Digital Imaging
Block – V: Finishing and Digital Media Outputting

Odisha State Open University
Introduction to Multimedia

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Course Overview

Welcome to Finishing and Digital Media Outputting

In this block, you are going to study about the practical works which are done in the field of Multimedia. You will learn about the steps used in creating productions for various mediums like T.V., Film, and Internet etc. You will be using still graphics, 2d and 3d mediums for creating outputs in the Print & Publishing Industry as well as the Video and Animation Industry.

Practical- Graphics for TV Production

This course is intended for people who want to enter into the field of T.V. graphics. Lots of graphics are used in Television programmes with the help of Graphic Design and Animation. There are animations from ordinary category to very hi-fi science fiction categories. We can create universe, planets, and stars etc. using extreme 3D software’s. In this unit you will study about creating a rotating globe in 3D as well as 2D.

Practical- Creating Colourful Vector art in krita

This course is intended for people who want to bring their art in a colourful form using computer software’s. Krita and Inkscape are very powerful designing software’s with the help of which you will learn to create Vector Art. The benefit of vector art is the limitless size expansion without distortion. This allows the user to create art for small medium as well as big medium of print. Computer software’s have broken the barrier and limitation of manual art using oil colours, water colours and canvas. Krita software gives the freedom to create art with millions of in-built colours in the software which is displayed on a computer monitor. You will learn the magic of creating art using Krita and Inkscape.
Practical- Create Texture tricks with Inkscape

This course is intended for people who want to create textures using computer software’s. Inkscape is a vector based software which has the ability to create drawings as well as textures. You will learn the technical steps used to create varieties of textures which were captured using camera. You can create seamless natural and abstract textures using Inkscape after learning the unit.

Practical- Create T-shirt design with Vector art of Tiger

This course is intended for people who aim to create designs for print medium on canvas, T-shirt etc. You will learn about creating a vector art for T-shirt design. Learning a computer designing software intends to create designs in a much better and enhanced way as computer to manual techniques of olden days. You will learn how to create a T-shirt design of your own and take the print of the same on a T-shirt. This can enable you to become a T-shirt designer in future.

This video will provide a brief overview of this course.

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Course outcomes

Upon completion of Finishing & Digital media outputting you will be able to:

- **Examine** designing for practical mediums.
- **Create** a 2D and 3D globe animation.
- **Plan** the steps for creating Textures using Inkscape.
- **Arrange** the steps for creating a T-shirt design using vector art of a Tiger.
- **Get acquainted** with the steps of creating an output.

Timeframe

This course will be completed within “8” classes.

This course is of “1” credits.

16 Hours of study time is required for this unit.

Study skills

This is a combination of theory and practical.

Hence, you should have access to personal computer or personal laptop for better understanding of this unit.

Each and every option is explained step by step in the course material.

Apart from this course material, the learner has to adopt the tendency of learning from multiple sources i.e.;

- Internet tutorials
- Video tutorials on YouTube
- Collaboration with people working in the industry etc.

Only classroom study will not make you a professional. You have to be active to grab the opportunity of learning wherever you get a chance.
Course Overview

Need help?

In case of any help needed you can browse the internet sites like youtube.com for video tutorials about the subject.

Apart from that, you can contact the writer of this course material at jsrv2004@gmail.com.

Assignments

There will be some assignments at the end of each unit.

These assignments are mostly practical based and should be submitted in CD or DVD. Theoretical assignments are to be submitted neatly written on A4 size sheet.

All assignments will be submitted to respective study centre of Odisha State Open University or as directed by Co-ordinator.

All assignments should be unit wise on separate CD/DVDs clearly mentioning course title and unit on Top. Theoretical Assignment will be neatly filed or spiral bind with cover clearly mentioning necessary information of course, student details on top.

Assessments

There will be “1” assessments for each unit.

All practical assessment will be submitted to OSOU.

Assessment will take place once at the end of each unit.

Learner will be allowed to complete the assessment within stipulated time frame given by the university.
Video Resources

This study material comes with additional online resources in the form of videos. As videos put in human element to e-learning at the same time demonstrating the concepts visually also improves the overall learning experience.

You can download any QR code reader from Google Play to view the videos embedded in the course or type the URL on a web browser.
Getting around this Course material

Margin icons

While working through this Course material you will notice the frequent use of margin icons. These icons serve to “signpost” a particular piece of text, a new task or change in activity; they have been included to help you to find your way around this Course material.

A complete icon set is shown below. We suggest that you familiarize yourself with the icons and their meaning before starting your study.

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Unit-1

Practical- Graphics for TV Production

Introduction

Vibrant Graphics and Animation are very common in Television Programs to create attraction for the viewers. Television programmes are full of advanced graphics and visual effects. This Graphic design industry has emerged as a parallel part of the Video Production.

The work of pioneering graphic designers in the Design Industry has set the standards that still influence what you see on Television today.

In this unit you will learn about how to design the graphics for television. Further, we will be covering the practical portion of creating some of the Graphics for Television.

Outcomes

Upon completion of this unit you will be able to:

- Create and place still and animated logo for Television program.
- Develop the still and animated header and footer designs of a Television Program.
- Construct an Animated Globe using Synfig Studio.
- Design a 3D Animated Globe for a Television program using Blender.
- Create a Negative Rolling Animation using Synfig Studio.

is intended for people who aim to create designs for print medium on canvas, T-shirt etc.
Terminology

**Blender:** Open source software for 3D. It is widely used by professionals and learners. It has options which are almost matching to the professional software’s.

**Synfig Studio:** An Open source 2D Animation Software. Apart from just drawing frame by frame, 2D Animation software has the capability of optics animation which generates frames on their own after specifying the starting point and the ending point.

**PNG:** Portable Network Graphics has the capability to use Transparent Background. In case of Titling and Logo placement, transparency is required in the edges, hence PNG format is capable to do so.

**FPS:** Frames Per Second is the speed which is specified in an animation or movement. In a real time video the FPS used is 25 fps in PAL format and 30 FPS in NTSC format.

Birth of Graphic Design in Television Industry

In 1936, the Television Industry was born which was considered as a revolution in that era. Graphic design was an Industry which was totally considered for print media only. Any graphics which were required for the Television shot was first hand painted, then it was photographed or video graphed and brought into the video format for television. There were lots of techniques which were required to be used for bringing the drawn shots to video so only still format of text and drawings were only used.
BBC television appointed their first graphic designer as full time employee after 20 years of its existence in the year 1954. The employee was John Sewell. A new profession emerged as the newer competitive players in the industry started adopting new strategies of their competitors so that they may move at the same pace with others without being left behind. Still, the use of Graphic design was under the control of lots of similar designs as a standard format of a letter. Artistic designs were not used at that phase. Only rectangular and circular shape with light background and dark text or vice versa were used during that period. The time taken for creating artistic content could not be afforded or utilized and the normal process itself took a long time to operate and complete.

History of Desktop Publishing

The year 1983 saw a new dawn for the Desktop Publishing when James Davise, for the first time, developed a code in Philadelphia. It was for a community newspaper. In olden days, software were called Programs which were written in codes. The program was Type Processor One. It ran on computers which had a Graphics card on WYSIWYG display. In 1984, the software was released in open market commercially by Best Info.

The major breakthrough of Desktop Publishing was in the year 1985 when Apple Laser Writer Printer was introduced in the market in the month of January. In the same year, in the month of July, Pagemaker software was launched into the market by Aldus. Pagemaker has been designed in such a way that documentation of hundreds of pages can be done with convenience.

“Desktop Publishing” term is a contribution to the founder of Aldus Corporation, Mr. Paul Brainerd. In the world of expensive software and equipment’s related to colour printing techniques, Pagemaker was like an affordable solution to the artists and designers who sought computer as the future tools and technique of advanced designing.

Apart from the introduction of Desktop Publishing in those days, people faced lots of problems like small screen size, monochrome monitors, inability to use letter spacing, line spacing etc. The computer display out did not accurately match the print output. The developers have strived a lot to create graphic designing software’s which are compatible with hardware’s,
operating systems and output devices like printers. There has been lots of developments step by step which has given scope to the Desktop Publishing Industry to flourish.

Now in the 21st century, Advanced and High speed Computer systems have emerged, Advanced and High End Offset printers have come into existence. Due to all this, there is lots of scope in Printing Industry. Anything can be designed and printed and printing can be done anywhere. We can print on paper, we can print on canvas, print on glass as well as we can print on wood, iron and steel also. Desktop Publishing is already on an advanced mode and is marching ahead to set new avenues for high standard design and printing.

Role of Graphic Designer in the Television Industry

Graphic design in TV industry is growing in a much higher pace. There has been advanced in the hardware segment which has given wings to the graphic designer to spread and develop the kinds of output like King Kong and Narnia which was once beyond the imagination.

As there are lots of options, hence the role of Graphic designer has expanded many contexts as follows:

- Creating the Titles at the beginning of a program and also the End credits of a Program
- Creating the identity of the Television channel through Logo Design and specific colour schemes.
- Creating the Graphic Props required for a program i.e. Backdrop of news channels with vibrant graphics and animation.
- Continuous Animated Contents like scrolling of text, animated text etc. for News channels and music channels.
- Changing the formats and sequences monthly or quarterly as desired by the channel. Now-a-days in channels, same format is not accepted for long, so a graphic designer is always required to generate new content every time.
- Print related Graphic required like Poster of a T.V. program, Hoarding of Channel advertisement etc.
Use of Computer and Software’s for design in the Television Industry

The film rostrum camera was the source of creating designs for Television in the olden time. It is basically used for creating vertical scrolling contents of text in the titling of a serial or a program. Rostrum camera is a vertically mounted camera. It has the capability to move up and down on the area where the artwork is kept. This helps in producing the movement which we call Animation.

Emergence of Computer and Computer Graphic software totally changed the scenario of the Television Graphics Industry. Now with minimum effort lots of excellent and eye catching designs are produced with the help of advanced graphic software’s. It has reduced the work of excess dependence of camera for graphics. They are created from the scratch in computers either in 2D or 3D. Readymade templates are also available in the market which makes the work easier for designers as they don’t have to build everything on their own. They are choosing readymade designs which are called templates and just change the text, logo, graphics etc. to produce an original content.

Output Formats for the Television Industry

NTSC and PAL are the standard format which is used in all the places. Now with the emergence of HD Televisions, HD [High Definition] formats are also used. The output video remains the same, but there are some changes in its size specification and frame rate (fps).

NTSC means National Television Standard Committee. Its frame size is 720 x 480 pixels and the frame rate is 30 frames per second. It is mostly used in western countries where the monitor size or Television size is in the ratio of 16:9.

PAL means Phase Alternate Line. Its frame size is 720 x 576 pixels and the frame rate is 25 frames per second. It is mostly used in Asian countries where the monitor size of Television size is in the ratio of 4:3.
HD means High Definition. HD comes in various sizes i.e. 1920 x 1080, 1280 x 720, etc. The final size depends upon the requirement of a place or the output media.

Apart from Television, now-a-days lots of different platforms have come into existence like Mobile, YouTube Videos etc. Hence a same video output is resized to fit various platforms and used across all for the convenience of the viewers.

Still Logo Design – Setting the logo design in Krita

A.  
- Go to google.co.in.  
- Go to Google Images  
- Search for a 3d globe. Type “3d globe png”

⚠️ PNG format is a pre transparent background which makes it easier to place an image. The transparent background is represented through a grey and white grid.

Title: World Globe  
Attribution: qimono [User name as per Pixabay]  
Source: Pixabay  

From the displayed image, choose an image of your choice. Be sure that the background is in Grey and white shade (the grey and white shade represents transparency in computer screen).

- Save the file in a folder in your PC.  
- Open Krita

Let us pre assume that we are creating a file for HD format.
**B.**

- Create a New file in Krita.
- File – New -

![New File](image)

- Width - 1920 pixels & Height - 1080 pixels.
- Color Mode – RGB

![Color Mode](image)

- Click on Create
- File – Open – Choose the saved 3D Globe photo.

![Image](image)

- Select Menu – Click on Select All.
- Edit Menu – Click on Copy.

**C.**

- Go to the new HD file which you have created earlier.
- Edit Menu - Paste
- Transform Tool - 

![Transform Tool](image)

- Scale and place it in a corner as a logo is placed.
- Remove the Background layers. Right Click on the Layer – Remove Layer (Shift + Del is the shortcut)
- Save the output file in the PNG format so that it can be used in the editing track with transparency.
The saved file can be used as a logo layer file in the editing software.

The individual Png file can also be placed directly in the editing track without Krita edit also.

**Note**

Creating a completely transparent file with only a logo will be helpful in future in placement of logo.

### Reference Collection

Make a collection of most of the logos of TV Channels and save it in your reference folder in PNG format.

### 2D Animated Globe Logo – Synfig Studio

**A. COLLECTING THE MAP FILE**

- Go to google.co.in
- Go to google images.
- Search for globe texture. Type “globe texture” in the search box.
- Choose the texture which you feel suitable.
Title: World Globe Map Texture
Attribution:
Source: Pixabay
Link:  https://pixabay.com/en/nasa-map-day-ocean-earth-ice-140636/

- Save the texture file in a folder in your PC

B(1). CREATING A NEW FILE IN KRITA

- Open Krita
- File – New –
- Width – 1300 Pixels
- Height – 400 Pixels

![Width: 1300 | Height: 400]

- Color Mode – RGB

- Click on Create

B(2). RESIZING THE MAP FILE IN KRITA

- Open the Globe texture file saved in your PC.
- Select Menu – Click on Select All
- Edit Menu – Click on Copy
- Go to the new file created earlier of 1300 x 400 pixels.
- Edit Paste.

- Transform tool -
- Resize the globe as required.
- Right click on the globe layer – Click on Duplicate Layer.
- Right click on the globe layer – Click on Duplicate layer again.
- Move and place the layers as shown below.
- Select the middle globe – Transform Tool - Tool Options - Flip Horizontal

![Screenshot]

- Select the globe area only.
- Image Menu – Trim to Selection
- Now save the file in jpg form named globeani.jpg

C. CREATING THE ANIMATION IN SYNFIG STUDIO

- Open Synfig Studio
- File – Import – Choose the globeani.jpg file
- Select the file.

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<td>globeani.jpg</td>
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- Select the Move tool - 🌍
- Move the image and place the starting point near the starting area of the file.

- Create two guideline. One at the starting point of the image. Second at the ending point of the single image [not at the ending point of the whole image]
• Now we are in the first frame.

Now Turn on the Animation Editing Mode.

• After turning on the Animation mode the symbol changes to

• Select the image.
• Move tool.
• Move the image slightly to create a Keyframe in the beginning.
• Now go to the 120th frame. [Type 120f in the frame area - ] or Move the Timeline marker [ ]
• Move the image till it reaches the end point of the whole image matching the end point guide which we have created.

[Screenshot]
D. CREATING THE CIRCULAR MASK

- **Play the animation.**

- **Turn Off the Animate Button.** The symbol changes to .

- **Go to the first frame – 0f.**

- **Choose the Circle Tool – Create the circle as shown.**

- **Go to Blend Method – Change to Alpha Over**

![Screenshot]
• Select the Invert Option.

• Now Play the Animation

• PREVIEWING AND EXPORTING THE ANIMATION

• Go to File Menu – Preview

• Click on Preview
• Play and check the output.
• Go to File Menu – Render

• Choose the destination to save.
• Type the file name as – globeanimation.avi
• Target – ffmpeg format.
• Quality – 9, Anti-Aliasing - 5
• Image size – Let it be as default.
(The above settings may vary from system to system)

Click - Render

Rendering C:\Program Files\Synfig\bin\globeanimation.avi

Wait for the rendering to complete.

File rendered successfully (3.613206 sec)

Now go the destination folder and Play the animation.

This animation can be used in the Editing Track for creating Television Graphics.

3D Animated Logo - Blender

- Open Google Chrome
- Go to google.co.in
- Go to google images.
- Search for globe texture. Type “globe texture” in the search box.
- Choose the texture which you feel suitable.
- Save the texture file in a folder in your PC.

- Open Blender
- Go to Create – UV Sphere

- Object Mode – Texture

- Material Tab
  - Left Click on New Material
- Texture Tab
  - Left Click on New
  - Type – Image or Movie
  - Left Click on Open
• Choose UV Editing Mode

• Choose the Map
- Object Mode – Rendered

- Edit Mode – Solid
• Press “A” to select all
• Press “U”
• Select Sphere Projection
• Shading – Smooth
• Object Mode – Rendered

![Screenshot]

• Go to “Animation” Mode

![Screenshot]

• Automatic Keyframe “On”

![Screenshot]

• Press R – Rotate slightly to create a keyframe
• Object Mode – Material
• Go to 60th frame
• Go to object mode

![Screenshot]

• Change the Rotation Axis
• Z Axis to 360
• Press the Play Button
• Rendering - Animation
Render Presets – HDTV 1080p

End Frame – 60

- Output – Select the folder
- File type – Avi RAW format
- Left click on Animation

The Render file can be used in any Video Editing software as 3d Globe Graphics.

Video Tutorial Link of the above Chapter: https://youtu.be/Nq5Ag0R2UI4

Still Header and Footer Design - Krita

1. Open Krita.
2. File – New
3. [Screenshot]


5. OK

Bottom Design

- Rectangle Shape Tool
- Tool Options –
  - Fill – Foreground Colour
  - Outline – No Outline
  - Screenshot

- Create the rectangle shape
  - Screenshot

- Transform Tool
- Tool Options – Perspective
• Change the above options as required and do the adjustments

• Select the layer – Right click – Duplicate Layer (Ctrl+ J)
• Move to the bottom
• Filter Menu – Adjustment – HSV Adjustment – [Increase the lightness]

[Screenshot]
- Transform tool – Rotate the design

[Screenshot]

**Left Design**

- Rectangle Shape Tool
- Tool Options –
- Fill – Foreground Colour
- Outline – No Outline

[Screenshot]

- Create the rectangle shape

[Screenshot]

- Transform Tool
- Tool Options – Liquify
Click and drag on the shape for adjustments.

Select the layer – Right click – Duplicate Layer (Ctrl+ J)

Move to the left

Filter Menu – Adjustment – HSV Adjustment – [Increase the lightness]
Text Animation using Blender

In this section we will cover the following:

- Writing Text in Blender.
- Writing a word Alphabet wise.
- Animating the word Alphabet wise.
- Rendering the Scene.

Practical Process:

- Open Blender
- Press Delete Button keyboard – Click Delete button on screen. It will delete the existing object.
- Go to Create Menu -
- Click on Others – Text -
- Go the Top Right hand side corner. Search for or Go to Edit Mode -
Text by scrolling down. Click ‘+’ by the left side of Text. The panel will be expanded and you will find another text below.

- Click on the Text
- On the screen in the middle you will find a cursor to the right. Backspace and delete the existing text.
- Type your required text. Suppose I type “U”.
- Backspace and Change the Text to “N”
- Change to Object Mode
- In the right hand side corner - Click on “” – Data – Object Data.
- Go to the Geometry Section
- Screenshot
- Increase the Extrude value.
- Increase the Bevel De:
- The output will look as follows:
- Use the Scroll Mouse to Rotate the View
- Use the Shift + Scroll Mouse to Pan the View
- Screenshot
- Press “Shift + D” [Shortcut of Duplicate]
- Move it to the right side of first “U”
- Go to Edit Mode -
- Backspace and Change the Text to “N”
- Change to Object Mode -
- Press “Shift + D
- Move it to the right side of “N”
- Go to Edit Mode -
- Backspace and Change the Text to “I”
- Change to Object Mode -
- Press “Shift + D
- Move it to the right side of “I”
- Go to Edit Mode -
- Backspace and Change the Text to “V”
- Change to Object Mode -
- Press “Shift + D
- Move it to the right side of “V”
- Go to Edit Mode -
- Backspace and Change the Text to “E”
- Change to Object Mode -
- Press “Shift + D
- Move it to the right side of “E”
- Go to Edit Mode -
- Backspace and Change the Text to “R”
- Change to Object Mode -
- Press “Shift + D
- Move it to the right side of “R”
- Go to Edit Mode -
- Backspace and Change the Text to “S”
- Change to Object Mode -
- Press “Shift + D
- Move it to the right side of “S”
- Go to Edit Mode - 
- Backspace and Change the Text to “I”
- Change to Object Mode – 
- Press “Shift + D
- Move it to the right side of “I”
- Go to Edit Mode - 
- Backspace and Change the Text to “T”
- Change to Object Mode – 
- Press “Shift + D
- Move it to the right side of “T”
- Go to Edit Mode - 
- Backspace and Change the Text to “Y”
- Change to Object Mode - 
- Final View looks like this –

![Screenshot]

- Now Activate the Animate Keyframe - 
- Suppose we need to make an animation @ 25 frames per second for 6 seconds i.e. 25 x 6 = 150 frames.
- Hold - Ctrl + Click and drag to select all the alphabets like a lasso selection.
- Click on 150th frame.
- Create the keyframe – Click on
• Click on Keyframe – Yellow Marker

- Screenshot

• Choose Location –

• Click on Key -

• Go to 0 Frame

• Deselect all the shapes – Ctrl + Shift + Click and drag around alphabets like a lasso selection.

• Go to 0 frame

• Select only “U” – Right Click on “U”

• Choose Translate and Move it beyond the view.

• Press “A” to Deselect

• Select only “N” – Right Click on “N”

• Choose Translate and Move it beyond the view.

• Press “A” to Deselect

• Select only “I” – Right Click on “I”

• Choose Translate and Move it beyond the view.

• Press “A” to Deselect

• Select only “V” – Right Click on “V”

• Choose Translate and Move it beyond the view.

• Press “A” to Deselect

• Select only “E” – Right Click on “E”

• Choose Translate and Move it beyond the view.

• Press “A” to Deselect

• Select only “R” – Right Click on “R”

• Choose Translate and Move it beyond the view.

• Press “A” to Deselect

• Select only “S” – Right Click on “S”

• Choose Translate and Move it beyond the view.

• Press “A” to Deselect

• Select only “I” – Right Click on “I”

• Choose Translate and Move it beyond the view.
Press “A” to Deselect
Select only “T” – Right Click on “T”
Choose Translate and Move it beyond the view.
Press “A” to Deselect
Select only “Y” – Right Click on “Y”
Choose Translate and Move it beyond the view.
The final 0 frame view should look like this.

Now go to 150th frame – The frame should look like this.

Now go to 0 frame and Play -
Now Zoom near to the text “University”
Now Render for the final output.
Rendering - Animation
- Render Presets – HDTV 1080p
- End Frame – 60
- Output – Select the folder
- File type – Avi RAW format
- Left click on Animation

The final rendered file can be used in Titling Effects in documentaries, serials, films etc.

Activity
- Study Graphic Animations in YouTube and try to identify the software’s in which they would have been made. Try to utilize your skills and learning to develop that kind of Graphics.
Summary

In this unit you learnt about designing television graphics. There are several tools and software’s for designing graphics. You can search more on the web and learn which are important to you.

Assignments

- Create a Logo with a 3D Globe image in the Krita.
- Create an animated 3D Globe using Synfig Studio.
- Create an animated 3D Globe using Blender and Render it in an “avi” file.
- Create a Header and Footer design in Krita for a Television Program.
- Create a Text Animation using Blender.
- Write all the above Assignments in DVD using Nero with the video output, raw source files of the software used and submit it to the University.

Assessment

- ________________ is the open source 3D software used for creating Television graphics in this unit.
- ________________ is the open source 2D software used for creating Television graphics in this unit.
- ________________ is the graphic design software used for creating Television graphics in this unit.
- ________________ is the full form of FPS.
- ______ is the frame rate of PAL format.
- __________ is the frame rate of NTSC format.
Unit 2

Practical- Create colourful Vector character art in Krita

Introduction

Character Designing is a full-fledged job of an artist in a film or a comic book or a story, or an advertisement etc. Whenever you plan to go to a movie, you first try to know about the name of the hero, heroine, side actors, villains etc. After knowing that you have a rough idea of the movie based on your previous experience. In the same way, the looks of the character plays a big role in the output of the presentation. It attracts the audience to view the product or film.

In this unit you will learn how to create vector character design in Krita and Inkscape which are one of the software’s for designing different types of characters.

Outcomes

Upon completion of this unit you will be able to:

- **Sketch** a character.
- **Use** the software Krita.
- **Use** the software – Inkscape for Vectoring the Art.
- **Create** a complete character design using Krita and Inkscape.
- **Evaluate** the different formats of output of a design.

Terminology

**Vector:** The shape used by software’s which are not distorted while enlargement as well as consumes only less space.

**Raster or Bitmap:** Photographs or images made up of pixels or
dots which represent the information of position as well as the colour of the pixel. It consumes more space as compared to Vector based shapes.

**Character design:** Visualising and creating the Design of a person, animal, a cartoon etc. using the characteristics of the above.

**PNG format:** Portable Network Graphics (PNG) is a raster graphics file format that supports lossless data compression.

**TGA format:** True vision TGA, often referred to as TARGA, is a raster graphics file format.

**TIFF format:** Tagged Image File Format, abbreviated TIFF or TIF, is a computer file format for storing raster graphics images, popular among graphic artists, the publishing industry, and photographers.

**Steps for Character Design**

- First, the script of the project is written and all the characters are established in writing.
- Next, a Character Designer is hired and the described character is given to him. The character designer and the director discuss about the details of the character like the height, the mood, the dress, the posture etc.
- After getting the brief the character designer starts his sketching.
- The sketching goes in various rounds with inputs and corrections from the director.
- Once the sketch of the character is finalized, it is scanned and taken to the digital department.
- In the digital department, it is created using vector graphic software’s. Vector graphics is preferred because it does not
get distorted on enlargement. A small design can be enlarged to huge size also.

- After the lining, it is coloured by the artist through the software’s and the final output is created.

In this unit, we have prepared an outline sketch and will learn to create the digital output with colours.

There are few things which you should know and for which you should be prepared.

- An Artist and a Digital Artist. Both the designations seem same, but are different from one another. An artist learns art from pencil and it is movement of his hands which creates the art. The Digital Artists uses the tools and technique of the software’s to create a better output of the hand drawn art with the help of vector shapes and colours.

- A multimedia learner is not compulsorily to be a great artist to create a great output. You will be surprised to know that in the Graphic Design Industry, 70% and above people belong to categories other than professional passed Artists from Art related courses.

- Art comprises not only of drawings, but there are lots of departments in Art. For e.g. Drawing Department, Digital Drawing Department, Colour department using software’s, Layout Department, Composition Department etc. All these together create a great art. It is not a One Man Show. So learn the process and try to be expert in your own Area.

**Krita – Open Source Software for Designing**

There are lots of open source software’s which are available in the market for image processing and designing works. One of the popular and widely used software is Krita. It has got all the capabilities of creating a successful design required for commercial works.

The word “Krita” is a Swedish word. It means “to draw” or “chalk”. The name was assigned after the name “KImageShop” and “Krayon”. These former names were not going well with the software hence “Krita” is finalized.
Open source software’s means any person can access the software code and add or modify options. Any person can write code and benefit to the company or community by their efforts and earn recognition for them. These open source software’s have created a good platform for users who cannot afford or purchase costly commercial software’s.

You have already studied the software Krita in Block 3 – Image Development on different Graphic Software, Unit 1- Krita – Familiarization with interface - Tools and Features.

Hence, we will only focus on the tools required for the character design.

**Practical – Technique 1 – Drawing and Tracing in Krita**

- Draw a rough sketch of your own choice.
- Take the photograph of the sketch in digital format.
- Open Krita
- Create a new file of A4 Size
- Copy and Paste your sketch drawing file.
- Create a New Layer
- Trace the outline with your desired brushes.
- Bezier tool is an excellent tool for tracing in Krita.
- Brush Options
• Brush Engine – Choose “Pixel”.

• Choose the following type of brush.

• Now start the tracing.

• Hide the other layers except the drawn layer
• File – Export – PNG format.

Do it patiently. It will take about 20 to 30 minutes to bring perfection in drawing.

**Note It**

**Inkscape – Open Source Software for Designing**

Inkscape is a vector based open source software used by people in the industry. Designs which are related to shape are mostly done using Inkscape.

It has lots of ready-made tools and options required to create advertisements, shape related designs such as logo, visiting card etc. It has the ability to create lots of textures and manually created shade of designs.

It is inherited with the capability of creating lots of variety of output formats. The export capability into various formats of a design makes it usable in most of the platforms available in the computer operating system.
You have already studied the software Inkscape in Block 3 – Image Development on different Graphic Software, Unit 2 - Familiarization with interface of Inkscape.

Hence, we will only focus on the tools required for the character design.

**Practical – Technique 2 - Vectoring**

- Open Inkscape
- File – Import – [Choose the eyes file drawn in Krita]
- Path Menu – Trace Bitmap

![Screenshot](image.png)

- Now your shape is in Vector format.
- Choose the fill tool and colour as required.

**OUTPUT FILE -**

**Total Structure of a Character Drawing**

First of all, before entering into the software interface, we have to prepare a complete sketch of the character drawing manually on a piece of paper. We will now study all the elements of a character design one by one.
Character Anatomy

The designer first creates the character anatomy with the features which are assigned to him. An overview anatomy and drawing of the character is shown in Fig A, B & C, and a technique of digitization is described.

Practical – Technique 2 – Outline Vector Drawing

- Take a Photograph of Figure A as shown below using any Smartphone.
- Transfer the Photograph to your computer.
- Open Krita
- Open the Photo of Figure A
- Select Menu – Select All
- Edit Menu – Copy

Fig. A
Fig. B

Fig. C

[Drawn by the Author]

- File - New [Choose any size]
- Edit – Paste
- Transform the Photo and resize according to the screen.
- New Vector layer

- Screenshot
- Choose Brush Tool - Brush Settings - Choose a Round Brush
- Choose Bezier Curve Tool -
- Click and draw the outline shape – Press Enter
- Continue the above process till completion.
- Work in Progress –
We can adjust the points after drawing the lines also.

Choose the shape manipulation tool.

Left click and drag over a shape.

It will get selected as shown.

The bottom tool under this Shape manipulation tool will change to Path Editing tool.

Choose the Path Editing tool.

Click and move to adjust the points.
Go to Tool Options – We have got extra options like Add points, Remove points etc. to modify the shape further.

After the complete drawing, save the file in Krita [File – Save]
Save the file in JPG format also [File – Save]. Under the “Save as type” option choose JPG.

Activity 1
- Download a reference image similar to the Above File from “Google” through Internet OR use the three files Fig. A, B & C by taking a photo in your Smartphone and transfer it to your PC.
- Import the file in Krita and Trace using the technique as shown above.
- Save the file in Krita format and PNG format.

Face

Face is the area where we look for the most amounts of details to recognize a person. While drawing a character the artist draws the profile of the character in front view, left view or right view and a one third perspective view.
A sample of a face profile is shown in Figure D, E & F.

![Fig. D - Front Profile](image1)  ![Fig. E - Right Profile](image2)  ![Fig. F - One third Profile](image3)  

[Drawn by the Author]

**Practical – Technique 3 – Stroke Path using Brush**

- Take a Photograph of Figure D, E & F as shown using any Smartphone.
- Transfer the photos to your PC
- Open Krita
- Open the Photo of Figure A
- Select Menu – Select All
- Edit Menu – Copy
- File - New [Choose any size]
- Edit – Paste
- ![Transform the Photo and resize according to the screen.](image4)
- New Vector layer
Unit 2 Practical - Create colourful Vector character art in Krita

- Choose Brush Tool - Brush Settings - Choose a Round Brush
- Choose Bezier Curve Tool -
- Click and draw the outline shape – Press Enter
- Continue the above process till completion.

- Choose Brush Tool - Brush Settings - Choose a Designed Hazy Brush.
- Set the Brush Size as required.
- Select the vector layer.
- Edit Menu – Stroke Selected Shapes
The output will look as above. We can create sketch type of drawing using this process.

Activity 2

- Download a reference image similar to the Above File from “Google” through Internet
- Import the file in Krita and Trace.
- Save the file in Krita and PNG format.

Eyes

Eyes are one of our important parts to portray our expressions. Hence drawing eyes is a vital part of character design. In the given figure below are illustrated some of the eyes with their properties.

<table>
<thead>
<tr>
<th>Fig. G</th>
<th>Fig. H</th>
<th>Fig. I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almond Shaped Eyes</td>
<td>Hooded Eyes</td>
<td>Deep-Set Eyes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fig. J</th>
<th>Fig. K</th>
<th>Fig. L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round Eyes</td>
<td>Sleepy Eyes</td>
<td>Down turned Eyes</td>
</tr>
</tbody>
</table>

[Drawn by the Author]
Eye Colour

When it comes to the digital world, eyes come in all colours as compared to our natural eyes. The natural colour of an eye is black, blue or brown. There are rarely some shades of green. The side portions of eye ball come in white colour shades with stains of brow, yellow and red.

<table>
<thead>
<tr>
<th>Eyes of Different Colors</th>
</tr>
</thead>
</table>
| ![Eyes of Different Colors](image)

Fig M: Eyes of Different Colors
[Created by the Author]

Practical – Technique 5 – Readymade vector shapes with filled colours.

- Take a Photograph of Figure M as shown using any Smartphone.
- Transfer the photos to your PC
- Open Krita
- Open the Photo of Figure A
- Select Menu – Select All
- Edit Menu – Copy
- File - New [Choose any size]
- Edit – Paste
- Transform the Photo and resize according to the screen.
- Now we will create the design according to a plan as shown below.

![Diagram](image)

1. Outer circle with Black Outline and filled Grey
2. Inner Circle with Filled black and no outline
3. White filled patch

[Screenshot]
- Go to Settings Menu – Docker – Add Shape
- Select the circle shape – Click and drag onto screen
- Go to Tool Options – Choose the fill and change the colour as required.

![Screenshot]

- Set the line style and outline width as required.

![Screenshot]

- In the above process create the other two circles and place it as shown in the reference image.
- The output should be as follows:

![Screenshot]

- We can change the colours as required anytime by selecting the shaping and going to the Tool Options as shown above.

Activity 4

- Download a reference image similar to the Above File from “Google” through Internet
- Import the file in Krita and Trace.
- Save the file in Krita format and PNG format.

Nose

A Nose defines the look of a person. Whenever we draw an imaginary character, the look of the nose is important and forms an eye catching element in the face. People of various countries
have different types of noses and while drawing a character, the artist has to experiment with different types of noses which suit the character.

Some examples of different types of noses are given below with figures.

<table>
<thead>
<tr>
<th>Hooked Nose</th>
<th>Droopy Nose</th>
<th>Aquiline Nose</th>
</tr>
</thead>
</table>

| Roman       | Grecian     |

<table>
<thead>
<tr>
<th>Button Nose</th>
<th>Child Version</th>
<th>Upturned Nose</th>
</tr>
</thead>
</table>
Activity 5

- Download a reference image similar to the Above File from “Google” through Internet
- Import the file in Krita and Trace.
- Save the file in Krita format and PNG format.

Lips

Lips come in various shapes and sizes. But an overall look will display that all the lips are mostly same. But there is a difference when it comes to drawing lips of a character. The expression of a face is portrayed by the change in shape of the lips like smiling, laughing, sad etc.

Even lips vary from children, young person and old person. The lip of a same person changes in texture as the age goes by. Hence, the designer or character artist should have knowledge of lips to draw a successful and appealing character.
Here are some examples of the lips with its title characteristics.

<table>
<thead>
<tr>
<th>Natural</th>
<th>Pointy Natural</th>
<th>Thin</th>
<th>Cupid’s Bow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uni-lip</td>
<td>Beestung</td>
<td>Smear</td>
<td>Glamour</td>
</tr>
</tbody>
</table>

Figure O: Different Drawings of Lips
[Drawn by the Author]

Activity 6

- Download a reference image similar to the Above File from “Google” through Internet
- Import the file in Krita and Trace.
- Save the file in Krita format and PNG format.

Ear

Ears are still identities in human beings. They come in few categories. As a designer, it is used to attach some decorative elements like ear rings to generate appeal.

Here are some of the examples of ears with their characteristics.
Eyebrows vary from male to female. The eyebrows of male are rough and natural. The eyebrows of female are polished and thinner. There are two factors which established the shape of eyebrows- one is the overall basic shape and the other is the height of the arch.

Some of the examples of male and female eyebrows are as follows:

<table>
<thead>
<tr>
<th>Female Eyebrows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thin</td>
</tr>
<tr>
<td>Tapered Tail</td>
</tr>
<tr>
<td>Arched Shape</td>
</tr>
</tbody>
</table>
### Female Eyebrows

<table>
<thead>
<tr>
<th>Basic Shape</th>
<th>Arch</th>
<th>Curved</th>
<th>Angled</th>
<th>Soft Angled</th>
<th>Rounded</th>
<th>Flat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
<td><img src="image5.png" alt="Image" /></td>
<td><img src="image6.png" alt="Image" /></td>
</tr>
<tr>
<td>High</td>
<td><img src="image7.png" alt="Image" /></td>
<td><img src="image8.png" alt="Image" /></td>
<td><img src="image9.png" alt="Image" /></td>
<td><img src="image10.png" alt="Image" /></td>
<td><img src="image11.png" alt="Image" /></td>
<td><img src="image12.png" alt="Image" /></td>
</tr>
</tbody>
</table>

### Male Eyebrows

<table>
<thead>
<tr>
<th>Basic Shape</th>
<th>Arch</th>
<th>Angled</th>
<th>Rounded</th>
<th>Flat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td><img src="image13.png" alt="Image" /></td>
<td><img src="image14.png" alt="Image" /></td>
<td><img src="image15.png" alt="Image" /></td>
<td><img src="image16.png" alt="Image" /></td>
</tr>
</tbody>
</table>

**Figure Q: Different types of Eyebrows**

[Drawn by the Author]
Activity 8

- Download a reference image similar to the Above File from “Google” through Internet
- Import the file in Krita and Trace.
- Save the file in Krita format and PNG format.

Hairline

Hairline is the overall outline of a face. It varies from children, male and female and it varies as per age also. Some hairlines are round; some are square and are in different proportions also.

Some of examples of male and female hairlines are given below.

**Female Hairline**

<table>
<thead>
<tr>
<th>Female Hairline</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Hairline" /></td>
</tr>
<tr>
<td><img src="image" alt="Hairline" /></td>
</tr>
<tr>
<td><img src="image" alt="Hairline" /></td>
</tr>
<tr>
<td>Straight</td>
</tr>
</tbody>
</table>

**Male Hairline**

<table>
<thead>
<tr>
<th>Male Hairline</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Hairline" /></td>
</tr>
<tr>
<td><img src="image" alt="Hairline" /></td>
</tr>
<tr>
<td><img src="image" alt="Hairline" /></td>
</tr>
<tr>
<td>Regular</td>
</tr>
</tbody>
</table>

*Figure R: Different types of Head Shapes [Drawn by the Author]*
Hands

Hands consist of three joints and five fingers. The fingers again have their own joint bones. Hence, drawing a hand in different angles perfectly is very difficult. An artist has to do lots of practice to draw the poses of the hand.

Hand specifies the work which a human being does. By looking at the drawing of hands people can visualize what a person is doing. Maintaining proportions and perspective is a challenge while drawing a hand. It has to sync with the other body part pose also.

Drawing hands digitally has to go through lots of gridlines, guides and references. Hence, the base drawing is drawn on paper first with lots of shade lines and corrections. After getting the final pose of hand, it is scanned into computer and the perfect fine lines are digitized using software tools to create the neat and clean output.

Some of the poses of hands are illustrated below.

![Hands poses](image1)

![Hands poses](image2)
Activity 10

- Download a reference image similar to the Above File from “Google” through Internet
- Import the file in Krita and Trace.
- Save the file in Krita format and PNG format.

Reading

- Go through the following website for details of hand design:
  - https://design.tutsplus.com/tutorials/human-anatomy-fundamentals-how-to-draw-hands--cms-21440

Legs

Legs are the base on which a body stands. Like hands, legs also have three joints and five toes. As the toes of the legs are small it is quite easy to draw legs as compared to hands.

The motion drawings of legs indicate whether is the person is still, walking, jogging or running. In 2D, drawings have to be done in each and every pose as required. If we want to show a man running from top view and then in a perspective view, we have to totally redraw the two drawings.

There are lots of poses related to legs, which has to be first drawn manually and then transferred to computer to create the digital output.

Some of the poses of legs are demonstrated below:
After learning the individual parts of character design, now we are in a position to create a complete character and create the vector colourful output.

First, a conceptual art work is done by the artist, which consists of lots of pencil shades. The artwork is seen by the client and finalized. Once the manual work is finalized, it goes to the Digital department.

The artwork is scanned in high resolution and set as background in digital image processing software. The digital artist redraws the fine lines from the sketch. Then he colours it and the final output is reviewed for colour changes and shape modifications if an. After the final changes the output is generated.

Some examples of character designs are as follows:
Fig. U: Conceptual Art Design
[Drawn by the Author]
Activity 12

- Download a reference image similar to the Above File from “Google” through Internet
- Import the file in Krita and Trace.
- Save the file in Krita format and PNG format.

Different formats of output

**KRITA FORMAT**

*.KRA – It is the format of output of the files created using Krita Software. This format consists of all the layers details of the work and can be opened in KRITA software only.

**INKSCAPE FORMAT**

*.SVG- Inkscape SVG if the format of the files created using Inkscape software. This format consists of all the vector shapes of the work and can be opened in INKSCAPE software only.

**PNG FORMAT**

PNG stands for Portable Network Graphics. This format is popularly used due to its transparency maintenance in the edges of an image. Basically, in Logos and individual drawings or photographs the base file is required to be transparent around in edges so that it can easily merge with the background. In most of the other formats, the shape in four corners is white. The artist has to manually remove the border edges and then use the image. Hence, PNG format being transparent on its own while saving the file eases the work of the designer.
Digital Imaging

Here is an example of same image with JPG format and PNG format. In JPG format, we can notice white colour patch in the edges. When we copy and paste it anywhere, it will be accompanied by the white edges.

But in PNG format the edges are transparent. It is displayed as Grey and White grid. When we copy and paste it into other image, it will automatically merge without any corner or white patch.

**TGA FORMAT**

TGA stands for “Truevision Graphics Adapter”. It can contain images up to 32 bits per pixel. TGA format is mostly used for still video editing sources. The edges are also transparent in TGA format.

In comparison to PNG, TGA format does not give thumbnail previews, but PNG format gives thumbnail previews. For this reason, people now-a-days use mostly PNG format as compared to TGA format.

**TIFF FORMAT**

TIFF stands for Tagged Image File Format. It has got the capability to store the files in form of layers. This helps the artist to edit the files in future if required. The file size of TIFF is a bit
higher than other formats. But still people prefer TIFF when it comes to quality or re-editing of the design.

TIFF stores both raster and vector graphics data which helps the designer in saving the file for making changes in the future.

**JPG FORMAT**

JPG is the final compressed file which for display purpose. The Pixel data is squeezed and saved as per the necessity. The use varies from usage of image in webpage, usage of the image for print purpose etc.

The designer has to fix the pixel size before saving in this format. Once the file is saved in a fixed size, it will get distorted if expanded beyond its 100% capacity. However, the memory and file size consumed by this format is very less as compared to other formats.

JPG files can be opened by most of image editing software’s, from Microsoft Paint to Adobe Photoshop.
Unit Summary

In this Unit you have studied about Character Design. You have learnt the process of creating a vector output from raster drawings of various parts of our body. This Unit also described about various techniques using open source software’s like Krita and Inkscape for creating the Digital version of the character which was drawn by us by our hands.

Assessment

- Describe the adjustment point of a line drawn using Pen tool called in Inkscape?
- Which format should be used for export so that the background transparency is maintained?
- Write the two commands which should be used for copying an object and pasting in the same place?

Assignment

- Create a hand drawing of a complete character.
- Scan or Take the photograph of the character.
- Create a Raster black outline work of the character in Krita.
- Create a Vector colourful output of the character in Inkscape.
- Save the output of all files created in this unit in PNG format and submit all the supporting files i.e., Krita file, Inkscape file, rough character photo and output files in a CD/DVD to the University.
Resources

- Illustrating a Character in Krita:
  https://www.youtube.com/watch?v=edJJTemV4pY
- 2D Character Design in Krita:
  https://www.youtube.com/watch?v=ZYwlCk_XbMg
- 2D Character in Colour
  https://www.youtube.com/watch?v=3xsyoTqcwRA
- Colouring in Krita
  https://www.youtube.com/watch?v=low1odYyuWo
Unit 3

Practical- Create Texture tricks with Inkscape

Introduction

Texture is about creating the surface quality or feel of an object. The way your skin surpasses against the rough fabric of your woollen blanket, the warm sensation of the soapy bubbles over your skin in the bath or the gentle touch of your hair falling down your shoulders — these are all sensations and experiences created solely by the qualities of texture. In the olden days, textures were only photographed and utilized in the designs. But with the help of latest software’s like Inkscape, Photoshop, Coreldraw etc. You have the freedom to create the texture of your own settings. Artificial textures, or abstract textures, comprise a wide array of imagery with surrealistic patterns and human-fabricated objects. Artificial texture graphics include a broad spectrum of elements and colours created by three-dimensional design and a blend of computer graphic software’s. By using the power of modern 3D and Graphic Design software, designers can add a broad range of artificial textures to their designs, and the results are limited only by imagination.

Outcomes

Upon completion of this unit you will be able to:

- Develop an idea of creating Textures.
- Practice the software – Inkscape for creating Textures.
- Use the created textures for creating design works.
- Prepare a practical study of all the texture options available in Inkscape.
- Create some examples of combined texture effects.
Terminology

Texture: A realistic effect of an object or colour with adds depth to the visual.

Vector: The shapes used by software’s which are not distorted while enlargement as well as consumes only less space.

Blog: Photographs or images made up of pixels or dots which represent the information of position as well as the colour of the pixel. It consumes more space as compared to Vector based shapes.

Typography: The style of writing an alphabet written manually.

Font: The style of using the digital alphabets using Computers or any digital platform.

Tips and Notes

Before starting of the practical, there are few things which you should know and for which you should be prepared.

- You should know about the meaning of various types of textures. For doing so you have to go to Internet and search various texture photographs.
- You should keep a collection of textures for reference purpose so that you can use them wherever required.

Group Activity

- Go to “google.co.in”.
- Click on the “Images”
- Search for texture design i.e., wood texture, tiles, grass texture, marble texture, fabric texture etc.
- Create a Folder named “texture” in your PC or your pen drive.
- Save as many variety of textures you feel as of good quality.
- Now copy all the textures downloaded from internet by all
the students in this particular batch.

- You will notice that you have collected a huge collection which will be useful for all in creating future designs.
- Apply this method for other purposeful searches also. This will create a variety of output and will be multi beneficial to everyone.

**Texture Design – Requirement of Industry standard**

The designs which we create today needs to be filled by Textured Graphics and abstract backgrounds which gives truly immersive feel of the design. For getting the depth and detail in our work we have to create textures using the tools and techniques available in the digital industry. Softwares give us options like opacity, blending modes like add, overlay, multiply etc. which enables us to create a look of three dimension in the two dimension layout. Typography is an important element in texture which adds meaning to the background to transfer communicative messages. Different styles of typography which are called fonts in the computer terminology comes in thousands. Modern designers use all sorts of fonts which range from calligraphically styled icons to simple and modern typed text. By utilising the mixture of style, shape and texture, a written font creates a statement of power without the input of complex composition of designs.

The technical world has gone beyond expectations and limitation to creating a stunning visual outputs in our designs.

Texture became applicable in design decades ago when people use to draw line drawings on walls which we can see in ancient places. There were no particular medium like pen, paper, canvas or digital screens at that time. People use to communicate on leafs, rocks and wherever they could using their knowledge and creativity. Hence forth, texture has become a compulsory part of the design. The use of texture is found in each and every medium of today, whether it may be a flyer or a hoarding on the road. The background is given an effect of a texture of any resource which creates depth to the presentation.
Texture does not only mean rough surface, there are varieties of tiles surfaces which form of a geometric design. A different type of textures generates different kinds of feeling in us. So textures are used according to the place and requirement. For example, if we are making a design of a bathroom, then the floor are made up of glazing tiles. The half of the walls is covered up of glazing tiles. These tiles do not soak water; hence these tiles are used in this place.

Textures are basically random in nature. No two textures can resemble accurately the same. As we can say that no finger prints of different individuals can ever match although it seems equal from a distance. The wood texture of two different people will never match although it may look same. We will now have a look into the types of textures used in designing.

Types of Textures

There are two kinds of textures. One is Tactile Texture and the second is Visual Texture.

Tactile Texture

Tactile means the feeling of a touch. In Tactile texture, materials are used such as sand, thick colours etc. to emboss the effect and have the feeling of a raised element. For creating tactile kinds of texture, we have got 3D printing technology. 3D printing technology has enabled us to create designs and effects which can be printed on raised platforms like thermocol design printing, printing on wooden pens etc. We can print a complete science project using a 3D printer showing various parts of the area in three dimensions.

Visual Texture

Where as in Visual Texture, it is representation of colours used which create a 3d raised effect on a flat surface. It is the illusion created by the artist by his colour combination techniques that makes a two dimensional work to look three dimensional. Texture is a subtle element in design. It makes the design more attractive. Although they are not real, it depends upon the talent of the artist to represent a visual texture with a raised feeling.
Inkscape – Open Source Software for Design and Texturing

Inkscape is one of the free professional quality vector graphics software which runs on Windows, Mac OS X and GNU/Linux. It is used by design professionals and hobbyists worldwide, for creating a wide variety of graphics such as illustrations, icons, logos, diagrams, maps and web graphics. The W3C open standard i.e. SVG (Scalable Vector Graphics) is used by Inkscape. This format is the native format of Inkscape which is vector based and can be exported and compatible with other vector based software’s.

Inkscape has got tools and techniques that can create outputs which are comparative to Adobe Illustrator, CorelDRAW and Xara Xtreme. Several other formats can also be exported and imported using Inkscape, which includes SVG, AI, EPS, PDF, PS and PNG. Inkscape has a comprehensive set of features, with a simplified interface, multi-lingual support and is extensible in design; users can extend the functionality of Inkscape functionality with add-ons which can be provided by any open source software developer.

The availability of this kind of open source software’s have enabled artists to come forward and display their creations to the open world. The world is expanding day by day. The concept of getting quality product only by a paid program has faded away. Products like Facebook, Whatsapp, G-mail are totally free to use. No one can even question about the quality of the product or service. They are world class but still they are free. The generation of open source software has opened doors for best talents all over the world. It is the work which is appreciated, not the source of making the work. No one bothers about the bat of Sachin Tendulkar, it is the runs scored which matters. Hence, before using free open source software, the artist should not think himself of inferior to paid software’s. It is the difference of comfort of use only, rather than the quality. If we travel in a General compartment, or a Sleeper Compartment, or an AC compartment of a train, all the three reach the same destination.

Open source software’s have some limitation in advanced tools and techniques, the time taken to create a master piece using open source software will take a little more time for the
artist, but the destination i.e. quality of the output will be at par with paid software’s if the artist is talented. So it is your talent which will help you in creating a fine quality output.

You have already studied the software Inkscape in Block 3 – Image Development on different Graphic Software, Unit 2 - Familiarization with interface of Inkscape.

Hence, we will only focus on the tools required for texture designing.

Texture designing has become a trend for the designers by using the filter capabilities of software. Lots of textures from realistic to abstract can be done using software’s. In the olden days texture creation was limited to professional learning hand drawn artists and painters only.

But henceforth for creating texture, you do not require a hand drawn skill only. It is about the blend of your creativity and knowledge of software operations which will create a colourful and attractive texture.

Create Base Texture using in-built Inkscape Options

Textures are categorically arranged in Inkscape. The filters which creates—the effect of a texture are actually codes or programs written by a programmer studying the details of a texture. Each colour has got its depth coordinates which begin from brighter part to the darker part i.e. White to Black. In-between white to black, there are grey shade available. These shades are applied as base coordinates to the colour or image on the screen to create the texture kind of effect. Before creating a meaningful texture, we will go through the process of creating a texture. First of all, we will have a study of all the inbuilt texture options of Inkscape software. There are around hundreds of ready-made texture filters in Inkscape. We will go through it one by one as mentioned in the table below.

Practical:

- Open Inkscape Software
- Create a rectangle
• Apply any colour
• Select the Rectangle
• Create around 10 copies of the Rectangle in the same page.
• Select One Rectangle

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<thead>
<tr>
<th>Select Filters – Bevel – Bloom</th>
<th>Select Filters – Bevel – Bright Metal</th>
<th>Select Filters – Bevel – Button</th>
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<td>![Screenshot]</td>
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• Please do not neglect this activity as simple.
• Practice each and every filter from beginning to end one by one without missing any of it.
• This kind of practice is very important for becoming an expert in any subject.
• Texture output will vary from colour to colour and image to image. For i.e. a texture applied to a dark shade of colour will be more appropriate than applying the texture to a light shade and vice versa.
### Unit 3 Practical: Create Texture tricks with Inkscape

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<td><strong>Select Filters</strong> – <strong>Bevel</strong> – <strong>Molted Metal</strong></td>
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<td><img src="image" alt="Molted Metal" /></td>
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Choose Live Preview
Below Mentioned are the list of all the Filter effects. Practice the effects one by one and put a tick mark after visualising the effect in the rectangle on the computer screen. Save the final jpg file of all the effects for future reference.

- Select Filters – Blurs-
  - Apparition
  - Blur Double
  - Blur
  - Clean Edges
  - Cross Blur

- Select Filters – Bumps
  - Basic
  - Diffuse Bump
  - Basic

- Canvas Bumps
  - Alpha
  - Canvas Bumps Matte
  - Convoluted Bump
  - Dark Emboss
### Unit 3 Practical - Create Texture tricks with Inkscape

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<td>• Basic Two Light Bumps</td>
<td>• Embossed Leather</td>
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<td>• Feather</td>
<td>• Bubbly Bumps</td>
<td>• HSL Bumps Alpha</td>
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<td>• Out of Focus</td>
<td>• Bubbly Bumps Alpha</td>
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<td>• Bubbly Bumps Matte</td>
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**Select Filters – Bumps**
- Plaster
- Plaster Color
- Plasticine
- Plastify
- Relief Print

**Select Filters – Color**
- Black Light
- Blend Opposites
- Brilliance
- Channel Painting

**Select Filters – Channel**
- Extract Channel
- Fade to Black or White
- Fluroscence
- Greyscale
- Hue to White
- Invert
- Lighting

**Select Filters – Rough Canvas Painting**
- Rough Canvas Painting
- Thick Acrylic
- Thick Paint
- Tinfoil
- Velvet Bumps
- Wax Bump
- Wrinkled Varnish

**Select Filters – Nudge RGB**
- Nudge RGB
- Paint Channels
- Quadritone fantasy
- Simulate CMY
- Soft Colors
- Solarize
- Trichrome
- Tritone
- Color Shift  
- Colorize  
- Component Transfer  
- Duochrome

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|   | Roughen Inside |

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|   | Monochrome Transparency  
|   | Opacity  
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**Digital Imaging**

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| Comics Cream |
| Comics Draft |
| Comics Fading |
| Contour Emboss |
| Deep Chrome |
| Deep Metal |
| Emboss Shader |

| Cross Noise |
| Cross Noise B |
| Dots Transparency |
| Duotone Turbulent |
| Frost |
| Garden of Delights |
| Growing Cells |
| Light Eraser Cracked Liquid |

| Noise Fill |
| Oil Slick |
| People |
| Poster |
| Turbulent |
| Rough |
| Transparency |
| Rubber Stamp |
| Scotland |
| Shaken Liquid |
| Silhouette |
| Marbled |

| Dripping |
| Fire |

| Ink Bleed |
| Snow Crest |
Creating Textures using Combined Options of Inkscape

Apart from the base effects available in Inkscape we can create new types of effects with the combination of several vector tools and filters.
Textured Text with Background

- Open Inkscape
- Create a Rectangle
- Create a coloured Gradient in the Rectangle [Object Menu – Fill and Stroke]

- Gradient Tool
- Double Click on the subject

- Change the Angle of the Gradient

- Select the Above Rectangle
- Filter Menu – Filter Editor
Unit 3  Practical- Create Texture tricks with Inkscape

- Left Click on New
- Select the Effect from the list in the right hand side of Add Effect
- Left Click on Add Effect
- Change the Settings as Required

- Type a Text : OSOU

- Select the Text
- Filter Menu – Materials – 3D Wood
Digital Imaging

Filter Menu – Shadows and Glows – Drop Shadow

Final Output

File – Save – Inkscape format
File – Export – JPG format.

Create a Textured Text with a Textured Background as shown in the process.
Save the File in Inkscape Format as well as JPG format

Create a Patterned Texture in Inkscape

Open Inkscape
Create a Pattern Design
- Select both the shapes
- Path Menu – Combine
- Both the shapes will change to single colour.
- Select Black Colour
- Choose Stroke as None
- Object Menu – Pattern – Object to Pattern
- Create a Big Rectangle
- Object – Fill and Stroke
- Apply the Pattern in the Fill

[Screenshot]

- Create around three Patterns as shown in the process.
- Save the File in Inkscape Format as well as JPG format

Activity 2
Converting a Bitmap into Tiled Clones

- Open Inkscape
- File – Import – Import an Image [Use the Images with white background and a colourful image]

![Screenshot]

- Create a Small Circle as compared to the size of the bat [5% of the size of the bat]. Hold Control to draw a perfect circle.
- Set the fill colour to BLACK

![Screenshot]

- Select the Small Circle
- Edit Clones – Create Tiled Clones
- Go to the Trace Tab and set the settings as shown.
- Delete the unwanted shapes
- Final Output
Create a 3D style of texture

Creating a 3D style of effect in a 2d layout software has added a new arrow in the armour of a designer. Creating 3D drawing required a good knowledge of perspective drawings. A graphic designer with only a knowledge of computer graphics cannot draw as perfectly as compared to a trained artist. So the 3D tool in software is an excellent option for use.

- Open Inkscape
- Select the 3D box tool -
- Left click and drag on screen

- Adjust the white points or nodes to create different camera angles.
- Create 4 to 5 different 3D boxes with different colours and create a composition.
- Select a 3D Box. Right click on the 3D Box – Left click on Enter Group.
- Select the parts of the box individually and change the colour.

[Screenshot]
Create around ten 3D boxes as shown in the process.

Save the File in Inkscape Format as well as JPG format

Create a texture using combination of shapes

Various geometrical shapes can be created using the inbuilt options of Inkscape. Hand drawn designs take time and the accuracy depends on the art hand of the artist. Whereas using tools and techniques a common designer can create perfectly shaped designs.

- Open Inkscape

OPTION – A – PATH MENU - UNION

- Create shapes as shown below and colour them differently:

![Screenshot](image1.png)

- Select the above shapes together
- Path Menu – Union

![Screenshot](image2.png)

In the final output the shapes will be combined together to form a single shape.

OPTION – B – PATH MENU - DIFFERENCE

- Create Shapes as shown below and colour them differently
- Select the above shapes together
- Path Menu – Difference

In the final output the shape which is on the front gets subtracted from the shape which is below.

**OPTION – C – PATH MENU - INTERSECTION**

- Create shapes as shown below and colour them differently:

- Select the above shapes together
- Path Menu – Intersection

In the final output the intersected part of the shapes will be combined together to form a single shape removing the non-intersected areas.

**OPTION – D – PATH MENU - EXCLUSION**

- Create Shapes as shown below and colour them differently

- Select the above shapes together
- Path Menu – Exclusion
In the final output the shape which is above seems to be filled with white colour. But actually it is not filled with white colour, the above shape is being cut from the shape below. If we move the shape to a different image, out of the hole we can see the image behind.

**OPTION – E – PATH MENU - DIVISION**

- Create shapes as shown below and colour them differently:

- Select the above shapes together
- Path Menu – Division
- Move the objects separately

In the final output the shape above is subtracted from the shape below and vice versa. And both the subtracted shapes remain on the screen.

**OPTION – F – PATH MENU – CUT PATH**

- Create Shapes as shown below and colour them differently

- Select the above shapes together
- Path Menu – Cut Path
- Move the path
In the final output the outline shape of the path is divided along the above shape.

Activity 5

- Create three examples of Union, Difference, Intersection, Exclusion, and Division & Cut path each as shown in the process.
- Save the File in Inkscape Format as well as JPG format

Create textures with various tools

- Open Inkscape

Calligraphic Brush tool

- Choose the tool
- Left click and drag on screen
- Change the Tools options of the tool and draw on the screen.

Spray tool
Digital Imaging

- Draw any shape

- Choose the Spray tool
- Left click and drag over the shape

Create a digital painting texture

In this part, we will prepare a digital painting. The tools used for digital painting comprise of options required for creating various kinds of textures. The individual tools act as a combination for creating an output. Learning the tools will limit the knowledge up to options itself. Applying it in a project will enhance the capabilities of the user to know where to use them in required segments.

- Open Inkscape
- Create a new file in Inkscape.
- File – Document Properties
- Document size – 1200 pixels by 1800 pixels.

- Create a rectangle which covers the whole canvas.
- Apply a light blue colour of a sky.

- Layers Docker – Shift + Ctrl + L
- Rename the layer as Background

- Layer – Add Layer – (Shift + Ctrl + N)

- Rename the layer to Hills
- Choose the Pen tool.
- Draw Hills as per your imagination.

- To create a natural hill look, the lines should looks scattered for which we have to add lots of nodes in the shapes.

- Select the Nodes tool -
- Select the top nodes
• Nodes Tool Bar – Add Nodes
  • Left click 3 times of the Add Nodes

• Go to Extension Menu – Modify Path – Jitter Nodes

• Maximum displacement in X – 2.0 and Maximum Displacement in Y – 6.0.
• Live Preview – On – Apply

• The above shows a very detailed description of the hill shape. Now we will colour the shape.
• Press Ctrl + Shift + F to open Fill and Stroke dialog box

• Apply a light fill colour and remove the stroke paint.
We will create a Gradient out of the fill colour. A gradient colour effect will add depth to the design. We have to choose and experiment with various colours to get the desired effect. The colour combination varies from artist to artist. Hence, it is not required to use the same colours or shapes as shown above.

- Choose Gradient Icon from the Fill -

- Left click on Edit Gradient Icon -

- Change the direction of the gradient from top to bottom as shown above.

- Create 4 to 5 more hills in the same process as described above.
- Create a hill with black colour in the bottom
- Create a rectangle in the bottom to extend the hill area if required
- You can copy the shapes which we have created above multiple number of times and arrange them one over the other to create the feel of a filled range.

![Screenshot]

- Create shapes similar to building silhouette using Bezier tool or combination of tools.

![Screenshot]

- Select the shape and create a duplicate copy of the shape – Ctrl + D
- Move
- Mirror the shape using – Object – Flip Horizontal
• We are using varieties of shapes to create these kind of texture effects.

• Creating mist and smoke kind of effects
• Draw thick lines using line tool and change the colour to White
• Stroke Style – 7 px

• Select the Line
• Blur – 27, Opacity – 52.3%

• Create a few more mists as above.
• FINAL OUTPUT

[Screenshot]
Activity 6

- Download an image similar to above from internet for reference and follow the steps as mention above to create the design.
- Save the File in Inkscape Format as well as JPG format
Unit Summary

In this Unit we have studied about Texture Design. You have learnt the process of creating a texture which is inbuilt in Inkscape. We have described about process of using open source software’s Inkscape for creating the Textures with help of combination of its options and Filter Effects. The study indicates that there is not limitation to the texture and applying a texture is an art. Varieties of combination of filters will create unlimited designs. The user has to create, judge and choose the best combination.

Assignment

- Create 20 rectangles in a file and apply the best effects as practiced by you.
- Create 5 types of Textured Text Effects
- Create 5 types of Pattern Effects.
- Create 5 types of Tiled Effects.
- Save the file in Inkscape format as well JPG format.
- Write the files in a DVD and submit it to the University.

Assessment

- Which option should be used for repeating a same design or tiling a design?
- Which option should be used to keep the object in perfect line either to the left, right or center?
- Which option is used to maintain equal spacing between shapes?
- Which option is used to convert Raster image into Vector image?
Resources

- Go through the following website for details of Inkscape tutorials:
  https://inkscapetutorials.org/tutorial-list-2/
Unit 4

Practical - Create T-shirt design with vector art of Tiger

Introduction

T-shirt is the trend of all kinds of people in this generation. People from small kids to old people are fascinated towards T-shirt. T-shirt comes in all type of shapes & sizes with variety of colours and design. The interest towards T-shirt has created a great demand for T-Shirt designs.

The designs created by the designers using digital software’s are excellent and vibrant in colour. There are lots of motivational texts used in the T-shirt which make them more attractive and appealing to the customer. The textile industry of today has a maximum share of T-Shirts rather than normal shirts.

Designing a T-shirt is a very interesting activity for a designer which includes lots of creativity as well as fun. The printing technology has also become economical and even single design can be printed on a single T-shirt at a nominal cost.

Outcomes

Upon completion of this unit you will be able to:

- Describe the meaning of vector design.
- Create a T-shirt design.
- Prepare various vector designs in Krita.
- Create a T-shirt design using Krita with Tiger Picture in Vector Art
- Use the T-shirt printing techniques.
Terminology

**Professional**: Creating a work or a project which has a value in a systematic way and in stipulated time.

**Output Format**: Output format is format used to create an output in a Digital File. Every software has its own format for saving a file.

Vector Art

Vector Graphics is a very excellent and qualitative method of representation of shapes and text. It is created out of mathematical calculation which involves x and y coordinates of the end points or curve points of the shape or the text. Geometrical representation of shapes helps in low memory consumption and creates high quality expandable designs.

Each end point or curve is called nodes which are accompanied by tangent lines for smoother representation. The below figure no. 1 represents the nodes and the tangent lines of a vector shapes in any vector based software.

![Fig 1: Representation of nodes and tangent lines in a vector shape.
[Created by the Author]](image)

The tangent line helps in creating a smooth shape without consuming more nodes in a shape.
The vector shapes may be open shapes or closed shapes with various colour filling capabilities. The shape can be given thickness, styles and so on.

The stroke properties of a Vector shape are as follows:

- Shape Width
- Shape Style
- Shape roundness

The fill properties of a vector shape are as follows:

- Solid fill
- Gradient fill
- Pattern fill

**Steps in Creating a T-Shirt design**

- Preparing a Plan for the design
- Reference Image collection
- Creating a Manual Sketch
- Choosing the software to create the design
- Scanning the drawing to Digital Software
- Colouring the design
- Giving depth to the design
- Creating a balance for the design
- Placement of elements on the T-Shirt
- Preparing a 4 to 5 styles and layout out of the same components
- Preparing of various colour schemes
- Review and finalizing the T-Shirt design

**Preparing a Plan for the design**

The first and foremost part is to prepare a layout plan of the design. This starts with the concept requirement like who is the target customer i.e. child, youth, professional etc. After identifying the segment for use the elements required for the design is planned.
Before starting the actual work, lots of reference study has to be done through internet, visiting various T-shirt showrooms etc. A reference study will make clear about the common elements used in the T-shirt design which attracts the targeted segment.

**Creating a manual sketch**

A manual sketch of the T-shirt design is made by artists. There are hundreds of drawings which are roughly drawn first. After finalizing the shape of the drawing a clean-up drawing is drawn out of the rough drawings. The clean-up shape means the only outline shape of the drawing representing the main character.

**Choosing the software to create the design**

After the manual sketch, comes the digital process. Here the artist has to choose the software to digitize the drawing. The drawing may be raster or vector. However, in today’s market, most of the work is done using Vector process. This helps the designer in future adjustments as well as scalability of the shape. Again choosing the software may be choice of an artist or the choice of the company where the artist works. An artist may be efficient in Krita, but if the company policy is to work on Inkscape, then the artist has to work or Inkscape. Hence, an artist should know the process of transferring the work done in Krita into Inkscape and vice versa.

**Scanning the drawing to Digital Software**

Once the manual drawing is finalized and the software is chosen, now is the process of bringing the manual drawing into Computer screen using Scanners. This can be done using digital camera also. Now-a-days the camera’s come of very high resolution hence scanners are used in limited purposes.

**Colouring the design**

After drawing the shape in Vector software, the process of colouring begins. There are three types of colouring:

i. Sold Colouring – Single colour

ii. Gradient Colour – Shade of colours
iii. Patching colouring – Single colours are used in three tones, one is normal colour, second is the dark shape of the normal colour and the third colour is usually white or the light shade of the normal colour.

**Giving depth to the design**

After the base colouring is done the next step is to give depth to the design. This effect can be achieved by combining some elements of design in quite a similar manner as it is done while creating a drawing with pencil; shading, colour toning, using hatched textures etc. This helps in producing 3D effect in digital art work (design) too.

**Creating a balance for the design**

Before going to the printout, a balance of the design is done with the base colour of the T-shirt. It is very important for the colour of the T-shirt and the colours of the design used to print. Sometimes a single design needs to be printed in various colours of T-shirt. Hence a colour balance check has to be done and a unique colour has to be chosen which fits all the variety colours of the T-shirt.

**Placement of elements on the T-Shirt**

After the colour combination, it is the placement of the design on the T-shirt. It may be in the middle, left, right, hand portion, neck portion etc.

**Preparing a 4 to 5 styles and layout out of the same components**

Various types of layouts are made out of the same components and texts used in the design and the final is chosen by the supervisors or owners.

**Review and finalizing the T-Shirt design**

Finally, a sample T-shirt is printed out of all varieties and queued for review. After finalizing, it goes to the printing phase.

**Creating T-Shirt Design using Tiger Picture in Vector Art using Krita**

- Plan and Concept of the design
• Download photographs of reference T-shirt containing vector illustration
• Downloading reference photograph of Tiger Vector Art from internet
• Pen Tool Tracing in Krita
• Raster to Vector in Inkscape
• Finalizing the work
• Fitting the design into T-shirt for finalization.

Plan and Concept of the design

The motto of creating our T-shirt design is using a Tiger Illustration in the T-shirt. We have to create a Tiger illustration in digital software and make it ready for printing in a T-shirt.

Download Photographs of reference T-Shirt containing Vector Art

First, we have collected the reference of some T-shirts from the Internet sources. The images of T-shirt which we will use as reference are as follows:

Fig 2. Downloaded T-Shirt Design

Title: T-Shirt Design
Attribution: ahmadkosasih110 [User name as per pixabay]
Source: Pixabay
Link: https://pixabay.com/en/design-tshirt-coffee-lovers-print-1772284/
Fig. 3. Downloaded T-Shirt design
Title: T-Shirt Design
Attribution: ahm dankosasih110 [User name as per pixabay]
Source: Pixabay

Downloading reference Photograph of Tiger Vector Art from internet
- Open Google Chrome
- Go to Images
- Search for “Tiger Vector Art”
- Choose the files which you want as reference to create your own vector art.
- Save the files in a folder

Pen Tool Tracing in Krita
We will follow a Figure of Tiger as the base image for preparation of Vector design in Krita.
- Take a Photograph of a drawing a Tiger using any Smartphone or a Digital Camera.
• Transfer the Photograph to your computer.
• Open Krita
• Open the Photo of the reference of the Tiger
• Select Menu – Select All
• Edit Menu – Copy
• Open Krita
• File – New – Choose the size as the printable area of the T-shirt [Measure using scale]
• Edit - Paste

• Choose the Transform tool and Transform the Photo and resize according to the screen.
• This image is a symmetrical image [Right side is the opposite of Left Side]. So, we can trace one side and copy the opposite side.
• New Vector layer

• Choose Brush Tool - Brush Settings - Choose a Round Brush
• Choose Bezier Curve Tool -
• Click and draw the outline shape – Press Enter
• Continue the above process till completion.
• Work in Progress –
- [Snapshot]
  - We can adjust the points after drawing the lines also.
  - Choose the shape manipulation tool.
  - Left click and drag over a shape.
  - The bottom tool under this Shape manipulation tool will change to Path Editing tool.
  - Choose the Path Editing tool.
  - Click and move to adjust the points.

- [Snapshot]
  - Go to Tool Options – We have got extra options like Add points, Remove points etc. to modify the shape further.
We will trace each and every shape categorically to complete the drawing. We will trace half of the shape and copy and create the symmetry.

- **Outline shape of face**

  - Tools Options – Fill with Black colour
- Right Click on Layer – Duplicate Layer
- Transform Tool – Tool Options – Mirror Horizontal
- Move and Place

[Snapshot]

- Eyes
  - New Vector Layer
  - Use Hide and Unhide layer whenever required
  
- Select and fill with colour,

- Mouth, Nose, Lips, Tongue, Teeth
  - New Vector Layer
  - Use Hide and Unhide layer whenever required
Select and fill with colour,

[Snapshot]

- Ears

Select and fill with colour,

- Inner Shapes
- Select and fill with colour,

- Finalise the output by duplicating the layer and creating the mirror.

[Snapshot]
The output file and the original file may vary according to your creativity.

You can use various categories of brushes experimentally and complete the Tiger Vector Art.

It requires:

- Technical software knowledge
- Creativity
- Not Hard Work But Work with Patience
- Extensive research of internet video tutorials to create a vector art.

There are various ways to do a certain work; you have to choose your process which is convenient and easy for you.

**Fitting the design into T-Shirt for finalization**

- Open Krita
- Open the Tiger Traced File
- File – Open the T-shirt image

[Snapshot]

- Select All – Edit – Copy
- New File – Set the size according to the T-shirt size [Measure it with scale or tape]
- Edit – Paste the T-shirt
- Drag the T-shirt layer behind the Tiger character layers.
- Output File
Printing Techniques of a T-Shirt

There are varieties of printing techniques available in the market. Some are for bulk printing and some are used for single printing purposes. The designer has to decide the printing technique which best befits the design and economy.

Screen Printing

This is the oldest method of printing which is still prevailing today. It is the method which is mostly used for printing on T-Shirts.

Screen printing for different colours are done on different phases as per the colour. If we have three colours in our design then there has to be three different screens and three passes has to be done on the T-Shirt. It is considered as a high quality print.
The process can be done manually as well as through machine. The one time setup cost is high but is economical in case of bulk printing.

The one disadvantage in this type of printing is that it cannot be printed on dark colour base with light colours.

**Direct to Garment Printing (DTG)**

This is the new technology available in the market in which the multi-colour design can be directly printed on a T-Shirt. The cost of the printer is very high but the quality of the print is excellent. It has left behind the traditional method of T-Shirt printing and marching ahead by getting more and more attraction. It is almost equal to a colour print on a paper. It has the capacity to print millions of multiple variable colours at a single go. The time consumed for printing is longer than usual printing techniques.

**Heat Press Transfer Printing**

This technology is used to print on T-shirts. In this case, first a colour printout is taken on a piece of paper. Then the paper is placed upside down on the T-shirt and it is heat pressed for some time. It is heated at 180 degrees for 20 to 30 seconds. After the prescribed time, the heat press is removed and the colours on the paper get transferred to the T-Shirt. It is very faster and easy to use.

**Heat Transfer Vinyl Printing**

This is the technology used to print Hoardings on Flex. This is a perfect option for T-Shirt printing also. First, the design is printed on a vinyl sheet instead of a plain paper. Then the vinyl sheet is heat pressed on the T-Shirt. This technique is mostly used for simple printing purpose. It is not used for bulk printing. The quality of the print will be felt only when it is instantly used by the user. If it is printed in bulk for sale purpose, then the quality reduces on stock transfer from one place to another and if the sales take a longer period then also the quality reduces.

**Dye Sublimation Printing**
In this technology, the heat is transferred onto garments of polyester and its coated products such as mugs, plates etc. This technique is used for printing key chains, photos on mugs, mouse pads etc. It requires a special paper to be digitally printing and then it is heat pressed on the polyester surface. This is mostly done for gift giving purposes of the consumer.

Professional guidance for T-Shirt design

There are lots of professional aspects which have to be taken care while designing a T-Shirt. Some of the aspects are as follows:

- **Workout hard on the concept**
  Creating a design is like writing a book or poetry. It is an Art. It is not a straight forward mathematics. You have to go through lots of brainstorming for creating a design. You have to fill your mind with lots of crazy ideas to genuine ideas. And at last, after exploring most of the possibilities, filter out the best and start working on it. There is a saying that more time has to be given on the plan so that if the plan is perfect then the execution will be faster and smoother.

- **Pre-visualise the output**
  It is said that you must have a dream first before achieving something. Hence, you should have a clear visualization of the output before starting any work. Once you have the visualization and start the technical process, then there are lots of ways to accomplish the design.

- **Simple design with clarity**
  The design has to be simple with required details and be clear in quality. Most of the best T-shirt designs of branded companies are plain with attractive typographies. More details in a T-shirt are not visible and get distorted quickly after a few washes. Hence smaller details have to be avoided in T-shirts. Only bigger and bold designs have to be used.
• **Market study**
  A market study of the consumer is very essential while making a product else all the hard work will go in vain. The consumer has to be categorized like child, youth, male, female, old etc. A similar style used by them has to be studied like what colour they like, what type of text they like and so on. After that the design has to be done keeping in mind the common elements of design.

• **Creating humour using Cartoons, shapes and text.**
  Today we see T-shirt with motivational text and humorous Text arranged with a good typographical design. Abstract Shapes are used in the background with cartoons or photographs of birds, sceneries etc. Humour attracts people and makes them look important. Hence, a T-shirt should be made attractive with the elements of humour as per the age category of the person.

• **Colour combination**
  Colour combination is very important in all kinds of design. In a T-Shirt there is a base colour which comes with the T-Shirt and other colours are used by the designer while designing. There should be a balance in both the colours. If the base colour is dark, then the design colours have to be light and bright. And if the base colour is light, then the design colour has to be deep and dark.

• **Drawing with perfect proportions**
  Drawing on T-Shirt is like designing a cover of a Book. The drawing has to be in perfection proportions without mistakes to get attraction. People generally identify the proportional mistakes as the output with wrong proportion misrepresents the image or drawing.

• **Utilising the best printing technology**
  There are lots of printing options available in the market. T-Shirts can be printed individually as well as in bulk. The best printing ensures that the T-Shirt design will be more durable and does not get faded in few washes. Sample
print designs can be made before ordering bulk quantities for print. This is a safe option used by most of the branded companies.

- **Learn the latest software techniques**
  Software’s get updated every six months and new options are added for the convenience of the designer. Getting frequently updated with the software will help the designer to create newer designs and work in a faster way. The more we learn about technology we will have lots of variety of designs. And today the consumer wants variety out of which he has the option to choose. The concept of big bazaar is successful because people have the option to choose out of hundreds of brands.

- **Always be creative and innovative**
  Consumer today wants to be new and different from the others. He wants to gather attention wherever he goes. Hence, he chooses the best design available in the market and the normal designs remain unsold for years which are further sold on discount to clear stocks. It is you to decide whether you want to be creative and remain forward or get unnoticed for a distress sale in the future. Hence, be creative and innovative and create eye catching attractive designs applying most of the techniques of a successful T-Shirt design.
Unit summary

In this Unit we have learnt some of the Krita tools and techniques. We have created a Vector Art of Tiger and placed in a T-Shirt. T-Shirt design is the new trend which has emerged since the printing on T-shirt has become easier. Apart from T-shirt vector design, you can use Krita for all kind of vector designing and printing purpose.

You can create Book Cover Designs, Leaflets, Flyers, Banner design etc. also using Krita.

Assignment

• Create a Vector Design of Tiger in Krita.
• Identify the place near your area where T-shirt printing is done.
• Print the Vector Design of Tiger on a T-shirt with you name printed on it as a Designer.
• Write the class work’s done in Krita in a DVD and submit it to the University.

Assessment

• Write down five professional tips for a T-Shirt design.
• Write down the names of any four types of T-Shirt printing techniques.
Resources

http://www.wikihow.com/Design-Your-Own-T-Shirt
http://www.creativebloq.com/design/guide-t-shirt-printing-designers-912867
https://helpx.adobe.com/illustrator/how-to/design-a-tshirt.html
https://wegraphics.net/blog/articles/a-comprehensive-guide-to-designing-and-printing-your-first-tee-shirt/