. When looking at color options for your brand it's always best to take a look at other brands to get a clear idea on how color schemes play a part on the perception of brand perception. A company with strong brand recognition, altering the color scheme where it is expected to be maintained can have dangerous results.
- Today's marketplace is bombarded with products that are trying to get our attention at every head turn, decreasing the likelihood that your product will immediately stand out. According to the way our natural senses function Color is the most influential, followed by Shapes, Symbols, and finally Words. Here we will look at what colors mean on a basic level, as well as brands that are best known for their recognition by color, color combination practices, and how you can use these methods to develop your own brand.
- But make no mistake, brand recognition will make a good company succeed faster and make bad companies fail faster. People attach most of how they feel about your brand according to their personal experience with your products and services. By selecting a color and/or color combinations for your brand you will take the first step in growing a favorable acceptance in your chosen industry.

## Meaning of Colors

Color meanings vary from culture to culture, and the impact that your brand has on your targeted audience. Here is a list of a few meanings on how colors are interpreted by brands:

Hue is the primary value of a color and how the color red, green, blue, purple, etc. is perceived through the eye. Saturation of a color is the overall intensity or brightness of the color, any color that appears dull is referred to as desaturated. Value is the lightness or darkness of overall colors schemes.

- I. **Blue:** Security, Trust Worthy, Stability, Loyalty, Wisdom, Confidence, Trust, Friendliness, Preservation, Courage, Science.
- II. **Green:** Wealth, Money, Calming, Trees, Ambition, Endurance, Healing, Calm, Generosity, Natural, Completion, and Protection.
- III. **Red:** Energy, Power, Vigor, Leadership, Courage, Passion, Activity, Joy.
- IV. **Yellow:** Optimism, Childish, Freshness, Law, Education, Arrogance.
- V. **Pink:** Romantic, Feminine, Love, Beauty.
- VI. **Orange:** Cheerful, Passion, Pleasure, Enthusiasm, Fascination, Creativity, Fun.
- VII. **Black:** Powerful, Mysterious, Elegance, Sophistication, Functionality.

## Tips for Choosing Colors

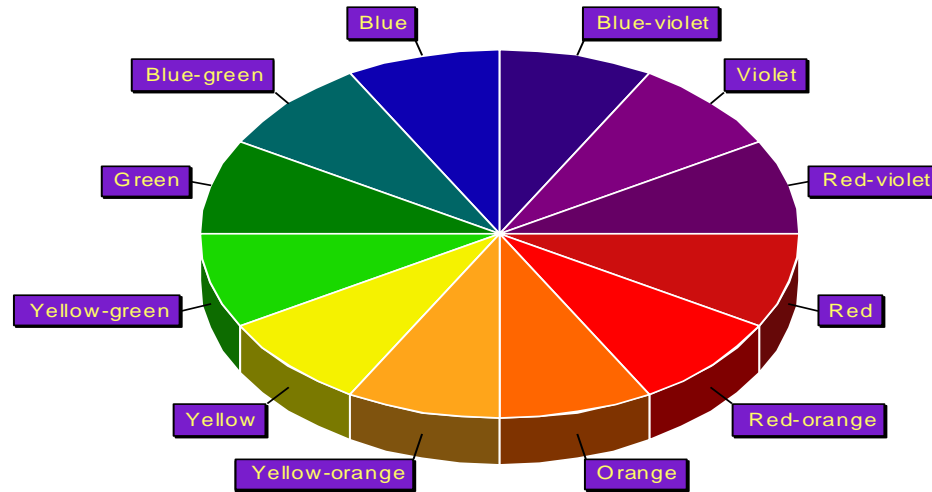
- I. **Don't stick with presets:** Almost every program you use will automatically give you preset colors. Get past the presets and explore color on your own. Don't let the program decide how you use color in your design.
- II. **Start with one color you like:** Every time I design something, I start with one color and build the color scheme from there. If you try and start with more than one color, you'll have a harder time finding harmony between your colors.
- III. **Save your color schemes:** If you find a color scheme you like, it'll probably be useful to you later. I wouldn't suggest using the same color scheme for every chart or graphic you create, but you can always use different schemes in different ways later on.
- IV. **Practice makes perfect:** The more you play with color and practice design, the better you get. No one creates their masterpiece the first time around.

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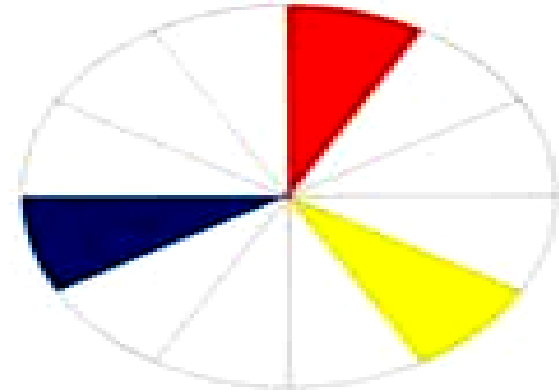
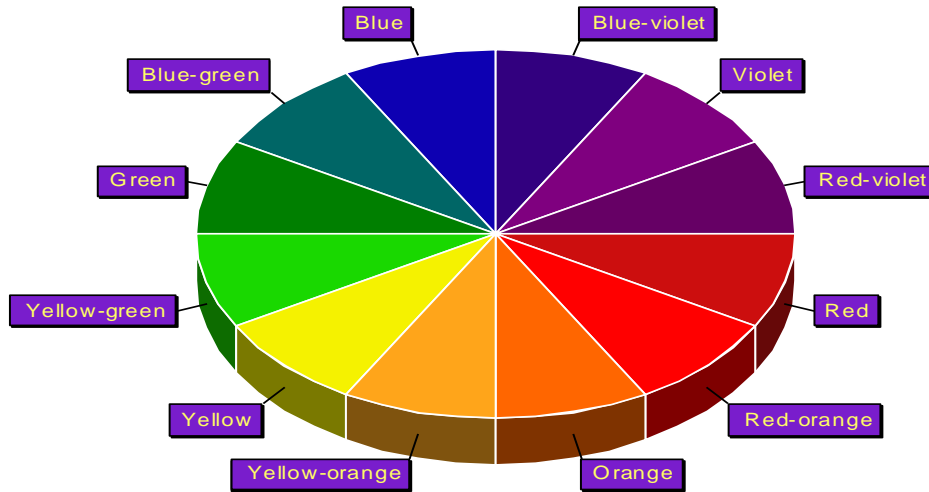
## Color Wheel

### Color Wheel



**This color wheel system, based on three primary colors, is known as the Brewster System. It was developed by David Brewster. It is also called the Prang System. Each color on the color wheel is a true “hue”.**

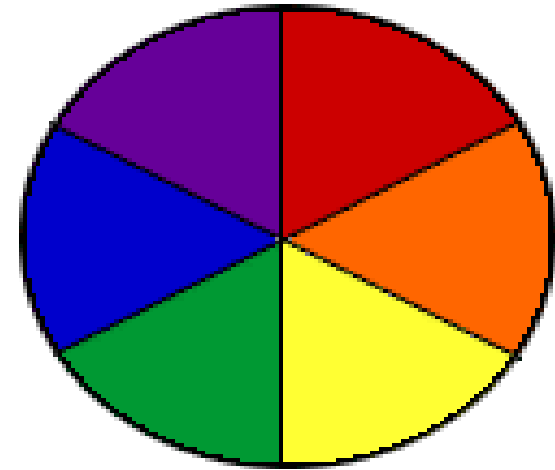
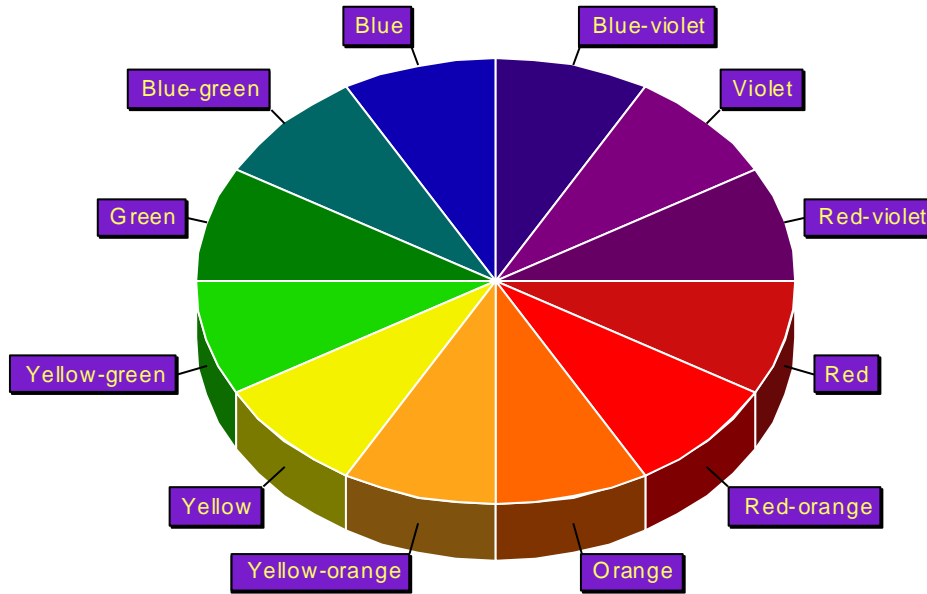
## Primary Colors: R, B, Y



**Primary colors  
cannot be man-made  
by mixing other  
colors together.**

**A pigment is color from a biological source, which when used in housing and design applications can be natural or synthetic (manmade)**

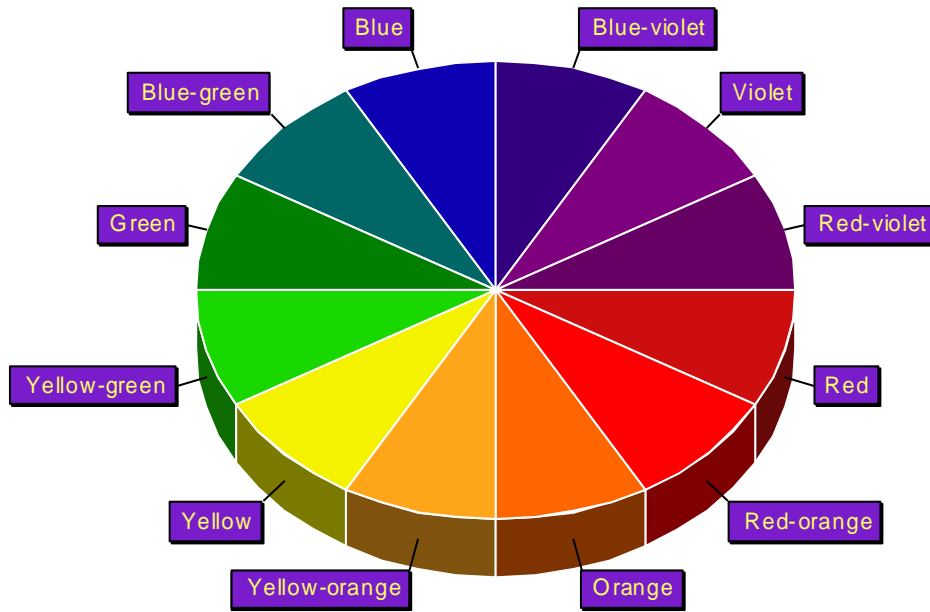
## Secondary Colors: O, G, V



**Secondary colors can be “made” by mixing two primary colors together. Blue and red make violet; red and yellow make orange; yellow and blue make green**



## Tertiary Colors: Yellow-green, Blue-green, Blue-Violet, Red-Violet, Red-orange, Yellow-orange



The tertiary colors are also referred to as the intermediate colors. Tertiary colors are made by mixing a primary with a secondary color... the primary color is always listed first. For example, when the primary color of yellow is mixed with the secondary color named green, the new tertiary color is called yellow-green.

Tertiary colors can be expanded further, such as mixing blue and blue-green together. The result would be the color blue-blue-green. Perhaps we would name that color “teal” to be less confusing.

## Neutral Colors

Neutral colors include black, white, and brown. They also include all the tints and shades of black, white, and brown... so include colors known as tan, beige, gray, cream, etc.

Neutral colors can be made by mixing:

black and white

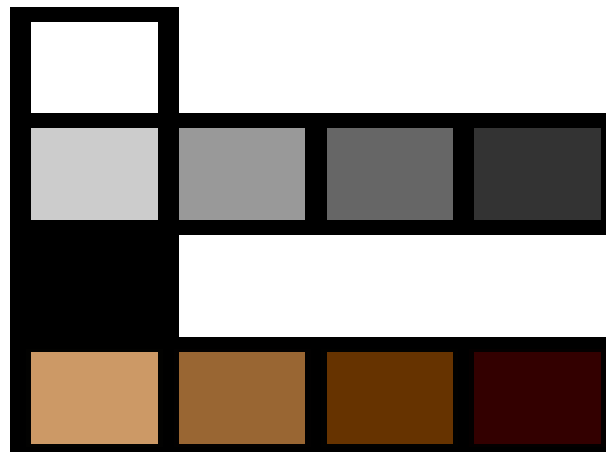
complementary colors

all three primaries together (plus some black or white)

Neutral colors blend well with all other colors.

They enhance and strengthen the other colors around them.

Stone such as slate, brick, marble, etc.; metallics such as brass, pewter, gold, chrome etc.; and glass fall into the neutral category.



Black is the absence of “light”; white is the absence of “color”.



Thank You