I

COMPUTER GROUP | SEMESTER - III | DIPLOMA IN ENGINEERING AND TECHNOLOGY

A LABORATORY MANUAL
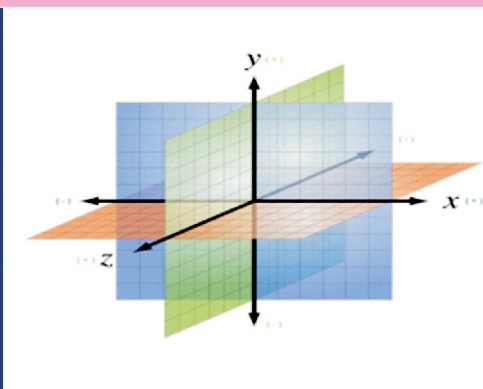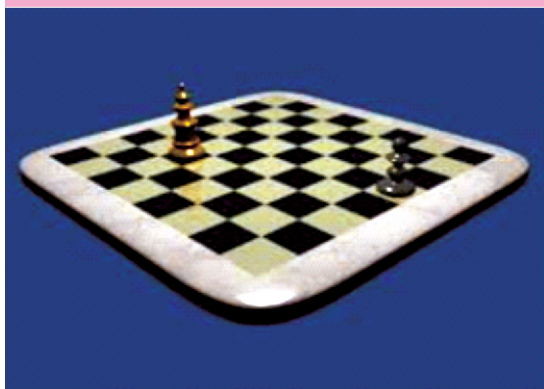
FOR

APPLIED MULTIMEDIA TECHNIQUES

(22024)

MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION, MUMBAI

(Autonomous) (ISO 9001 : 2015) (ISO / IEC 27001 : 2013)

VISION

To ensure that the Diploma level Technical Education constantly matches the latest requirements of technology and industry and includes the all-round personal development of students including social concerns and to become globally competitive, technology led organization.

MISSION

To provide high quality technical and managerial manpower, information and consultancy services to the industry and community to enable the industry and community to face the changing technological and environmental challenges.

QUALITY POLICY

We, at MSBTE are committed to offer the best in class academic services to the students and institutes to enhance the delight of industry and society. This will be achieved through continual improvement in management practices adopted in the process of curriculum design, development, implementation, evaluation and monitoring system along with adequate faculty development programmes.

CORE VALUES

MSBTE believes in the followings:

- Education industry produces live products.

- Market requirements do not wait for curriculum changes.

- Question paper is the reflector of academic standards of educational organization.

- Well designed curriculum needs effective implementation too.

- Competency based curriculum is the backbone of need based program.

- Technical skills do need support of life skills.

- Best teachers are the national assets.

- Effective teaching learning process is impossible without learning resources.

A Laboratory Manual

for

Applied Multimedia Techniques

(22024)

Semester-III

(IF)
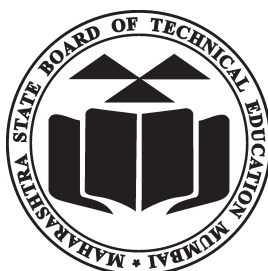
Maharashtra State
Board of Technical Education, Mumbai
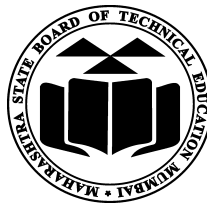
(Autonomous) (ISO:9001:2015) (ISO/IEC 27001:2013)
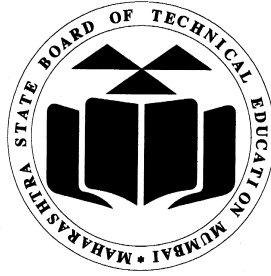
MAHARASHTRA STATE
BOARD OF TECHNICAL EDUCATION

Certificate

This is to certify that Mr. / Ms. ……………………………..………

Roll No. ………………….., of Third Semester of Diploma in

……………….…...……………………………………………… of Institute,

………………..…………………………………………………………..…

(Code: …………....) has completed the term work satisfactorily in course

Applied Multimedia Techniques (22024) for the academic year 20…….. to

20…….. as prescribed in the curriculum.

Place: ……………   Enrollment No:……………

Date: ……………   Exam. Seat No: ……………

Subject Teacher   **Head of the Department**   **Principal**

Seal of
Institution
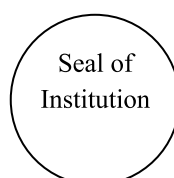
Preface

The primary focus of any engineering laboratory/ field work in the technical education system is to develop the much needed industry relevant competencies and skills. With this in view, MSBTE embarked on this innovative 'I' Scheme curricula for engineering diploma programmes with outcome-base education as the focus and accordingly, relatively large amount of time is allotted for the practical work. This displays the great importance of laboratory work making each teacher; instructor and student to realize that every minute of the laboratory time need to be effectively utilized to develop these outcomes, rather than doing other mundane activities. Therefore, for the successful implementation of this outcome-based curriculum, every practical has been designed to serve as a *'vehicle'* to develop this industry identified competency in every student. The practical skills are difficult to develop through 'chalk and duster' activity in the classroom situation. Accordingly, the 'I' scheme laboratory manual development team designed the practicals to *focus* on the **outcomes**, rather than the traditional age old practice of conducting practicals to 'verify the theory' (which may become a byproduct along the way).

This laboratory manual is designed to help all stakeholders, especially the students, teachers and instructors to develop in the student the pre-determined outcomes. It is expected from each student that at least a day in advance, they have to thoroughly read through the concerned practical procedure that they will do the next day and understand the minimum theoretical background associated with the practical. Every practical in this manual begins by identifying the competency, industry relevant skills, course outcomes and practical outcomes which serve as a key focal point for doing the practical. The students will then become aware about the skills they will achieve through procedure shown there and necessary precautions to be taken, which will help them to apply in solving real-world problems in their professional life.

This manual also provides guidelines to teachers and instructors to effectively facilitate student-centered lab activities through each practical exercise by arranging and managing necessary resources in order that the students follow the procedures and precautions systematically ensuring the achievement of outcomes in the students.

Animation is a field of both art and science that has the capability to bring life and zeal to non-living characters. The most amazing aspect of 2D& 3D animation is that it has a phenomenon of an eye that allows the image continues to appear in one's vision after the exposure to the original image has ceased.

2D animation involves the traditional animation method that has long been in existence. It is one animation that is followed by another in slightly different pose, followed by another in different pose, and so on. 3D animation is the form of animation that is completely done with a computer. These animations are created in X, Y and Z dimensional world. The 3D animation allows developer to do things that are not possible in 2D animation.

Although best possible care has been taken to check for errors (if any) in this laboratory manual, perfection may elude us as this is the first edition of this manual. Any errors and suggestions for improvement are solicited and highly welcome

.

Programme Outcomes (POs) to be achieved through Practical of this Course:

PO1. **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Computer engineering problem.

PO2. **Discipline knowledge:** Apply Information Technology knowledge to solve broad- based Information Technology related problems.

PO3. **Experiments and practice:** Plan to perform experiments, practices and to use the results to solve Information Technology related problems.

PO4. **Engineering tools:** Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.

PO7. **Ethics:** Apply ethical principles for commitment to professional ethics, responsibilities and norms of the practice also in the field of Computer engineering.

PO8. **Individual and team work:** Function effectively as a leader and team member in diverse/ multidisciplinary teams.

PO 9: **Communication:** An ability to communicate effectively

PO10. **Life-long learning:** Engage in independent and life-long learning activities in the context of technological changes in the Computer engineering field and allied industry.

Practical- Course Outcome matrix

Course Outcomes (COs)

   a. Prepare images using different color models.
   b. Edit images using Graphical processing tools.
   c. Build website with multimedia contents.
   d. Develop 2D animation object.
   e. Develop 3D animation object.

S. No.	Practical Outcome	CO a.	CO b.	CO c.	CO d.	CO e.
1.a	Use various components of graphical processing tools.	√	-	-	-	-
1.b	Convert given image into different image formats	√	-	-	-	-
2.	Create different types of still images using graphical processing tool.	√	-	-	-	-
3.	Develop images using RGB/ CMY/ HSB color models.	√	-	-	-	-
4.	Develop simple movie clip using movie maker	√	-	-	-	-
5.	Develop GIF image using graphical processing tool.	-	√	-	-	-
6.	Design Banner using graphical processing tool.	-	√	-	-	-
7.	Apply different word art on text using any 2D image processing software.	-	√	-	-	-
8.	Create Wallpaper using various tools of 2D image processing software.	-	√	-	-	-
9.	Apply various effects (Drop Shadow, vignette, mirror, reflection) on text using any 2D image processing software.	-	√	-	-	-
10.	Apply Image editing and crossfading effect using any 2D image processing software.	-	√	-	-	-
11.	Create images based on layers.	-	√	-	-	-
12.	Merge multiple photographs using any 2D image processing software.	-	√	-	-	-
13.	Apply Rotate and change rotation center operation to an image using any 2D image processing software	-	√	-	-	-
14.	Modify existing image by adding Rainy Season effect using 2D image processing software.	-	√	-	-	-
15.	Design a stylish image using 2D image processing software.	-	√	-	-	-

16.	Design a wallpaper showing water drop effect in image	-	√	-	-	-
17.	Design poster by using different Text effect (Ketchup, rope, Fire, fruit).	-	√	-	-	-
18.	Apply special effects like broken mirror effect, Flaming ball effects to an image.	-	√	-	-	-
19.	Convert image in different format using relevant software.	-	√	-	-	-
20.	Insert image or picture into webpage using any professional HTML editor.	-	-	√	-	-
21.	Develop a webpage which show animation with sound effect using any professional HTML editor.	-	-	√	-	-
22.	Develop a webpage by Embedding video	-	-	√	-	-
23. & 24.	Develop a 2D animation using Shape Tweening & Motion Tweening and Create Symbols.	-	-	-	√	-
25.	Create 2D Animation using Motion guide layer and Masking	-	-	-	√	-
26.	Create 2D Animation for Bouncing and Rolling ball down	-	-	-	√	-
27.	Design simple 3D animation using basic shapes.	-	-	-	-	√
28.	Object creation, types & development methods, sample model development	-	-	-	-	√
29.	Object creation of different types- primitives, compound objects, lofting, lathe, Boolean creation methods.	-	-	-	-	√
30.	Design Metallic text in 3D animation tool	-	-	-	-	√
31.	Apply Lighting effect to 3D object.	-	-	-	-	√
32.	Render the animation by review key framing, animating props and cameras, render settings to prepare a scene	-	-	-	-	√

List of Industry Relevant Skills

The following industry relevant skills of the competency 'Develop 2D and 3D animation as per the specifications, Modifying Image(s), and applying effects on Image(s) are expected to be developed in you by undertaking the practical's of this laboratory manual.

1. Convert Image,
2. Apply Effects on Image(s)
3. Develop 2D and 3D Animations as per the specifications..

Guidelines to Teachers

1. There will be two sheets of blank pages after every practical for the student to report other matters (if any), which is not mentioned in the printed practicals.
2. For difficult practicals if required, teacher could provide the demonstration of the practical emphasizing of the skills which the student should achieve.
3. Teachers should give opportunity to students for hands-on after the demonstration.
4. Assess the skill achievement of the students and COs of each unit.
5. One or two questions ought to be added in each practical for different batches. For this teachers can maintain various practical related question bank for each course.
6. For effective implementation and attainment of practical outcomes, teacher ought to ensure that in the beginning itself of each practical, students must read through the complete write-up of that practical sheet.
7. During practical, ensure that each student gets chance and takes active part in taking observations/ readings and performing practical.
8. Teacher ought to assess the performance of students continuously according to the MSBTE guidelines.

Instructions for Students

1. For incidental writing on the day of each practical session every student should maintain a ***dated log book*** for the whole semester, apart from this laboratory manual which s/he has to **submit for assessment to the teacher** in the next practical session.

2. Listen carefully to all the information regarding curriculum, its course outcomes, and major learning outcomes, equipment(s) and instruments in the laboratory, method of assessment.

3. Read the write-up of each experiment to be performed, a day in advance

4. Organize the work in team/individual and record all the observations and output.

5. Understand the practical implication of the experiments.

6. Students should not hesitate to ask any question while performing the experiment.

7. Students should develop debugged and hand run skills

8. Students should develop the habit of discussion about experiments that is performed to enhance the understanding and sharing of knowledge.

9. Students to attend the practical class regularly and complete the laboratory work during the stipulated hours and submit the manuals for assessment regularly.

10. Students shall refer to technical magazines, refer websites, proceedings of seminars, related to scope of the course and enhance the knowledge and skills.

11. Student should develop self-learning methods.

Content Page
List of Practical's and Progressive Assessment Sheet

Sr. No	Practical Outcome	Page No.	Date of perfor mance	Date of submi ssion	Assess ment marks (25)	Dated sign. of teacher	Remarks (if any)
1.a	Use various components of graphical processing tools.	1					
1.b	Convert given image into different image formats	6					
2.	Create different types of still images using graphical processing tool.	11					
3.	Develop images using RGB/ CMY/ HSB color models.	16					
4.	Develop simple movie clip using movie maker	21					
5.	Develop GIF image using graphical processing tool.	26					
6.	Design Banner using graphical processing tool.	31					
7.	Apply different word art on text using any 2D image processing software.	36					
8.	Create Wallpaper using various tools of 2D image processing software.	41					
9.	Apply various effects (Drop Shadow, vignette, mirror, reflection) on text using any 2D image processing software.	46					
10.	Apply Image editing and crossfading effect using any 2D image processing software.	51					
11.	Create images based on layers.	56					
12.	Merge multiple photographs using any 2D image processing software.	61					
13.	Apply Rotate and change rotation center operation to an image using any 2D image processing software	66					
14.	Modify existing image by adding Rainy Season effect using 2D image processing software.	71					
15.	Design a stylish image using 2D image processing software.	76					

Sr. No	Practical Outcome	Page No.	Date of perfor mance	Date of submi ssion	Assess ment marks (25)	Dated sign. of teacher	Remarks (if any)
16.	Design a wallpaper showing water drop effect in image	81					
17.	Design poster by using different Text effect (Ketchup, rope, Fire, fruit).	87					
18.	Apply special effects like broken mirror effect, Flaming ball effects to an image.	92					
19.	Convert image in different format using relevant software.	97					
20.	Insert image or picture into webpage using any professional HTML editor.	102					
21.	Develop a webpage which show animation with sound effect using any professional HTML editor.	107					
22.	Develop a webpage by Embedding video	112					
23. & 24.	Develop a 2D animation using Shape Twinning & Motion Twinning and Create Symbols.	117					
25.	Create 2D Animation using Motion guide layer and Masking	122					
26.	Create 2D Animation for Bouncing and Rolling ball down	127					
27.	Design simple 3D animation using basic shapes.	132					
28.	Object creation, types & development methods, sample model development	137					
29.	Object creation of different types-primitives, compound objects, lofting, lathe, Boolean creation methods.	142					
30.	Design Metallic text in 3D animation tool	147					
31.	Apply Lighting effect to 3D object.	152					
32.	Render the animation by review key framing, animating props and cameras, render settings to prepare a scene	157					
Total							

* To be transferred to Proforma of CIAAN-2017.

Practical No. 1: a)-Graphics Processing Tools

I. Practical Significance

It is essential to get familiar with graphics processing tools so that one can generate desired graphical object or convert given object into another object as per specifications. This generated outcome can be utilized in any other application which plays vital role in User Interface (UI) / User Experience (UX) development.

II. Relevant Program Outcomes (POs)

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Information Technology related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Information Technology related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the results to solve broad-based Information Technology related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III. Competency and Practical skills
This practical is expect to develop the following skills in you
Develop applications using core Graphical Concepts.
1. Select related Graphical Tools.
2. Get familiar with environment and options of the Graphical tool.
3. Availability of various tools and their uses.
4. Check output and verify various properties/parameters of selected image.

IV. Relevant Course Outcome(s)
- Prepare images using different color models.

V. Practical Outcome (POs)
a) Use various graphics processing tools.

VI. Relevant Affective domain related Outcome(s)
1. Follow Safety practices.
2. Follow ethical practices.
3. Demonstrate working as a leader / a team member.
4. Practice good housekeeping.
5. Participate in team problem solving activities.
6. Prioritizes time effectively to meet the needs of the team and self

VII. **Minimum Theoretical Background**
Color Models: -
Color Model is a mechanism which is used by computer system to generate specific color by combining primary or secondary colors. The system can have Additive color model where Primary colors like Red, Green and Blue are used and in Subtractive Color model secondary color like Cyan, Magenta, Yellow colors used along with its key.
Apart from these two color models there are other color models are also used:
 ➢ HSV
 ➢ HSL
 ➢ Grayscale
 ➢ LAB

Multimedia
Multimedia means that computer information can be represented through audio, video, and animation in addition to traditional media (i.e., text, graphics drawings, images).
Image Representation:
Image can be represented in following two way:
 ➢ Analog Representation of Image: - When an image is captured by normal camera (with roll) it is called as Analog Representation. It is similar to that of image which seen by eyes
 ➢ Digital Representation of Image: - Whenever the image is stored in form of computer file such images are represented in Digital Format.
Layers:
Layers are nothing but different surfaces available on canvas that can be used to draw image/ effects. There are two basic types of layers 1. Background 2. Foreground.
Frames:
Frames are segments on timeline which depicts one image of video. A Video consist of various frames.
Key Frame:
A Key Frame is one which act as a base for next transitions/ frame. It holds all object in its place.
There are some standard graphical processing tools that are commonly used:
 • OpenOffice Draw (Paint)
 • Pencil 2D
 • Synfig Studios
 • Stykz

Procedure:
1. Select File menu and open/create an image on canvas.
2. Save existing image on canvas at specified location.
3. Import existing image on canvas.
4. Check the required format of output.
5. Select/Unselect specified layer observe changes in image.
6. Select Keyframe and add new frame(s).

VIII. Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	OpenOffice Draw (Paint), Pencil 2D, Synfig Studios, Stykz, or any other such software.		

IX. Precautions
1. All images must be saved with appropriate extensions (.jpg, .png, .bmp).

X. Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. Result (Output of the procedure)
……………………………………………………………………………………………
……...………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

XII. Conclusion(s)
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

XIII. Practical Related Questions
Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.
(**Note:** Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)
1. What is the necessity of multimedia?
2. What are key objects used in multimedia?
3. List any 4 applications where multimedia can be used.

(Space for answers)

…………………………………………………………………………………………..………
…………………………………………………………………………………………..……
………………………………………………………………………………………………..
………………………………………………………………………………………………..
………………………………………………………………………………………………..
………………………………………………………………………………………………..
………..…………………………………………………………………………………………
……..……………………………………………………………………………………………
………..…………………………………………………………………………………………
…………..………………………………………………………………………………………
……………………………………………………………………………………………………
…………………..………………………………………………………………………………
…………………..………………………………………………………………………………
………………………………………………………………………………………………

Exercise: Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:

(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Use appropriate graphical processing tool to create an image containing your name and save it in .jpg/ .jpeg extension.
2. Create an Image using basic graphical symbols like rectangle, circle and fill it with different colors.
3. Open any graphical processing tool and perform following task.
   a. Import an image on canvas located at specific folder(s).
   b. Set current frame as "*Key Frame*".
   c. Add a "*new layer"* at 12 frame.
   d. Insert a "Text tool" and write text "Applied Multimedia Techniques" and save file at desktop.

(Space for answers)

………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
…………………………………………….…………………………………………………
…………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………..………………………………………………………

………………………………………………………………………………………………..

XIV References / Suggestions for further Reading
1. http://www.linuceum.com/Desktop/animPencil.php
2. https://www.synfig.org/cms/en/news/the-status-of-frame-by-frame-animation-features/

XV Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
1. …………………………………..
2. …………………………………..
3. …………………………………..
4. …………………………………

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 1:- b)-Image Formats and Its Conversions

I.   Practical Significance

Image is a very essential object in any multimedia system. It is often seen that based on the size of image file, loading time of multimedia application can affect. While using an image in multimedia system, choosing appropriate image file type is essential. At times a developer needs to convert available/existing file type in required file type.

II.   Relevant Program Outcomes (POs)

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the results to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III.   Competency and Practical skills

This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Graphical Tools.
2. Describe different image formats and their properties.
3. Convert specified image from one format to another format.
4. Check output and verify various properties/parameters of selected image.

IV.   Relevant Course Outcome(s)
- Edit images using graphical processing tools.

V.   Practical Outcome (POs)
a) Convert given image into different image formats.

VI.   Relevant Affective domain related Outcome(s)
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self

VII. Minimum Theoretical Background
Image types:

Images are very import object of any multimedia file. There are several types of images used in multimedia system. Based on the format image representation changes and that will affect compression methodology of image too. Image can be compressed using Lossy and Lossless technique.

There are some popular image formats that are commonly used as multimedia object:

- Bitmap (BMP) Format
- Graphics Interchange Format (GIF)
- Joint Photographic Experts Group (JPEG / JPG)
- Portable Network Graphics (PNG)
- Tagged Image File Format (TIFF)

Procedure:
1. Determine existing file extension for specified image object.
2. Import given image in appropriate Graphical Processing tool.
3. Check the required format of output.
4. Export image in specified image format and save it at given location.
5. Point out changes in Image quality and Image size.

VIII. Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	OpenOffice Draw (Paint), Pencil 2D, or any other such software		

IX. Precautions
1. All images must be saved with appropriate extensions (.jpg, .png, .bmp, .gif).

X. Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI.   Result (Output of the Program)

………………………………………………………………………………………………

…….………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

XII.   Conclusion(s)

………………………………………………………………………………………..……

………………………………………………………………………………………..……

………………………………………………………………………………………..……

………………………………………………………………………………………......

XIII.   Practical Related Questions
Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.
(Note: Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)
1. Search sample .jpg image(s) available in computer and Convert it in .png format. Point out major changes in image(s).
2. Download image from following URL and convert it into .bmp format.
   • http://pragyanam.weebly.com/uploads/4/2/5/9/42592027/4182251.jpg
3. Convert the resultant image of second activity into .gif format.

(Space for answers)

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

……
……
…………………………………………………………………………………………..……………
……
……

Exercise: Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:

(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Resize any image from your computer to 800 X 600 image size. Save the result and point out differences in properties. (**Hint : - Use following link)
    *   https://www298.lunapic.com/editor/?action=resize.
2. Rewrite short note on Lossy and Lossless compression Techniques.

(Space for answers)

…………………………………………………………………………..……………………………………
…………………………………………………………………………….……………………………………
……………………………………………………………………………….…………………………………
…………………………………………………………………………………….………………………………
…………………………………………………………………………………….………………………………
…………………………………………………………………………………..…………………………………
…………………………………………………………………………………….………………………………
……………………………………………………………………………..……………………………………
……………………………………………………………………………….……………………………………
………………………………………………………………………………….…………………………………
……………………………………………………………………………………….………………………………
……………………………………………………………………………………….……………………………
………………………………………………………………………………………..……………………………
………………………………………………………………………………………….…………………………
…………………………………………………………………………………………..…………………………
………………………………………………………………………………………………..…………………
………………………………………………………………………………………………..…………………
………………………………………………………………………………………………………..…………
………………………………………………………………………………………………………..………
……
……
………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

XIV   References / Suggestions for further Reading
>   1.http://socialcompare.com/en/comparison/image-file-formats
>   2.https://www298.lunapic.com/editor/?action=resize

XV   Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
>   1.   ………………………………..
>   2.   ………………………………..
>   3.   ………………………………..
>   4.   ………………………………

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 2: Creation of Still Images

I.   **Practical Significance**
Still images are visual representations that do not move. Still images, however, allow the content creator to convey information which can be more freely interpreted by the user. By using appropriate Graphical Processing tool a content creator can produce their own still images as per the requirement of Multimedia system/application.

II. **Relevant Program Outcomes (POs)**

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the results to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.
- **Communication**: An ability to communicate effectively

III. **Competency and Practical skills**
This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Graphical Tools.
2. Check specification for multimedia application.
3. Apply appropriate tool(s) to produce desired Still image.
4. Check output and verify various properties/parameters of produced image.

IV. **Relevant Course Outcome(s)**
- Prepare images using different color models.

V.   **Practical Outcome (POs)**
a) Create different types of still images using graphical processing tool.

VI. **Relevant Affective domain related Outcome(s)**
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self.

VII.   Minimum Theoretical Background
    Color Models: -
        Color Model is a mechanism which is used by computer system to generate specific color by combining primary or secondary colors. The system can have Additive color model where Primary colors like Red, Green and Blue are used and in Subtractive Color model secondary color like Cyan, Magenta, Yellow colors used along with its key. Multimedia object can be developed using any color model. This object can be in any form viz. image, video, or audio. To develop multimedia object on can use any tool or shapes. Based on the requirement the user can choose any graphical shapes like triangle, circle, line etc.

Procedure:
    1. Select appropriate Graphics processing tool.
    2. Create / Select "New Canvas" from available menu.
    3. Sketch/Paint required shape(s).
    4. Export image in specified image format and save it at given location.
    5. Check the availability of image at specified location.

VIII.   Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	OpenOffice Draw (Paint), Pencil 2D, or any other such software		

IX.   Precautions
    1. All images must be saved with appropriate extensions (.jpg, .png, .bmp, .gif).

X.   Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI.   Result (Output of the Program)

…………………………………………………………………………………………..…….

…….....…………………………………………………………………………………….……

……………………………………………………………………………………………………

……………………………………………………………………………………………………

XII.   Conclusion(s)

……………………………………………………………………………………...……..

……………………………………………………………………………………...……..

……………………………………………………………………………………...……..

……………………………………………………………………………………..........

XIII.   Practical Related Questions
Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.
(**Note:** Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)
1. Create a still image containing your college name and fill it in various colors.
2. Create a still image to show water bottle and fill it with blue color demonstrating bottle filled with water.
3. Create a still image to depict natural scene.

(Space for answers)

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

……………………………………………………………..…………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………..…………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

……………………………………………..………………………

………………………………………………………………………………………………

XIV. **Exercise:**
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Produce a still image given in following URL link.
   - http://www.expats.org.uk/images/bflame3.png
2. Produce a still image of your choice having minimum 5 different shapes and fill it with different colors.

(Space for answers)

…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………

XV   References / Suggestions for further Reading
1. https://ti-me.org/members/articles/multimediabasics/stillimages.html
2. http://www.loc.gov/preservation/digital/formats/fdd/still_fdd.shtml

XVI.   Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
1. ……………………………..
2. ……………………………..
3. ……………………………..
4. …………………………….

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 3: Create and Use Color Model in Image

I. Practical Significance
Color model is a mechanism used by computer's graphics system to generate required color. The system will compute color based on the primary or secondary color. With appropriate color model graphics card/ graphics mechanism ensures that the required colors are generated and same will be given to required object in multimedia application. This practical will acquaint learner with various color model. The student will able to develop and use image by using different color model.

II. Relevant Program Outcomes (POs)

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the result to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III. Competency and Practical skills
This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Graphical Tools.
2. Check specification for multimedia application.
3. Apply appropriate tool(s) to produce desired image by using required Color Model.
4. Check output and verify various properties/parameters of produced image.

IV. Relevant Course Outcome(s)
- Prepare images using different color models.

V. Practical Outcome (POs)
a) Develop Images using RGB/ CMY/ HSB Color Models.

VI. Relevant Affective domain related Outcome(s)
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self.

VII. **Minimum Theoretical Background**
Types of Color Models: -
The color models play important role in generation of colors on screen/console. Color Model is a mechanism which is used by computer system to generate specific color by combining primary or secondary colors. The system can have Additive color model where Primary colors like Red, Green and Blue are used and in Subtractive Color model secondary color like Cyan, Magenta, Yellow colors used along with its key.
The Standard Color models those are available as follows:

- Black & white
- Greyscale
- RGB - Red, Green and Blue
- CMYK - Cyan, Magenta, Yellow and Black
- Lab - Luminance, 'a' & 'b' stands for chrominance
- HSB - Hue, Saturation & Brightness. Other similar models are:
  - HSL, where L stands for Lightness,
  - HSV, where V stands for 'brightness Value' and
  - HCV, where C stands for Chroma and V for Value

Procedure:
1. Select appropriate Graphics processing tool.
2. Create / Select "New Canvas" from available menu.
3. Select specified Color Model from available menu.
4. Produce specified image and Paint it by selecting appropriate color combination.
5. Save resultant image at specific location and check availability of image at specified location.

VIII. **Resources required**

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	Open Office Draw (Paint), Pencil 2D, any other such software		

IX **Precautions**
1. All images must be saved with appropriate extensions (.jpg, .png, .bmp, .gif).

X   **Resources used**

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI   **Result (Output of the Program)**

....
....
....
....

XII   **Conclusion(s)**

....
....
....
....

XIII   **Practical Related Questions**
Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.
(Note: Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)
1. Visit web link given below and perform following task
     Link : - http://colorizer.org/
     Task: -
   a. Change Background color to "*Sky Blue*" Note down the values displayed in hex field available at right side of screen e.g. rgb(x,y,z) cmyk(a,b,c,d).
   b. Modify Border color by adjusting RGB tab and CMYK tab. Note down the values displayed in hex field available at right side of screen e.g. rgb(x,y,z) cmyk(a,b,c,d)
   c. Change the text from html tab specified top – left of screen. Add your name and change Text color suitable to background color.

(Space for answers)

....
....
....
....
....

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

XIV   Exercise:
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Produce an image to depict simple front page of book having Book name, Author Name(s) and simple logo and use RGB Model.
2. Produce a still image of your choice having minimum 5 different shapes and fill it with different colors use HSV/ HSL color Model.

(Space for answers)

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

XV   References / Suggestions for further Reading
1.https://www.sqa.org.uk/e-learning/BitVect01CD/page_36.htm
2.http://www.mat.univie.ac.at/~kriegl/Skripten/CG/node11.html

XVI   Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
1.   …………………………………..
2.   …………………………………..
3.   …………………………………..
4.   ……………………………….

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 4: Creating Video Clip Using Graphical Processing Tool

I. **Practical Significance**

Videos are very essential object in any multimedia application. Video makes an application lively and more interactive to users. Most of the time content developer prepares a video clip in view of attracting intended audience towards application. Big message can be convey using appropriate small size videos.

II. **Relevant Program Outcomes (POs)**

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the result to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **The engineer and society:** Demonstrate knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering practice.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III. **Competency and Practical skills**

This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Movie making Tools.
2. Check specification for multimedia application.
3. Use appropriate multimedia objects viz image(s), audio(s), and video(s).
4. Apply specified transitions and effect to video.
5. Export Video at specified location.
6. Examine necessary effects and transitions are achieved as per specification.

IV. **Relevant Course Outcome(s)**
   a) Prepare images using different color models.

V. **Practical Outcome (POs)**
   a) Develop Simple Movie Clip using Movie Maker.

VI. **Relevant Affective domain related Outcome(s)**
   1. Follow ethical practices.
   2. Demonstrate working as a leader / a team member.
   3. Practice good housekeeping.
   4. Participate in team problem solving activities.
   5. Prioritizes time effectively to meet the needs of the team and self

VII. **Minimum Theoretical Background**
Multimedia Based Applications: –
Multimedia application is one which uses combination of any audio, video contents to generate a resultant file. The Multimedia application is useful to convey the message in broad manner. Multimedia authoring is the process which is used to select, design and develop the contents that will be added on multimedia objects. The content developer first needs to finalize the content and then follow the methodology specified in steps multimedia authoring to write generate contents.

Procedure:
1. Select appropriate Graphics processing tool.
2. Create / Select "New Project" from available menu.
3. Choose required images and videos and Import it in tool.
4. Apply required transitions and effects to image(s).
5. Export video and save at specific location.
6. Examine necessary effects are integrated.

VIII. **Resources required**

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	OpenShot Video Editor, any other such software.		

IX **Precautions**
1. All Videos must be saved with appropriate extensions (.wmv, .avi, .mp4).

X **Resources used**

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI **Result (Output of the Program)**

....

....

....

....

XII **Conclusion(s)**

....

....

....

....

XIII **Practical Related Questions**
Note: Below given are few sample questions for reference. Teacher must design more such questionsso as to ensure the achievement of identified CO.
(**Note:** Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)
1. Visit web link given below and perform following task
    Link : - http://moviemakeronline.com/
    Task: -
    a. Add 10 Images of your choice
    b. Import audio suitable to images.
    c. Save File with name as "My First Video".
    d. Make Video and Download it.
    e. Play video and check for necessary integration achieved with respect to image and audio.

(Space for answers)

....

....

....

....

....

....

....

....

....

....

....

....

....

....

XIV   Exercise
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(**Note:** Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Visit web link given below and perform following task
    Link : - https://www.kizoa.com/
    Task: -.
    a. Select Movie Maker option.
    b. Import 20 Photos of your choice
    c. Apply Transitions to each image.
    d. Apply any 10 effects to selected image (One effect per image).
    e. Add your name to any 2 Images.
    f. Assign different animation to any 5 images.
    g. Add Background image to any 4 Images (2 shall be uploaded from system)
    h. Assign Name to your Movie.
    i. Download Movie and verify necessary effects are achieved.

(Space for answers)

……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………......…………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
………………………………………………………......………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
………………………………………………………......………………………………………
………………………………………………......…………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
………………………………………………………………………......…………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
………………………………………………………………………......………………………

XV   References / Suggestions for further Reading

      1. http://moviemakeronline.com

      2. https://www.kizoa.com/

      3. https://imagenevp.com/blog/top-10-video-formats/2/

XVI   Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members

1. ………………………………..

2. ………………………………..

3. ………………………………..

4. …………………………………

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 5: Create and Use GIF Image

I. Practical Significance

Still Images are very good alternative for writing huge content but at times it is impractical to use multiple images to impart message. One may think about videos in such cases, but it will increase the size of Multimedia application. Using gif images can provide an excellent alternative to encounter a situation where size and number of objects both matters. This practical will help students to create gif images using relevant tools.

II. Relevant Program Outcomes (POs)

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the result to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III. Competency and Practical skills
This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Graphical Processing Tools.
2. Check specification for multimedia application.
3. Use appropriate multimedia objects viz image(s), audio(s), and video(s).
4. Apply specified transitions and effect for creating gif image.
5. Export image at specified location and save it in gif format.
6. Examine necessary effects and transitions are achieved as per specification.

IV. Relevant Course Outcome(s)
- Edit images using Graphical processing tools.

V. Practical Outcome (POs)
a) Develop GIF image using graphics processing tools.

VI. Relevant Affective domain related Outcome(s)
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self

VII.   Minimum Theoretical Background

Image Types: -

Images are most vital aspect of any multimedia object. Gif images are also one of type for images. Images with gif extension contains various images/frames together and it is been displayed repeatedly over the period of time. Each frame contains different image and after specific duration next frame is displayed. One can have additional effects on available images so that it can suite to the theme of multimedia object. Image can be converted into required format by having crop, resize, and complement effects. Crop effect allows user to eliminate certain part of image. Resize effect will allow user to adjust the size of image as per required size without affecting quality of image. Complement effect will convert color image into gray-scale and vice versa.

Procedure:

1. Select appropriate Graphics processing tool.
2. Create / Select "New Project" from available menu.
3. Choose required images and videos and Import it in tool.
4. Apply required transitions and effects to image(s).
5. Export image and save at specific location.
6. Open resultant image with any web browser.

VIII.   Resources required

Sr. No	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	Gif animator, any other such software		

IX.   Precautions

1. All files must be saved with appropriate extensions (.gif,).
2. Select still images with suitable dimensions (Preferably same).
3. Set proper delay between two image frames.

X.   Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. **Result (Output of the Program)**

………………………………………………………………………………………………………
……...………………………………………..…………………………………………………
…………………………………………………..……………………………………………
……………………………………………..…………………………………………………

XII. **Conclusion(s)**

……………………………………………………..………………………………
……………………………………………………………………….………………
………………………………………………………………………..……………
……………………………………………………………………………......

XIII. **Practical Related Questions**
Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.
(**Note:** Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)
1. What is the practical application of gif files?
2. What is the maximum size of gif file?
3. Can we integrate audio in existing gif file? Justify.

(Space for answers)

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………...…………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
…………………………………………………...…………
……………………………………………………………………………………………..
…...................………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

……

………

XIV. **Exercise**
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Create a gif image to display any 5 facial expressions also add text to display expression.
2. Create a gif file with any 10 images. Set delay of 0.5 seconds between two images.
3. Demonstrate table of any integer number by creating 10 still images using any graphical processing tool. Integrate all images in gif file to display table of specific number.
4. Create a gif file with any 15 images of your favorite cartoon character. Export resultant file at specific location. Integrate your favorite song/music at background using any tool explored in earlier experiments.

(Space for answers)

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

………………………………………………………………………………………………………

………………......................………………………………………………………………

XV   References / Suggestions for further Reading
1. https://ezgif.com/maker
2. http://gifmaker.org/
3. http://www.online-image-editor.com/gifmaker/

XVI   Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
1. ………………………………..
2. ………………………………..
3. ………………………………..
4. …………………………………

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 6: Create and Use Advertising Banner as Gif Image

I. Practical Significance

Multimedia application like Website(s), blog(s) or even a mobile application uses a banner. Having a banner is almost indispensable aspect to draw attention of users. Having banner in a still image is a good idea but one can attract maximum number of users by having banner(s) which possess moving content. This leads to increase interest of user and ensure users are committed with our application. This practical leads students to create their own banner and save in gif format.

II. Relevant Program Outcomes

* **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
* **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
* **Experiments and practice:** Plan to perform experiments and practices to use the result to solve broad-based Electronics related problems.
* **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
* **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
* **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.
* **Communication**: An ability to communicate effectively

III. Competency and Practical skills
This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Graphical Processing Tools.
2. Check specification for multimedia application.
3. Use appropriate multimedia objects viz image(s), audio(s), and video(s).
4. Apply specified transitions and effect for creating Banner.
5. Export banner at specified location and save it in gif format.
6. Examine necessary effects and transitions are achieved as per specification.

IV. Relevant Course Outcome(s)
* Edit images using Graphical processing tools.

V. Practical Outcome
   a) Design Banner using graphics processing tools.

VI. **Relevant Affective domain related Outcome(s)**
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self

VII. **Minimum Theoretical Background**
Fonts and Its Types: -
Fonts are way of representing text on a screen. There are various font families available in computer system categorized on font style, font family and shape. One can use any font style to depict their text in certain manner. A content writer can select a font style from available menu. Text effects are used to give certain effects so that emphasis can be given on those texts. This leads to attention on reader and they can visuals the text efficiently. Image effects are used make necessary changes in existing image. By giving specified effects one can make an image more usable as per their requirement.

Procedure:
1. Select appropriate Graphics processing tool.
2. Create / Select "Banner Wizard" from available menu.
3. Choose Banner Size and style.
4. Choose Banner Background with respect to image or color.
5. Add required text(s), select appropriate appearing and disappearing effect.
6. Save banner and export at specific location.
7. Open resultant banner with any web browser or as an image.

VIII. **Resources required**

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	Gif animator / QGifer, any other software		

IX. **Precautions**
1. All banners must be saved with appropriate extensions (.gif,).
2. Select still images with suitable dimensions (Preferably same).
3. Set proper delay between two image frames.

X. Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. Result (Output of the Program)

……………………………………………………………………………………………
…….....…………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

XII. Conclusion(s)

……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
………………………………………………………………………………….......

XIII. Practical Related Questions
Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.
(**Note:** Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)
1. What is the standard size of banner?
2. What are the practical significances of banner?
3. What are basic points to be considered while creating a banner?

(Space for answers)

XIV. Exercise
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(**Note:** Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Create a banner for upcoming technical event in your institute. Institute name and logo must be common text in all frames.
2. Create a banner to show your name in first frame, middle name in second frame and last name in third frame. The last frame displays your full name.
3. Create a banner to show "Hello! AMT "text at same position and having 10 different Shapes and effects.
4. Create a banner having your favorite cartoon character's photo at background. Display any five statements about it.

(Space for answers)

……

……

……

……

……

……

……

………………………………………………………………………………...........................

……

……

……

……

………………………………………………………………………………...........................

……

……

……

………………………………………………………………………………...........................

……

……

……

………………………………………………………………………………...........................

……

……

……

……

……

……

……

XV   References / Suggestions for further Reading
1. https://snappa.com/create/banners
2. https://banner.fotor.com/

XVI Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
1. ………………………………..
2. ………………………………..
3. ………………………………..
4. ………………………………

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 7: Use of WordArt in Image

I. **Practical Significance**
Word art is a facility of image processing tool to display specified text(s) in different shapes and design. This is good practice to ensure that certain text(s) which needs to be highlighted can be given additional emphasis. Such objects are easy to locate can catches many eyes in short span of time. This practical will demonstrate student to create word art in different shapes and customize it as per requirement.

II. **Relevant Program Outcomes (POs)**

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the result to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III. **Competency and Practical skills**
This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Graphical Tools / online tools.
2. Check specification for multimedia application.
3. Add specified text. Select available word art.
4. Apply appropriate tool(s) to produce desired word art by using required effects.
5. Verify the results and Save resultant word art in appropriate image format.

IV. **Relevant Course Outcome(s)**
- Edit image using Graphical Processing tool.

V. **Practical Outcome (POs)**
Apply different word art on text using any 2D image processing software.

VI. **Relevant Affective domain related Outcome(s)**
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self.

VII.   Minimum Theoretical Background
Fonts and Text Effects: -

Fonts are way of representing text on a screen. There are various font families available in computer system categorized on font style, font family and shape. One can use any font style to depict their text in certain manner. A content writer can select a font style from available menu. Text effects are used to give certain effects so that emphasis can be given on those texts. This leads to attention on reader and they can visuals to the text efficiently. Image effects are used make necessary changes in existing image. By giving specified effects one can make an image more usable as per their requirement. There can be various effects employed on text. One of them is word art for text. The word art effect will ensure that the texts are visualized in particular shape.

Procedure:
1. Select appropriate Image processing tool / Web base tool.
2. Rewrite/copy the text whose word art needs to be created in specified text box.
3. Select required effects from available menu.
4. Produce word art image and verify with requirements.
5. Save resultant image at specific location and check availability of image at specified location.

VIII.   Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	• https://wordart.com/ , • http://flamingtext.com/ • Any other such software		

IX.   Precautions
1. All images must be saved with appropriate extensions (.jpg, .png, .bmp, .gif).

X.   Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI.   Result (Output of the Program)

………………………………………………………………………………………………
……...………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………

XII.   Conclusion(s)

………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
…………………………………………………………………………………….......

XIII. Practical Related Questions

Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(Note: Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)

    a.   What is necessity of word art text?
    b.   List any 4 effects that can be added while creating word art.
    c.   Which option(s) will be used to change effects of existing word art?
    d.   What will be the consequences if more numbers of effects are added on word art? Justify.

(Space for answers)

………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………

XIV. **Exercise**
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(**Note:** Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Produce a word art of your "Institute name" with *flaming* effect.
2. Produce a word art for Text "INDIA" with *glowing* effect.
3. Develop a logo for college annual day using word art. (**Hint : - Use online Logo making website e.g. www.freelogodesign.org/)

(Space for answers)

………

………

………

………

………

………

………

………

………

………

………

………

………

………

………

………

………

………

………

………

………

………

………

………

XV   References / Suggestions for further Reading
1.https://flamingtext.com/
2.https://wordart.com/

XV.   Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
1. …………………………………..
2. …………………………………..
3. …………………………………..
4. …………………………………..

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 8: Creating Wallpaper and Use as Background Image

I.   Practical Significance

Multimedia content developers spend lots of time in authoring Multimedia to ensure that they have right balance of textual and visual content. Often it is seen that most developers miss integral part of Multimedia object i.e. background image or wall paper. If a multimedia object has a background which complements content it is highly expected/assured that user will fall for that object. Hence having decent but effective wallpaper is significant. This experiment will let student involve in designing their own wallpaper to showcase their creativity.

II.   Relevant Program Outcomes (POs)

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the result to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Environment and sustainability:** Understand the impact of the engineering solutions in societal and environmental contexts, and demonstrate the knowledge and need for sustainable development.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III.   Competency and Practical skills

This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1.   Select related Graphical Tools / online tools.
2.   Check specification for multimedia application.
3.   Choose/reproduce appropriate background image.
4.   Apply required effects for text, symbols, etc.
5.   Verify the results and Save resultant wall paper in appropriate image format.

IV.   Relevant Course Outcome(s)
- Edit image using Graphical Processing tool.

V.   Practical Outcome (POs)
- Create wall paper using various tools of 2D image processing software(s).

VI.   Relevant Affective domain related Outcome(s)

1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self

VII.   Minimum Theoretical Background
Effects and Its types:-

Wallpapers are created using appropriate tools, and applying text and effects on those objects. The wallpaper gives cutting edge on multimedia object. The content developer needs to finalize required wallpapers design. Once the design is finalized by using appropriate color model the image needs to be generated. The content developer uses required effects on text and other shapes. The effects can be finalized during multimedia authoring so that the developer can get familiar with required effect well in advance.

Procedure:

1. Select appropriate Image processing tool / Web base tool.
2. Select required background with respect to image or color.
3. Import required shapes and object on canvas.
4. Apply necessary effects to shapes and objects.
5. Save resultant image with suitable file extension and check availability of image at specified location.

VIII.   Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	Pencil 2D, Synfig Studios, Paint, Web based tool http://www.wallpapersmaker.com/ https://www.canva.com/ any other such software		

IX.   Precautions

1. All images must be saved with appropriate extensions (.jpg, .png, .bmp, .gif).

X. Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. Result (Output of the Program)

……………………………………………………………………………………………

…….....……………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

XII. Conclusion(s)

…………………………………………………………..……………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

………………………………………………………………………………….......

XIII. Practical Related Questions

Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(Note: Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)

   a. What is the suitable dimension for wall paper?
   b. What are various factors which affects size of wall paper in terms of memory?
   c. List suggestions to make Wall paper more presentable and sober.

(Space for answers)

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………….…………………………........…………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

……………………………………………………………...…………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

…………………………………………………………………………………………..

XIV. Exercise

Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:

(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Develop a wall paper depicting "Indian Tricolor" and add Text as "India is Great.".
2. Develop a wall paper by importing any "natural scene". Write your name in "Times New Roman", Bold + Italic, Font Size "15" at bottom of image.
3. Develop a customized wallpaper by using web based application to depict smiling face. (Import readymade image)

(Space for answers)

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

XV   References / Suggestions for further Reading

1. http://www.wallpapersmaker.com/
2. https://www.canva.com/

XV.   Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members

1. …………………………………..
2. …………………………………..
3. …………………………………..
4. …………………………………

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 9: Apply Various Effects on Text

I. Practical Significance
Multimedia object requires equal combination of text and other multimedia objects. It is highly recommended that content developer must use appropriate texts with proper clarity. The developer must use appropriate effects to give emphasis on certain terms to draw users' attention so that message will be easily conveyed. This practical allow students to get familiar with various effects that can be applied on text. By applying these effects student will able to give emphasis to certain text.

II. Relevant Program Outcomes (POs)

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the result to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III. Competency and Practical skills
This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Graphical Tools / online tools.
2. Check specification for multimedia application.
3. Select appropriate terms / words for applying effect.
4. Apply required effects for text by adjusting required values.
5. Verify the results and Save resultant wall paper in appropriate image format.

IV. Relevant Course Outcome(s)
- Edit image using Graphical Processing tool.

V. Practical Outcome (POs)
a) Apply various effects (Drop shadow, Mirror, Reflection, Vignette) on Text using any 2D image processing software.

VI. Relevant Affective domain related Outcome(s)
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self.

VII.   Minimum Theoretical Background
Text and Text Effect:-

The fonts which we are using in a multimedia object are having some predefined style and face. Based on the requirement the developer can set certain effects on text to give certain style and emphasis. The font can have effects like shadow, reflection, mirror and vignette. The shadow effect will contribute shadow of a text in specified angle. Reflection effects reflect the text at given place. Mirror effect will give mirror image of text whereas vignette effect will check the brightness of text. Based on the opacity of text shades of text will be maintained in vignette effect.

Procedure:
1. Select appropriate Image processing tool / Web base tool.
2. Select required text/word to apply effects.
3. Apply necessary effects under "shadow menu" or related menu on text and adjust required values/properties.
4. Save resultant text and verify with requirements.

VIII.   Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	http://flamingtext.com http://www.messletters.com/en/mirrored/ any other such software		

IX.   Precautions
1. All images must be saved with appropriate extensions (.jpg, .png, .bmp, .gif).

X.   Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. Result (Output of the Program)

………………………………………………………………………………………………
……...……………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………

XII. Conclusion(s)

………………………………………………………………………………………………
………………………………………………………………………………………..………………
………………………………………………………………………………………………
……………………………………………………………………………………………......

XIII. Practical Related Questions
Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.
(**Note:** Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)
   a.   What are various effects applied on Text?
   b.   Which property is needed to change to achieve following effects?
      i.   Vignette : _____
      ii. Mirror : _____
      iii. Reflection : _____
   c.   Give any 4 Significance of applying effects on text.

(Space for answers)

………………………………………………………………………………………………………
………………………………………………………………………………………………………
………………………………………………………………………………………………………
………………………………………………………………………......……………………………
………………………………………………………………………………………………………
………………………………………………………………………………………………………
………………………………………………………………………………………………………
………………………………………………………......……………………………………………
………………………………………………………………………………………………………
………………………………………………………………………………………………………
………………………………………………………………………………………………………
………………………………………………………………………………………………………
………………………………………………………………………………………………………
………………………………………………………………………………………………………
………………………………………………………………………………………………………

XIV. Exercise
   Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
   (**Note:** Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Visit following URL and perform following tasks.
   URL: http://www4.flamingtext.com
   Task:
   a. Enter your name and select any theme / logo design.
   b. Edit logo and Select "Drop" option in Shadow Tab.
   c. Set X Offset to 15.
   d. Set Y Offset to 12
   e. Set opacity to 50.
   f. Save Logo.

2. Repeat above step till 1. a
   a. In Edit logo, Select "Reflection" option in shadow tab.
   b. Customize other properties.
   c. Save Logo.

3. Visit following URL and perform following tasks.
   URL: http://www.messletters.com/en/mirrored/
   Task:
   a. Enter text as "This is Mirrored text".
   b. Copy and save Flip text, Mirror Text, Mirror Flip and Reverse text from GUI.

(Space for answers)

…………………………………………………………………………………......………………………………
……
……
……
…………………………………………………………………………………......…………………………………
……
……
……
………………………………………………………………......……………………………………………………
……
……
……
……
……

XV   References / Suggestions for further Reading

1. https://flamingtext.com/
2. http://www.messletters.com/en/mirrored/

XVI.   Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members

1. ………………………………..

2. ………………………………..

3. ………………………………..

4. …………………………………

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 10: Apply Effects on Image

I. **Practical Significance**

Images are integral part of Multimedia objects. While developing/creating Multimedia object the authors needs to consider suitable image(s) to make specified object more attractive and suitable to the theme. Most of the cases selected images may not be having required properties. In such circumstances one can apply desired effects on image so that it can be made more usable. This practical will let student to get accustomed with effects that can be smear on image.

II. **Relevant Program Outcomes (POs)**

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the result to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III. **Competency and Practical skills**

This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Graphical Tools / online tools.
2. Check specification for multimedia application.
3. Select appropriate image / section of image for applying effect.
4. Apply required effects for image by adjusting required values.
5. Verify the results and Save resultant image in appropriate format.

IV. **Relevant Course Outcome(s)**

- Edit image using Graphical Processing tool.

V. **Practical Outcome (POs)**

a) Apply Image editing and crossfading effect using any 2D image processing software.

VI. **Relevant Affective domain related Outcome(s)**

1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self.

VII. **Minimum Theoretical Background**
Image Effects:-
Image Effects are crucial when it comes to preparing multimedia object. The Multimedia author can use specific effects on selected image so that image can suit theme. Given an image one can apply various effects ranging from simple effects like crop, resize, rotate, complement to advance one like Blend, Broken Mirror, etc. One can use simple tools to achieve basic effects like crop, resize and advanced tools for special effects.

Procedure:
1. Select appropriate Image processing tool / Web base tool.
2. Select required image to apply effects.
3. Apply necessary effects under "effect" or related menu on image and adjust required values/properties.
4. Save resultant image and verify with requirements.

VIII. **Resources required**

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	https://www167.lunapic.com/editor/?action=effect-examples , or any other such software.		

IX. **Precautions**
1. All images must be saved with appropriate extensions (.jpg, .png, .bmp, .gif).

X. **Resources used**

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. **Result (Output of the Program)**
....
....
....
....

XII.   Conclusion(s)

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………......

XIII.   Practical Related Questions
Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.
(Note: Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)
 a. What are various effects applied on Image?
 b. How to apply image effect on a specific area of the screen?
 c. Give any 4 importance of applying effects on image.

(Space for answers)

………………………………………………………………………………….…………………

………………………………………………………………………………..…………………

………………………………………………………………………………….…………………

………………………………………………………………………………….…................

…….....………………………………………………………………………………………….

………………………………………………………….…………………………………………

…………………………………………………….……………………………………………

…………………………………….………………………………………….…................

….....………………………………………………………………………….…………………

………………………………………………………………………….…………………………

………………………………………………………………………………….…………………

………………………………………………………………………………….…................

….....………………………………………………………………………….…………………

………………………………………………………………………………….…………………

……..………………………………………………………………………………………….…..

………………………………………………………………………………….…................

…….....………………………………………………………………………………………

…….....………………………………………………………………………………………

…….....………………………………………………………………………………………

XIV. **Exercise**
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Visit following URL and perform following tasks.
    URL: https://www167.lunapic.com/editor/?action=effect-examples
    Task:
    a. Select your image and select any two effects.
    b. Apply those two effects on images..
    c. Save image.

2. Select any image and perform following operations on it (Note down size of image before importing it).
    a. Select resize operation.
    b. Make "Horizontal value" as 68% "Vertical value" as 73%.
    c. Save Image and verify changes in size of image after operation.

3. Visit following URL and perform following tasks.
    URL: https://photomania.net/
    Task:
    a. Select any image of your choice.
    b. Select "Vitrage Window" option.
    c. Select appropriate intensity.
    d. Save the image.

(Space for answers)

………
………
………
…………………………………………………………………….....................................……………
………
………
………………………....……………………………………………………………………………………
……………………………………………………………………………….....................................……
……..……………………………………………………………………………………………………..
…………………………………………………………………………………………………..…………
……………………………………………………………………………………………..……………
………………………………………………………………………………….....................................
…………………………………………………………………………….…………………...…………
………………………………………………………………………………………………………..
…........................……………………………………………………………………………………..

XV   References / Suggestions for further Reading
      1.https://photomania.net/
      2.https://www167.lunapic.com

XVI. Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
    1. …………………………………..
    2. …………………………………..
    3. …………………………………..
    4. …………………………………..

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 11: Working With Layers to Produce Image

I. Practical Significance
In animation and graphics software, *layer* refers to the different levels on which you place your drawings, animations, and objects. The layers are stacked one on top of another. Each layer contains its own graphics or effects, which can be worked on and changed independently of the other layers. Together all the layers combine for a complete graphic or animation.

II. Relevant Program Outcomes (POs)

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the result to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III. Competency and Practical skills
This practical is expect to develop the following skills in you
Develop applications using core Graphical Concepts.
1. Select related Graphical Tools / online tools.
2. Check specification for multimedia application.
3. Select appropriate layer of image for applying effect.
4. Apply required effects for image by adjusting required values on specific layer.
5. Verify the results and Save resultant image in appropriate format.

IV. Relevant Course Outcome(s)
a) Edit image using Graphical Processing tool.

V. Practical Outcome (POs)
a) Create images based on layers.

VI. Relevant Affective domain related Outcome(s)
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self.

VII. **Minimum Theoretical Background**
Image Effects: -
Layers are important aspect for any animation. Layers provide various surfaces which can be used to as a distinct surface to provide necessary effects. The multimedia content developer needs to identify required layer and then they can provide/ apply required effects on it. One can make use of frames and key frames to ensure that resultant animation can get required effects.

Procedure:
1. Select appropriate Image processing tool / Web base tool.
2. Select required layer to apply effects.
3. Apply necessary effects under "effect" or related menu on image and adjust required values/properties.
4. Repeat Step 2 and 3 for all necessary layers.
5. Save resultant image and verify with requirements.

VIII. **Resources required**

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	https://www167.lunapic.com/editor/?action= effect-examples Any other such software		

IX. **Precautions**
1. All images must be saved with appropriate extensions (.jpg, .png, .bmp, .gif).

X. **Resources used**

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. **Result (Output of the Program)**

……………………………………………………………………………………………

……...………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

XII. **Conclusion(s)**

…………………………………………………………………..………………………

…………………………………………………………………..………………………

…………………………………………………………………..………………………

…………………………………………………………………………………………..

XIII. **Practical Related Questions**

Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(Note: Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)

    a. List various layers available on graphical processing tool used in institute?

    b. Write step to add new layer on timeline and delete existing layer from timeline?

    c. What is frame and key frame? Give difference between them.

(Space for answers)

………………………………………………………………..……………………

………………………………………………………………..……………………

…………………………………………………………………..…………………

…………………………………………………………………..............………

……............………………………………………………………..……………

………………………………………………………………..……………………

…………………………………………………………………..…………………

…………………………………………………………………..…………………

……....…………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………...……...................................…………………………………

XIV.   Exercise
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Open Pencil 2D or any other graphical processing tool
    a. Add Sound/ Audio Layer.
    b. Import any audio to the background of animation.
    c. Save image.

2. Select any graphical processing tool and perform following operations on it.
    a. Add new Bitmap Layer.
    b. Draw "Indian Tricolor" on Bitmap Layer.
    c. Make it as key frame.
    d. Add flowers after every 5 frames.

3. Select any graphics processing tool Add/Import any 5 images on different layers and different frames.

(Space for answers)

………
………
………
…………………………………………………………………………………………......................................
………
………
………
………………………………………………………………………………………......................................
………
………
………
………………………………………………………………………………………......................................
………
………
………
………………………………………………………………………………………......................................
………
………
………
………

XV   References / Suggestions for further Reading
   1.https://docs.unity3d.com/Manual/AnimationLayers.html
   2.https://www.gimp.org/tutorials/Simple_Animations/

XVI. Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
   1. ………………………………..
   2. ………………………………..
   3. ………………………………..
   4. …………………………………

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 12: Merging Images to Produce Collage Image

I.   Practical Significance
Often it is good practice to make an image which contains multiple images i.e. Collage image. Such types of image provide one space where multiple images reside. It is good way to utilize space having multiple images. Most of the time such images are seen on social networking site. In this practical the student will be able to generate their own collage image(s) comprised of more than one image.

II.   Relevant Program Outcomes (POs)

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the result to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Lifelong learning / Environment**

III.   Competency and Practical skills
This practical is expect to develop the following skills in you
Develop applications using core Graphical Concepts.
1. Select related Graphical Tools / online tools.
2. Check specification for multimedia application.
3. Select appropriate shape/theme for collage image for applying effect.
4. Import required images that will be used in collage.
5. Apply required effects for image by adjusting required values.
6. Verify the results and Save resultant image in appropriate format.

IV.   Relevant Course Outcome(s)
a)   Edit image using Graphical Processing tool.

V.   Practical Outcome (POs)
a)   Merge multiple photographs using any 2D image processing software.

VI.   Relevant Affective domain related Outcome(s)
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self.

VII.   Minimum Theoretical Background
Image types and Effect: -
It is a technique of composing a work of art by adding on a single surface various materials not normally associated with one another as image, photographs etc. The Multimedia author can select specific shape and images as per requirement. Having appropriate collage makes maximum utilization of space as well as makes multimedia content more attractive.

Procedure:
1. Select appropriate Image processing tool / Web base tool.
2. Select required shape/ layout for collage.
3. Import necessary images for collage.
4. Apply necessary effects under "effect" or related menu on image and adjust required values/properties.
5. Generate Collage and Save resultant image and verify with requirements.

VIII.   Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	https://www167.lunapic.com/editor/?action= effect-examples Any other such software		

IX.   Precautions
1. All images must be saved with appropriate extensions (.jpg, .png, .bmp, .gif).

X.   Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. Result (Output of the Program)

………………………………………………………………………………………………

……...……………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

XII. Conclusion(s)

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………......

XIII. Practical Related Questions

Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(**Note:** Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)

   a. What is the necessity of having collage image?
   b. What are the suitable dimensions of collage image?
   c. Give any 4 applications / scenarios where collage image can be added.

(Space for answers)

………………………………………………………………………………….……………...……

……………………………………………………………………………………………………

……………………………………………………………………………………………………

………………………………………………………………………………………......................

...........………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

…………………………………………………………………………....................................………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………....................................………………………

……………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

……………………………………………………………………………………………………

………………………………………………………………………………………………

XIV. **Exercise**
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Open Paint any other graphical processing tool
    a. Add 5 Images on canvas.
    b. Adjust size of all images as per requirement.
    c. Save image.

2. Open following link and perform following task.
    https://www.photocollage.com/
    a. Select new collage.
    b. Add 7 Images of your choice.
    c. Select appropriate Layout / Template.
    d. Add Caption as "My Collage".
    e. Save Image on Desktop.

3. Open following link and perform following task.
    https://www.befunky.com/create/collage/
    a. Select "Image Manager" Option and import 10 Images.
    b. In setting option "Select Background color as #22DB9B"
    c. In layout option select any layout.
    d. "Add Your name" as Text
    e. Save Collage on Desktop.

(Space for answers)

…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………

XV   References / Suggestions for further Reading
　　　 1.https://www.befunky.com/create/collage/
　　　 2.https://www.photocollage.com/

XVI. Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
1. …………………………………..
2. …………………………………..
3. …………………………………..
4. …………………………………

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 13: Rotate Image in Specific Angle

I.   **Practical Significance**
As images are used in multimedia object may not fit as per the requirement multimedia author needs to make specific changes in existing angles. Almost all graphics processing tools supports operation like rotate at specific angle. The rotation operation gives an option to the content developer to adjust given image at specific angle which is suitable to the multimedia object. This practical let student to rotate specific image at predefined angles or at specific angles.

II.   **Relevant Program Outcomes (POs)**

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the result to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.

III.   **Competency and Practical skills**
This practical is expect to develop the following skills in you
Develop applications using core Graphical Concepts.
1. Select related Graphical Tools / online tools.
2. Check specification for multimedia application.
3. Import required images that will be used in rotation operation.
4. Apply required effects for image by adjusting required values of angle.
5. Verify the results and Save resultant image in appropriate format.

IV.   **Relevant Course Outcome(s)**
a) Edit image using Graphical Processing tool.

V.   **Practical Outcome (POs)**
a) Apply Rotate and change rotation center operation to an image using any 2D image processing software.

VI.   **Relevant Affective domain related Outcome(s)**
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self

VII. **Minimum Theoretical Background**
Effects on Image: -
The rotation operator performs a geometric transform which maps the position. Image rotation is performed by computing the inverse transformation for every destination pixel. Output pixels are computed using bilinear interpolation. Rotation operation makes required adjustment in current position of each pixel. If such adjustments are not done efficiently then resultant image will not be similar to actual image.

Procedure:
1. Select appropriate Image processing tool / Web base tool.
2. Select "Rotate" operation from available menu.
3. Choose appropriate method for Rotation.
4. Select direction of rotation i.e. "Clockwise" and "Anti-Clockwise".
5. Specify the angle for rotation if Image is to be rotated at specific angle.
6. Generate Collage and Save resultant image and verify with requirements.

VIII. **Resources required**

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	https://www298.lunapic.com/editor/?action=rotate any other such software		

IX. **Precautions**
1. All images must be saved with appropriate extensions (.jpg, .png, .bmp, .gif).

X. **Resources used**

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. **Result (Output of the Program)**
………………………………………………………………………………………………………
…....…………………………………………………………………….……………………………
………………………………………………………………………………………………………
………………………………………………………………………………………………………

XII. Conclusion(s)

……………………………………………………………………..………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

……………………………………………………………………………………….....

XIII. Practical Related Questions

Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(Note: Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)

    a.   Write scalar matrix for image rotation?

    b.   What are different ways to rotate image?

    c.   How to rotate image anti-clockwise?

(Space for answers)

………………………………………………………………………………………

………………………………………………………………………………………

………………………………………………………………………………………

…………………………………………………………………………....................

………………………………………………………………………………………

………………………………………………………………………………………

………………………………………………………………………………………

…………………………………………………………………………....................

………………………………………………………………………………………

………………………………………………………………………………………

………………………………………………………………………………………

…………………………………………………………………………....................

………………………………………………………………………………………

………………………………………………………………………………………

………………………………………………………………………………………

…………………………………………………………………………....................

………………………………………………………………………………………

………………………………………………………………………....................

………………………………………………………………………………………

XIV. Exercise
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Open Paint any other graphical processing tool
    a. Add any Images on canvas.
    b. Rotate image to Left 90∘ twice.
    c. Save image.

2. Open following link and perform following task.
    https://www298.lunapic.com/editor/?action=rotate
    a. Import image.
    b. Specify rotate angle as 34∘.
    c. Save Image on Desktop.

3. Open following link and perform following task.
    http://pinetools.com/rotate-image
    a. Import any Image for rotation.
    b. In option "Angle Selection" Choose "Advanced".
    c. Set Rotate angle to 43∘.
    d. Choose direction as "Counter-Clockwise".
    e. Save Collage on Desktop.

(Space for answers)

………
………
………
……………………………………………………………………………………......................................
………
………
………
……………………………………………………………………………………......................................
………
………
………
……………………………………………………………………………………......................................
………
………
………
………

XV References / Suggestions for further Reading
      1.http://pinetools.com/rotate-image
      2.https://www298.lunapic.com/editor/?action=rotate

XVI Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
1. …………………………………..
2. …………………………………..
3. …………………………………..
4. …………………………………..

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 14: Apply Rainy Season Effects on Image

I.   **Practical Significance**

While adding an image in multimedia object, most of the images are still and captured as they exist. Often it is essential to provide an image with some extra effect to make it livelier. The rainy season effect gives that cutting edge to the still image. This result into making an image as live image instead of still image by adding recurrent drops of waters giving illusion of having rain drops. In this practical the students will be able to explore more about the rainy season effect on image and apply same on specific image.

II.   **Relevant Program Outcomes (POs)**

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the result to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III.   **Competency and Practical skills**

This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Graphical Tools / online tools.
2. Check specification for multimedia application.
3. Select appropriate image / segment of image for applying effect.
4. Apply required effects for image by adjusting required values.
5. Verify the results and Save resultant image in appropriate image format.

IV.   **Relevant Course Outcome(s)**
    a)   Edit image using Graphical Processing tool.

V.   **Practical Outcome (POs)**
    a)   Modify existing image by adding Rainy Season effect using 2D image processing software.

VI.   **Relevant Affective domain related Outcome(s)**
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self

VII.   Minimum Theoretical Background
Effects on Images: -
The rainy season effects gives impression of having running rain drops on image. By applying rainy season effect the image gets converted into gif format. This effect adds an additional layer on top of the image. Effect of having rainy season let this additional layer to draw continuous lines / pixels of specified intensity. Once done, graphics processing tool places this layer on top of the existing image. The tool then merges all layers and generates the gif image. Add layer has continuous loop to depict the effect of water drop at specified intensity.

Procedure:
1. Select appropriate Image processing tool / Web base tool.
2. Select required image / Section of image to apply effects.
3. Select "Pouring Rain / Raining Effect" from available menu and adjust required values/properties.
4. Save resultant image and verify with requirements.

VIII.   Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware : Compute r System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experime nts
2	Operatin g system	Windows 7/LINUX version 5.0 or later		
3	Software	https://www298.lunapic.com/editor/?action=rain https://photofunia.com/categories/all_effects/raining Any other such software		

IX.   Precautions
1. All images must be saved with appropriate extensions (.jpg, .png, .bmp, .gif).

X.   Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI.   Result (Output of the Program)

………………………………………………………………………………………………
…...………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………

XII.   Conclusion(s)

…………………………………………………………………………………….……
………………………………………………………………………………………..……
………………………………………………………………………………………..…
…………………………………………………………………….......................

XIII.   Practical Related Questions
Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.
(Note: Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)
   a.   What is the difference between Rainy Season effect and Water Droplet effect?
   b.   How to change direction of rain effects and intensity?
   c.   What are the different types of rain effect available?

(Space for answers)

………………………………………………………………………………...……
………………………………………………………………………………………
………………………………………………………………………………...………
………………………………………………………………………………………
…………………………………………………………………………...…………
………………………………………………………………………………………
…………………………………………………………………...………………
………………………………………………………………………………………
………………………………………………………………..…………………
………………………………………………………………………………………
………………………………………………………………..………………………
………………………………………………………………………………………
………………………………………………………………...………………………
………………………………………………………………………………………
……………………………………………………...…...……………………………
………………………………………………………………………………………

XIV   Exercise
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Visit following URL and perform following tasks.
    URL: https://photofunia.com/categories/all_effects/raining
    Task:
    a. Import any image.
    b. Choose any frame.
    c. Apply "Raining Effect"
    d. Download Regular size of image.
    e. Save Logo.
    f. Note down the changes in image w.r.t size, type.

2. Visit following URL and perform following tasks.
    URL: https://photofunia.com/categories/all_effects/raining
    Task:
    a. Import any image available on your computer system.
    b. Select "Water Droplet Effect" under "Animation" Menu.
    c. Download / Save image.
    d. Note down the changes in image.

3. Visit following URL and perform following tasks.
    URL: http://www.online-image-editor.com/
    Task:
    a. Select / Import Image on which effects are to be done.
    b. Select "Rain Effect" from available tab.
    c. Adjust Intensity to "Sprinkle" , Length to "Long", Visibility to "Strong" and width to "Thick".
    d. Adjust "Rotate Overlay" as per your requirement.
    e. Apply aforementioned effects and save image.
    f. Note down changes.

(Space for answers)

……………………………………………………………………………………....….

……………………………………………………………………………………………

…………………………………………………………………………………....………

……………………………………………………………………………………………

…………………………………………………………………………………...…………

……………………………………………………………………………………………

…………………………………………………………………………...…………………

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

XV References / Suggestions for further Reading
1.http://www.online-image-editor.com/
2.https://photofunia.com/categories/all_effects/raining

XVI Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
1. …………………………………..
2. …………………………………..
3. …………………………………..
4. …………………………………

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 15: Apply Effects to Design Stylish Image

I. **Practical Significance**

As we have seen in earlier practical that image are essential to draw attention of customer to the content of Multimedia. It is almost inevitable to overlook stylish images. In most of the case image are not readily available to use as they are. We can add certain effects to make existing image(s) stylish enough by adding certain text, frames and background color. Most of the graphics processing tools provide readymade templates which can be useful to make the existing image not only stylish but professional as well. This experiment allow learner to explore various graphics processing tools to generate stylish image.

II. **Relevant Program Outcomes (POs)**
- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the result to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III. **Competency and Practical skills**

This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Graphical Tools / online tools.
2. Check specification for multimedia application.
3. Select appropriate image / segment of image for applying effect.
4. Apply required effects for image by adjusting required values.
5. Verify the results and Save resultant image in appropriate image format.

IV. **Relevant Course Outcome(s)**
   a) Edit image using Graphical Processing tool.

V. **Practical Outcome (POs)**
   a) Design a stylish image using 2D image processing software.

VI. **Relevant Affective domain related Outcome(s)**
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self.

VII.   Minimum Theoretical Background
Image Effects: –
Stylish Images are heart of any multimedia object. Often Multimedia writer gives necessary emphasis on making their content attractive and stylish enough. This will help them to fascinate user towards your content. There are many graphical processing tools available which let Multimedia Content Developer to develop stylish images. These images can be saved as per the requirement of user. Some tools also provide facility of making new image from scratch or by adding existing image. The content developer can choose from available templates and ensure that appropriate image can be generated.

Procedure:
1.   Select appropriate Graphical Image processing tool / Web base tool.
2.   Select required image / Section of image to apply effects.
3.   Select "Appropriate Template" from available templates and adjust required values/properties. Import required image. (If necessary)
4.   Add necessary text, apply formatting and styles on text.
5.   Add necessary Clip arts /shapes. (If require)
6.   Select background as per Theme, Save Image at specified location

VIII.   Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	b) https://www.fotojet.com/apps/?entry=design c) https://www.fotor.com/app.html#/design d) Any other such software		

IX.   Precautions
1.   All images must be saved with appropriate extensions (.jpg, .png, .bmp, .gif).

X.   Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. Result (Output of the Program)

…………………………………………………………………………………………………...

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

XII. Conclusion(s)

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

……………………………………………………………………………….........................

XIII. Practical Related Questions

Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(**Note:** Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)

 a. What is necessity of having Stylish images?
 b. Give any 4 applications where stylish images can be added
 c. What are various options available with graphics processing tools you are using to generate stylish images?

(Space for answers)

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

…………………………………………………………………………............................………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

…………………………………………………………………………............................………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

…………………………………………………………............................……………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

XIV. Exercise
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(**Note:** Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Visit following URL and perform following tasks.
   URL: https://www.fotojet.com/apps/?entry=design
   Task:
   a. Choose required Template
   b. Add any image.
   c. Write you name by adding text box and format it as per template.
   d. Add Clip art if necessary.
   e. Change background as per requirement.
   f. Save image.

2. Visit following URL and perform following tasks.
   URL: https://www.fotor.com/app.html#/design
   Task:
   a. Select Dimension as per your object.
   b. Select any template from available templates under "Template" Menu.
   c. Add necessary stickers (If require).
   d. Add necessary notes / text.
   e. Change background as per your requirements
   f. Save Image on Desktop.

3. Open MS- Paint.
   a. Create new canvas.
   b. Import any image of your choice.
   c. Add basic shapes available.
   d. Give appropriate background color.
   e. Write your name in stylish text.
   f. Save Image on C: Drive.

(Space for answers)

……
……
……
……
……
……
……
……
……
……
……

XV   References / Suggestions for further Reading
    1.https://www.fotojet.com/apps/?entry=design
    2.https://www.fotor.com/app.html#/design

XVI   Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
    1.   …………………………………..
    2.   …………………………………..
    3.   …………………………………..
    4.   …………………………………

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 16: Wallpaper with Waterdrop Effects.

I.   Practical Significance

2D animation / graphical processing tools support various effects on existing image / object. The developer can make use of any such effect to make their content more attractive and close to the theme of 2D Multimedia object. Waterdrop effect is one such effect which is applied on images. The waterdrop effect ensures that the resultant file is repainted if some waterdrops are exists on the frame. The waterdrop layer is achieved by adding a transparent image of having waterdrops such image will be added at the top layer of image on which waterdrop layer is to be apply. In this practical student will learn to use web based tools to apply waterdrop effects on image and use resultant file in their animations.

II.   Relevant Program Outcomes (POs)

* **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
* **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
* **Experiments and practice:** Plan to perform experiments and practices to use the result to solve broad-based Electronics related problems.
* **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
* **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
* **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III.   Competency and Practical skills

This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.

1. Select related Graphical Tools / online tools.
2. Check specification for multimedia application.
3. Select appropriate image / segment of image for applying effect.
4. Apply required effects for image by adjusting required values.
5. Verify the results and Save resultant image in appropriate image format.

IV.   Relevant Course Outcome(s)

a) Edit image using Graphical Processing tool.

V.   Practical Outcome (POs)

a) Design a wallpaper showing water drop effect in image.

VI.   Relevant Affective domain related Outcome(s)

1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.

VII. **Minimum Theoretical Background**
Effects on Image: -
Waterdrop effect is one which gives an illusion of having waterdrops on the face of image. This effect is very much popular in social media. To create such effect one shall need to able to work on layers. To begin with a multimedia developer needs to open an image in background layer. Then import a transparent image on the tool. By adding this transparent image on the foreground layer of the object we can adjust the alignment and portion where effect needs to be applied. Once all necessary properties are modified the content developer can save the object in necessary format. This file is then can be use as per the requirement of Multimedia Content Developer.

Procedure:
1. Select appropriate Image processing tool / Web base tool.
2. Select required image to apply effects.
3. Select "Appropriate Template" from available templates and adjust required values/properties.
4. Generate resultant image for water drop effect.
5. Save Image at specified location

VIII. **Resources required**

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experime nts
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	https://www298.lunapic.com/editor/?action=rain http://funny.pho.to/rain-drops-effect/ Any other such software.		

IX. **Precautions**
1. All images must be saved with appropriate extensions (.jpg, .png, .bmp, .gif).

X. **Resources used**

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI.   Result (Output of the Program)

……………………………………………………………………………………………………..

……………………………………………………………………………………………..…

………………………………………………………………………………………………

………………………………………………………………………………………………

XII.   Conclusion(s)

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………...

XIII.   Practical Related Questions

Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(**Note:** Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)

   a.   Describe generalize process to apply waterdrop effect on image.
   b.   Write a stepwise procedure to generate an image with waterdrop effect in any graphical processing tool.

(Space for answers)

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………................……

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………................……

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………................……

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………................……

……………………………………………………………………………………………

……………………………………………………………………………………………

XIV. Exercise
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(**Note:** Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Visit following URL and perform following tasks.
   URL: http://funny.pho.to/rain-drops-effect/
   Task:
   a. Choose required Template
   b. Add any image.
   c. Add Clip art if necessary.
   d. Change background as per requirement.
   e. Save image.

2. Visit following URL and perform following tasks.
   URL: http://watereffect.net/
   Task:
   a. Import any image.
   b. Add waterdrop effect on image.
   c. Save Image on Desktop.
   d. Compare result with result of activity no 1.

3. Visit following URL and perform following tasks
   URL: https://www298.lunapic.com/editor/?action=droplets.
   Task:
   a. Import any image of your choice.
   b. Choose "Water Droplet Effect" option from "Animation" menu.
   c. Save Image on C: Drive.
   d. Chose "Reflecting Water Effect" Option from "Animation" Menu
   e. Save Image at same location.
   f. Comment on the difference of output of both images.

(Space for answers)

....
....
....
....
....
....
....
....
....
....
....

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

XV   References / Suggestions for further Reading
　　　1.http://funny.pho.to/rain-drops-effect/
　　　2.http://watereffect.net/

XVI   Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks))		**100%**

List of Students /Team Members
1. ………………………………..
2. ………………………………..
3. ………………………………..
4. …………………………………

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No 17: Apply Effects on Text to Design Poster

I. Practical Significance

Posters are becoming an automated choice for most of the Multimedia Content Developer. Due to their properties like size and ability to contain various object at one position Multimedia Content Developer are inclining towards using poster in their Multimedia Object. The Posters are varied in dimension and can contain text as well as images on same platform. This is another effort towards ensuring users attention towards your content. One can make a poster as per their requirement and can use image as well as text in it to convey message is both textual format and graphical format as well. This practical will let student to develop own poster and add certain textual effects.

II. Relevant Program Outcomes (POs)

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the result to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III. Competency and Practical skills

This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.

1. Select related Graphical Tools / online tools.
2. Check specification for multimedia application.
3. Select appropriate size of poster for applying effect.
4. Apply required texts and add effects for text by adjusting required values.
5. Verify the results and Save resultant image in appropriate image format.

IV. Relevant Course Outcome(s)

a) Edit image using Graphical Processing tool.

V. Practical Outcome (POs)

a) Design poster by using different Text effect (Ketchup, rope, Fire, fruit).

VI. Relevant Affective domain related Outcome(s)

1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self

VII.   Minimum Theoretical Background
Text Effects: -
Posters are nowadays becoming a trend for most of the Multimedia object as well as Multimedia website. Poster allows user to integrate various component to depict it as a single unit. The visitor can easily get attracted towards Poster. The poster with good textual effect appeals a lot to the user. The Content developer can add multiple effects on text as per the need poster. There are few effects like ketchup, fire, rope and fruit can be used on text so that structure of text can be maintain to match Multimedia object theme.

Procedure:
1. Select appropriate Image processing tool / Web base tool.
2. Select required Dimension of poster to apply effects.
3. Select "Appropriate Template" from available templates and adjust required values/properties.
4. Import required image. (If necessary)
5. Add necessary texts; apply styles/effect on text.
6. Select background as per Theme
7. Save Poster at specified location

VIII.   Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating System	Windows 7/LINUX version 5.0 or later		
3	Software	b) http://flamingtext.com/Fire-Logos c) https://www.postermywall.com/ d) Any other such software		

IX.   Precautions
1. All images must be saved with appropriate extensions (.jpg, .png, .bmp, .gif).

X.   Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. Result (Output of the Program)

………………………………………………………………………………………………...

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

XII. Conclusion(s)

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………....................

XIII. Practical Related Questions

Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(**Note:** Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)

   a.   What are the standard dimensions of posters?
   b.   Give any 4 applications where posters can be added
   c.   Can we add audio to Poster? Write procedure for same.

(Space for answers)

………………………………………………………………………………..……………

………………………………………………………………………………..……………

………………………………………………………………………………..……………

………………………………………………………………....................................

……....…………………………………………………………………………………

………………………………………………………………………………………

………………………………………………………………………………………

……………………………………………………………………....................

……...…………………………………………………………………..…………

………………………………………………………………………………………

………………………………………………………………………………..…

………………………………………………………………………....................

……................………………………………………………………………………

………………………………………………………………………………………

………………………………………………………………………..…...............

………………………………………………………………………………………

XIV. Exercise
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(**Note:** Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Visit following URL and perform following tasks.
   URL: http://flamingtext.com/Fire-Logos
   Task:
   a. Add your name
   b. Select Logo as per requirement.
   c. Save Logo at specified location.

2. Visit following URL and perform following tasks.
   URL: https://www.postermywall.com/
   Task:
   a. Select "Create new Design".
   b. Add new canvas.
   c. Pick Design Type from available Dimensions.
   d. Finalize the poster.
   e. Select "Add Fancy Text" Option from "Text" Menu.
   f. Change background as per your requirements
   g. Save Image on Desktop.

(Space for answers)

……………………………………………………………………………………………………
……………………………………………………………………………………………………
………………………………………………………………………………………...........................
……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
………………………………………………………………………………..
……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
…………………………………………………………………………………......................................
……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………

XV   References / Suggestions for further Reading
    1.https://www.postermywall.com/
    2.http://flamingtext.com/Fire-Logos

XVI.   Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
    1. ………………………………..
    2. ………………………………..
    3. ………………………………..
    4. ………………………………..

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No 18: Apply Special Effects on Image

I.   Practical Significance
Images are great source of providing information to the users. The Content Developer needs to give certain effects on image to give special effects. Most of the graphics processing tools are equipped with special effects like Broken mirror effect and Flaming Ball Effect. The broken mirror effect gives an illusion that image is drawn on glass and it containing glass is broken in various pieces and shapes. Yet the image's actual face remains intact. The flaming ball effect provides the facility to demonstrate a ball / circular object with flames in different shapes.

II.   Relevant Program Outcomes (POs)

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the result to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III.   Competency and Practical skills
This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Graphical Tools / online tools.
2. Check specification for multimedia application.
3. Select appropriate shape/texture for applying effect.
4. Import required image for applying effect.
5. Apply required texts and add effects for text by adjusting required values.
6. Verify the results and Save resultant image in appropriate image format.

IV.   Relevant Course Outcome(s)
- Edit image using Graphical Processing tool.

V.   Practical Outcome (POs)
a) Apply special effects like broken mirror effect, flaming ball effects to an image.

VI.   Relevant Affective domain related Outcome(s)
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.

4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self.

VII.   Minimum Theoretical Background
Special effects on Image:-

Special effects allow images to have some additional effects other than conventional one. These effects will let the Multimedia Content become more observant towards the end user. The broken mirror image breaks the images in small pieces which gives impression of image being divided into small sections. The Flaming ball effect will make a circular shape for object and gives an impression for surrounding of flames at specific duration.

Procedure:
1. Select appropriate Image processing tool / Web base tool.
2. Select required image for applying effect.
3. Select "Appropriate Template" from available templates and adjust required values/properties.
4. Adjust dimensions as per requirement.
5. Apply effects and save the image.
6. Verify result as per the specification

VIII.   Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	https://insertface.com/frame/29317/photo-effecthttps://www.shutterstock.com/search/flame+ball Any other such software		

IX.   Precautions
1. All images must be saved with appropriate extensions (.jpg, .png, .bmp, .gif).

X.   Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. Result (Output of the Program)

……………………………………………………………………………………………...

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

XII. Conclusion(s)

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

……………………………………………………………….....................................

XIII. Practical Related Questions

Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(Note: Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)

    a. What are different templates available for broken mirror image effect?
    b. What are different templates available for flaming ball effect?
    c. What are other effects that can be added with broken mirror image effect?

(Space for answers)

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

…………………………………………………………………….......................................

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

…………………………………………………………………….......................................

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

…………………………………………………………………….......................................

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

…………………………………………………………………….......................................

………………………………………………………………………………………………

………………………………………………………………………………………………

XIV. **Exercise**
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(**Note:** Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Visit following URL and perform following tasks.
   URL: https://insertface.com/frame/29317/photo-effect
   Task:
   a. Add require image.
   b. Select image on which effects need to be apply.
   c. Insert selected image.
   d. Adjust size and dimension of image.
   e. Download image.

2. Visit following URL and perform following tasks.
   URL: http://funny.pho.to/broken-glass-effect/
   Task:
   a. Upload required image.
   b. Apply required effects.
   c. Save image.

3. Visit following URL and perform following tasks.
   URL: https://www.shutterstock.com/search/flame+ball
   Task:
   a. Select any template from available templates
   b. Open selected template in Editor
   c. Select any Preset Size.
   d. Add your name with the help of text.
   e. Download Image.

(Space for answers)

……
……
……
………………………………………………………………………………...............................…………
……
……
……
……
………………………………………………………………...............................…………………………
……
……
……
……

XV References / Suggestions for further Reading
    1.http://funny.pho.to/broken-glass-effect/
    2.https://www.shutterstock.com/search/flame+ball

XVI Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
1. ………………………………..
2. ………………………………..
3. ………………………………..
4. …………………………………

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 19: Image Formats and Its Conversions

I.   Practical Significance

Image is a very essential object in any multimedia system. It is often seen that based on the size of image file, loading time of multimedia application can affect. While using an image in multimedia system, choosing appropriate image file type is essential. At times a developer needs to convert available/existing file type in required file type.

II.   Relevant Program Outcomes (POs)

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the results to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III.   Competency and Practical skills

This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Graphical Tools.
2. Describe different image formats and their properties.
3. Convert specified image from one format to another format.
4. Check output and verify various properties/parameters of selected image.

IV.   Relevant Course Outcome(s)
- Edit images using graphical processing tools.

V.   Practical Outcome (POs)
   a) Convert given image into different image formats.

VI.   Relevant Affective domain related Outcome(s)
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self.

VII.   Minimum Theoretical Background
   Image types:
   Images are very import object of any multimedia file. There are several types of images are used in multimedia system. Based on the format image representation changes and that will affect compression methodology of image too. Image can be compressed using Lossy and Lossless technique.
   There are some popular image formats that are commonly used as multimedia object:
   * Bitmap (BMP) Format
   * Graphics Interchange Format (GIF)
   * Joint Photographic Experts Group (JPEG / JPG)
   * Portable Network Graphics (PNG)
   * Tagged Image File Format (TIFF)

   Procedure:
   1. Determine existing file extension for specified image object.
   2. Import given image in appropriate Graphical Processing tool.
   3. Check the required format of output.
   4. Export image in specified image format and save it at given location.
   5. Point out changes in Image quality and Image size.

VIII.   Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	Open Office Draw (Paint), Pencil 2D, Any other such software		

IX.   Precautions
   1. All images must be saved with appropriate extensions (.jpg, .png, .bmp, .gif).

X.   Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. Result (Output of the Program)

……………………………………………………………………………………………....

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

XII. Conclusion(s)

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

…………………………………………………………………….................................

XIII. Practical Related Questions

Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(**Note:** Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)

1. Search sample .jpg image(s) available in computer and Convert it in .png format. Point out major changes in image(s).
2. Download image from following URL and convert it into .bmp format.
3. http://pragyanam.weebly.com/uploads/4/2/5/9/42592027/4182251.jpg
4. Convert the resultant image of second activity into .gif format.

(Space for answers)

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………….................................

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………….................................

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………….................................

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

XIV. **Exercise**
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(**Note:** Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Resize any image from your computer to 800 X 600 image size. Save the result and point out differences in properties. (**Hint : - Use following link)
2. https://www298.lunapic.com/editor/?action=resize
3. Rewrite short not on Lossy and Lossless compression Techniques.

(Space for answers)

………………………………………………………………….....................................
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
…………………………………………………………………….......................................
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………….......................................
………………………………………………………………………………..……………
……………………………………………………………………………………………
…………………………………………………………………………………………….
…………………………………………………………………………………..…………
……………………………………………………………………….......................................
…....……………………………………………………………………..……………………
……………………………………………………………………………………………
…………………………………………………………………………………….…………
………………………………………………………………………………………….....
…………………………………………………………………………………………….
…...………………………………………………
………………………………………………………………………………………….……
…………………………………………………………………………………………......
…...……………………………………………

XV   References / Suggestions for further Reading

1.http://socialcompare.com/en/comparison/image-file-formats

2.https://www298.lunapic.com/editor/?action=resize

XVI   Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members

1. …………………………………..

2. …………………………………..

3. …………………………………..

4. …………………………………

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 20: Embed Image into a Web Page

I.   Practical Significance

Web site is a collection of distinct web pages. Each web page has its distinct existence. These web pages contain all type of information starting from text to videos animation etc. Images are integral part of any web base system. To design attractive Multimedia based website one must choose appropriate image(s). Images plays vital role in sustaining user and their interest towards our website. The web page can hold almost all types of image format. In this practical student will learn how to integrate images to a Multimedia based Web page.

II.   Relevant Program Outcomes (POs)

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the results to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III.   Competency and Practical skills

This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Tools for Building Website.
2. Identify Images to be embedded on web page.
3. Specify IMG tag and URL of image.
4. Specify height and width of images.
5. Check output and verify various properties/parameters of selected image.

IV.   Relevant Course Outcome(s)
   a) Build website with multimedia contents.

V.   Practical Outcome (POs)
   a) Insert image or picture into webpage using any professional HTML editor.

VI.   Relevant Affective domain related Outcome(s)
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self.

VII. **Minimum Theoretical Background**
Designing web page:-
Web pages are collection of text as well as other Multimedia object. Having a good website needs good choice of image. While adding text is one of the first steps in creating and customizing your website design, adding images is what brings your website to life. There are a few ways to add images to your web pages: individual image element, slideshow, image slider, image gallery and background images. Look at any web page online today and you will notice that they share certain things in common. One of those shared traits is images. The right images add so much to a website's presentation. Some of those images, like a company's logo, help brand the site and connect that digital entity to your physical company.

Procedure:
1. Determine Web page which will have images.
2. Determine number of image and way displaying image.
3. Check the required format of output.
4. Embed image in specified image format and save web page at given location.
5. Open file in web browser.

VIII. **Resources required**

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	Notepad, Notepad++, any other such software		

IX. **Precautions**
1. All files must be saved with appropriate extensions (.htm, .html).

X. **Resources used**

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. Result (Output of the Program)

………………………………………………………………………………………....

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

XII. Conclusion(s)

…………………………………………………………………………………

…………………………………………………………………………………

…………………………………………………………………………………

……………………………………………………………...................................

XIII. Practical Related Questions

Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(Note: Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)

1. What are different types of images can be added in Web page.
2. Which tag is used to add image on web page? Describe its options.
3. Give the significance of ALT option in <IMG> tag.

(Space for answers)

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………...................……

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………….................……

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………...........................

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………...............................

…………………………………………………………………………………………

XIV. **Exercise**
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(**Note:** Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Create a new file in notepad add <html>, <head><body> tag, Add <img> tag. Mention url of image to be added insrc option. Save file as .html / htm extension
2. Open following URL and perform following task
   URL :https://www.w3schools.com/html/html_images.asp
   a. Change Source image.
   b. Adjust height and width
   c. Run the program check result.
3. Open following URL and perform given task
   URL :https://www.onlinehtmleditor.net/
   a. Click on IMG Tab.
   b. Specify path following path in source
          http://bit.do/AMT21
   c. Give Caption as "INDIA"
   d. See the result.

(Space for answers)

………………………………..…………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

…………………………………………………………………………......………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………......…………………

..…………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………......…………………………………

...………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………......…………………………

.....………………………………………………………………………………………………………

………………………………………………………………………………………………………

…………………………………………………………………………………………………..

XV   References / Suggestions for further Reading
    1.https://www.w3schools.com/html/html_images.asp
    2.https://www.onlinehtmleditor.net/

XVI   Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
    1.   …………………………………..
    2.   …………………………………..
    3.   …………………………………..
    4.   …………………………………

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 21: Embed Animation with Audio into a Web Page

I.   Practical Significance

Most of the multimedia website contains animated videos as well as audio. Such websites are interactive and ensure high customer retentions. These multimedia objects are used in communicating website like learning website. It is highly recommended that before using such multimedia object the content developer needs to work on size of website. As these objects are heavy enough makes website also heavy. Such heavy website takes extra time and bandwidth to load at customer site as well. In this practical Students will learn to make a webpage with animation and audio.

II.   Relevant Program Outcomes (POs)

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the results to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III.   Competency and Practical skills

This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Tools for Building Website.
2. Identify content to be embedded on web page.
3. Specify Video tag and URL of video.
4. Specify height and width of video.
5. Check output and verify various properties/parameters of selected video.

IV.   Relevant Course Outcome(s)
a) Build website with multimedia contents.

V.   Practical Outcome (POs)
a) Develop a webpage which show animation with sound effect using any professional HTML editor.

VI.   Relevant Affective domain related Outcome(s)
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.

4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self.

VII. Minimum Theoretical Background
Multimedia Web page and Web Site
Web pages can contain videos, animation as a Multimedia object. Most of the interactive websites contains a web page with animation to educate its visitors. Such contains are very much useful to maximize number of customers on a website. Adding a multimedia content on web page one can use specific tags. The videos can be expensive as it can occupy big space on screen as well as takes lots of bandwidth too. To add animation and videos on web page we need to identify content for page and choose suitable contents.

Procedure:
1. Determine Web page which will have Video.
2. Determine size of video and other properties of videos.
3. Check the required format of output.
4. Embed video in specified video format and save web page at given location.
5. Open file in web browser.

VIII. Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	Notepad, Notepad++, Any other such software		

IX. Precautions
1. All files must be saved with appropriate extensions (.htm, .html).

X. Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. Result (Output of the Program)

……………………………………………………………………………………………………...

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

XII. Conclusion(s)

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………......................

XIII. Practical Related Questions

Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(Note: Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)

1. What are different format can be added in Web page.
2. Which tag is used to add video on web page? Describe its options.
3. Give the significance of <PARAM> tag and <OBJECT> tag.

(Space for answers)

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

XIV. Exercise
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Create a new file in notepad add <html>, <head><body> tag, Add <video> tag. Mention url of video to be added insrc option. Save file as .html / htm extension
2. Download any animation from youtube and embed it on web page using object tag and param tag.

(Space for answers)

………………………………………………………………………………......................................

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

……

XV References / Suggestions for further Reading
 1.https://www.w3schools.com/html/html_images.asp
 2.https://www.onlinehtmleditor.net/

XVI Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
 1. …………………………………..
 2. …………………………………..
 3. …………………………………..
 4. …………………………………..

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 22: Embed Video into a Web Page

I.   Practical Significance

Putting multimedia into pages is something you may already have tried to do. It was not covered in the beginners section the wrong way is to use EMBED and the right way is to use OBJECT. Links to multimedia, plug-ins, OBJECT, EMBED and HTML5. There are three main ways to make multimedia (video, sound, animation, applets etc.) available to users:

1. link to it
2. ask the browser to launch a plug-in to show the multimedia in the page itself
3. ask the browser to show the multimedia itself (HTML5)

The browser will launch whatever application it uses to open Quicktime files and that application will show the video. This will work as long as an application exists on the users system.

II.   Relevant Program Outcomes (POs)

*   **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
*   **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
*   **Experiments and practice:** Plan to perform experiments and practices to use the results to solve broad-based Electronics related problems.
*   **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
*   **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
*   **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III.   Competency and Practical skills
This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Tools for Building Website.
2. Identify content to be embedded on web page.
3. Specify Video tag and URL of video.
4. Specify height and width of video.
5. Check output and verify various properties/parameters of selected video.

IV.   Relevant Course Outcome(s)
a) Build website with multimedia contents.

V.   Practical Outcome (POs)
a) Develop a webpage by Embedding video.

VI.   Relevant Affective domain related Outcome(s)

     1.   Follow ethical practices.

     2.   Demonstrate working as a leader / a team member.

     3.   Practice good housekeeping.

     4.   Participate in team problem solving activities.

     5.   Prioritizes time effectively to meet the needs of the team and self

VII.   Minimum Theoretical Background

EMBED, OBJECT and APPLET: -

These all create a sort of window within the Web page. In the window the plug-in program shows the desired content. This will only work if the plug-in exists but if not you can link to a download location so the user can install it.

HTML5 VIDEO and SOUND: -

In a response to the problem of handling different types of multimedia the W3C are trying to agree standards for video and sound in Web pages. If successful all new browsers will have to support those standards and so video or sound can be included in a Web page with a single element with guaranteed results.

There is currently an EMBED element in the draft HTML5 specification which will be used for any media not supported by the browser but OBJECT allows for the page author to control what happens if the plug-in is not available.

Procedure:

     1.   Determine Web page which will have Video.

     2.   Determine size of video and other properties of videos.

     3.   Check the required format of output.

     4.   Embed video in specified video format and save web page at given location.

     5.   Open file in web browser.

VIII.   Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	Notepad, Notepad++, Any other such software		

IX.   Precautions

     1.   All files must be saved with appropriate extensions (.htm, .html).

X.   Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. Result (Output of the Program)

………………………………………………………………………………………………..

………………………………………………………………………………………………..

…………………………………………………………………………………………………

…………………………………………………………………………………………………

XII.   Conclusion(s)

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………….....................................

XIII.   Practical Related Questions

Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(Note: Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)

    1.   What are different format of videos can be added in Web page.

    2.   Describe controls properties in video tag.

(Space for answers)

…………………………………………………………………………………………………

…………………………………………………………………………………………………

……………………………………………………………………….....................................

.......…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

……………………………………………………………………………………………….....

.......…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………..…………………………

………………………………………………………………………………………………

XIV.   Exercise
         Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
         (Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Create a new file in notepad add <html>, <head><body> tag, Add <video> tag. Mention url of video to be added in src option. Save file as .html / htm extension
2. Download any video from youtube and embed it on web page using object tag and param tag.

(Space for answers)

……
……
    ……………………………………………………………………………….......................
...……………………………………………………………………………………………………
……
    ……………………………………………………………………………….......................
.......………………………………………………………………………………………………………
……
    …………………………………………………….…………………………….......................
    ....………………………………………………………………………………………………
……
    ……………………………………………………………………………….......................
    ....………………………………………………………………………………………………
……
    ……………………………………………………………………………….......................
    ....………………………………………………………………………………………………
……
    …………………………………………………………………………….......................
    ....………………………………………………………………………………………
…………………………………………………………………………………………………
    ………………………………………………………………………………….........
        ....………………………………………………………………………………
…………………………………………………………………………………………
…………………………………………………………………………………………
…………………………………………………………………………………………
    …………………………………………………………………………………………

XV   References / Suggestions for further Reading
1. https://www.w3schools.com/html/html_images.asp
2. https://www.onlinehtmleditor.net/

XVI   Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
1. ………………………………..
2. ………………………………..
3. ………………………………..
4. ……………………………….

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 23 & 24: Tweening and Symbols in 2D Animation

I. Practical Significance

A motion tween animates symbols moving in space; when one creates a motion tween, then they can click on any frame in the tween, move the symbol on that frame, and watch Flash automatically build a motion path animating the frames between that frame and the next key-frame. Any frame where manually moved the tweened symbol becomes a key-frame.

Shape tweens, on the other hand, perform distortions on non-symbol shapes/vector graphics. If developer creates one shape on one key-frame and another shape on another key-frame, they can connect those two shapes with a shape tween. The tween will perform whatever calculations and morphs needed to transform the first shape into the second. A classic tween works the way old motion tweens used to, in versions CS3 and earlier. In this kind of motion tween, developer has to manually create all key-frames and connect all of them with motion tweens that followed point A to point B. So basically, a shape tween is a transformation tween, while a motion tween/classic tween affects position and rotation.

II. Relevant Program Outcomes (POs)

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the results to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III. Competency and Practical skills

This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Tools for tweening effect.
2. Prepare Background for Motion and generate Key-frames and Symbols.
3. Perform Tweening operation.
4. Check output and verify various properties/parameters of selected animation.

IV. Relevant Course Outcome(s)
   a) Develop 2D animation object.

V.   Practical Outcome (POs)
a) Develop a 2D animation using Shape Twinning, Motion Twinning and Generate Symbols.

VI.   Relevant Affective domain related Outcome(s)
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self.

VII.   Minimum Theoretical Background
2D Animation Basics:-

Motion tweens area accustomed to produce animation movements among Animate. Motion tween associate animation is made by specifying totally different values for an object property between the primary and also the last frames. The object properties vary from position, size, color, effects, filters, and rotation. After you produce a motion tween, you choose any frame the tween and move the motion image thereon frame. in contrast to Classic and form tweens, Animate mechanically builds a motion path enlivening the frames between the primary frame and also the next key-frame. In shape tweening, you draw a vector shape at one specific frame the Timeline and amendment that shape or draw another shape at another specific frame. Animate then interpolates the intermediate shapes for the frames in between, making the animation of shape morphed into another. Animate permits you to feature shape tweens to uniform solid strokes and non-uniform fancy strokes. One will additionally add shape tweens to strokes increased mistreatment the variable dimension tool. Experiment with the shapes you wish to use to see the results. One can use shape hints to inform Animate that points on the start shape correspond to specific points on the top form.

Procedure:
1. Open File.
2. Define background on specific layer.
3. Import an Object for motion and Shape tweening.
4. Add require number of key frame.
5. Make necessary changes at timeline.
6. Convert required object to necessary Symbols.
7. Create Motion Tween and Shape tween as per requirement.
8. Play animation. Check resultant animation and verify with expected outcome.

VIII.   Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	Pencil 2D, Macromedia Flash (Trial Version), Any other such software		

IX.   Precautions
1. All animations must be saved with appropriate extensions (.swf, .fla).

X.   Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. Result (Output of the Program)

………………………………………………………………………………………………....

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

XII.   Conclusion(s)

…………………………………………………………………………………………………

…………………………………………………………………………………………………

……………………………………………………………….…………………………………

…………………………………………………………………………………….................

XIII.   Practical Related Questions
Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.
(**Note:** Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)
1. Differentiate between Motion tween and Shape Tween. (Any 2 Points)
2. List different types of symbols used in animation. List their uses.
3. Describe Classic Tween. How it is different from Motion tween and Shape tween.

(Space for answers)

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

....
....
....

XIV. **Exercise**
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Create a sample 2D animation to demonstrate use of Motion and Shape tweening. Refer Following URL (http://bit.do/AMT-PRA24-1)
2. Create a sample 2D animation to demonstrate use of Motion and Shape tweening. Sample animation URL (http://bit.do/AMT-PRA24-2).

(Space for answers)

....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....

XV   References/ Suggestions for further Reading

1. https://helpx.adobe.com/animate/using/about-motion-tween-animations.html
2. https://helpx.adobe.com/animate/using/shape-tweening.html

XVI.   Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members

1. ………………………………..
2. ………………………………..
3. ………………………………..
4. ………………………………

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 25: Motion Guide Layer and Masking in 2D Animation

I.   Practical Significance

Guide layers are pretty useful, but motion guide layers are much more exciting. A Motion guide layer is actually a regular guide layer that happens to have an adjacent layer said to guide. The exciting part in a motion tween is the guided layer will follow any path drawn in the motion guide layer. That means one can draw an S-shape line in a motion guide, and then the guided layer can include a motion tween that follows the shape. Similar to the regular guide layer a motion guide layer will be invisible to the user. The thing to remember with the motion guide layer is that two layers are involved: The motion guide layer and the guide layer.

While guide layers are useful and motion guide layers are exciting, mask layers are both!, Masking is really different feature entirely. Mask layer is similar to guide and motion guides only in that it's a layer property, and you need at least two layers: one for the mask layer and one for the masked layer (similar to guide and guided).

II.   Relevant Program Outcomes (POs)

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the results to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III.   Competency and Practical skills

This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Identify the object for motion guide.
2. Design path for motion guide.
3. Apply required transitions on objects to follow Motion guide.
4. Test Animation

IV.   Relevant Course Outcome(s)

a) Develop 2D animation object.

V.   Practical Outcome (POs)

a) Create 2D Animation using Motion guide layer and Masking.

VI.   Relevant Affective domain related Outcome(s)

1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self

VII.   Minimum Theoretical Background
2D Animation Basics:-

Motion Guide is nothing but moving your symbol in a predefined path such as curves or circles. Many interesting effects can be created using masks together with motion tweens. This is a great way to get an animated mask. Some users want the tweened mask to follow a motion guide. But since a layer can't be both a mask layer and a guide layer, this is not possible using a single SWF. However, this effect can be achieved using two Flash movies. In one movie, a motion tween is created that follows a guide layer. This movie is then exported as an SWF and imported into the second movie. In the second movie, the layer that contains the imported SWF is set to be a mask layer. Finally, the object to be masked is placed in a masked layer under the imported tween.

The graphical contents of the mask layer determine each part of the masked layer will show through. It's as if you are drawing the holes that see through the mask layer. The basic orientation of the mask and masked layer is similar to the motion guide/ guided layer arrangement.

Procedure:

1. Open new Project.
2. Add object for motion guide layer.
3. Make object as a group. Add Motion Guide layer from available tools/ menu.
4. Draw require path for Motion guide on Guide Layer.
5. Select any arbitrary frame in Time line and mark them as keyframe.
6. Drag object to the end of path.
7. Select any arbitrary frame within timeline and create motion tween
8. Play animation. Check resultant animation and verify with expected outcome.

VIII.   Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	Macromedia Flash, Any other such software		

IX.   Precautions
   1. All images must be saved with appropriate extensions (.swf, .flv).

X.   Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. Result (Output of the Program)
   …………………………………………………………………………………………………...
   …………………………………………………………………………………………………
   …………………………………………………………………………………………………
   …………………………………………………………………………..………………………

XII.   Conclusion(s)
   …………………………………………………………………………………………………
   …………………………………………………………………………………………………
   …………………………………………………………………………………………………
   …………………………………………………………………………………......................

XIII.   Practical Related Questions
   Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.
   (Note: Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)
   1. List advantages of motion guide layer.
   2. Enlist stepwise procedure to add guide layer and masking layer.
   3. What is Organizational Guides? How to use a Guide layer for organizational purposes?

   (Space for answers)
   …………………………………………………………………………………………………
   …………………………………………………………………………………………………
   …………………………………………………………………………………………………
   …………………………………………………………………………..……………………
   …………………………………………………………………………………………………
   …………………………………………………………………………………………………
   …………………………………………………………………………………………………

……
……
……

XIV. Exercise
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed. ****_Links are case sensitive_**)

1. Create a Mask that contains filled window shapes, and in the masked layer place large image of the sky and some clouds. Motion tween the image to create the effect that the sky is passing by the window.
2. Create a simple animation to demonstrate use of Motion Guide.
   ** (Refer Sample animation at URL: http://bit.do/PRA-MOTION-GUIDE)
3. Create and use different symbols in 2D animation.
   ** (Refer Sample video at URL: http://bit.do/PRA-SYMBOL)

(Space for answers)

……
……
……
……
……
……
……
……
……
……
……
……
……
……
……
……
……
……

XV   References / Suggestions for further Reading

1.https://www.wisdomjobs.com/e-university/flash-tutorial-262/guide-layers-7356.html

2.http://www.entheosweb.com/Flash/motion_guide.asp

XVI.   Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members

1. …………………………………..

2. …………………………………..

3. …………………………………..

4. …………………………………

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 26: Bouncing and Rolling Ball Down

I.   Practical Significance

Creating simple 2D animation in any graphics processing tool is very easy. While working on such animation one need to ensure about keeping track about the key frames and adding frames at necessary places. The key frames are useful to keep earlier scene as it is. So when a content developer needs to reuse certain scenes they can make use of key frames to avoid redrawing same scene again. By having desired animation at specific intervals we can achieve required animation. The Content developer need to keep track on time line as well to ensure that desired animation can be achieved at exact timespan.

II.   Relevant Program Outcomes (POs)

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the results to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III.   Competency and Practical skills

This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Tools for Building Website.
2. Identify content to be embedded on web page.
3. Specify Video tag and URL of video.
4. Specify height and width of video.
5. Check output and verify various properties/parameters of selected video.

IV.   Relevant Course Outcome(s)

a) Develop 2D animation object.

V.   Practical Outcome (POs)

a) Create 2D Animation for Bouncing and Rolling ball down.

VI.   Relevant Affective domain related Outcome(s)
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self

VII. **Minimum Theoretical Background**
Frames and Timeline: -

The timeline is one of the most important toolbars in Flash. On a timeline you have frames and keyframes. A frame is simply an intermediary between keyframes, there is no change in the amount of objects on the stage during a normal frame. A key frame is a location on a timeline which marks the beginning or end of a transition. It holds special information that defines where a transition should start or stop. The intermediate frames are interpolated over time between those definitions to create the illusion of motion. In animation and graphics software, layer refers to the different levels on which you place your drawings, animations, and objects. The layers are stacked one on top of another. Each layer contains its own graphics or effects, which can be worked on and changed independently of the other layers.

Procedure:

1. Open new Canvas.
2. Define background on vector layer.
3. Create initial scene on visible layer.
4. Add require number of key frame.
5. Make necessary changes at timeline
6. Play animation.
7. Check resultant animation and verify with expected outcome.

VIII. **Resources required**

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	Pencil 2D, Macromedia Flash, Any other software		

IX. **Precautions**

1. All images must be saved with appropriate extensions (.jpg, .png, .bmp, .gif).

X. **Resources used**

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. Result (Output of the Program)

………………………………………………………………………………………………....

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

XII.   Conclusion(s)

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

XIII.   Practical Related Questions

Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(**Note:** Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)

1. What are timeline? Describe onion frame.
2. What are different types of Layers? How to add new layers?
3. What is looping? How to use looping in animation?

(Space for answers)

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………………

XIV. Exercise
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Create a 2D animation to depict moving of object from left to right.
2. Create a 2D animation to show movement of Car from Right to left.

(Space for answers)

…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………
…………………………………………………………………………………………………

XV References / Suggestions for further Reading

1. https://sites.google.com/site/pencil2d406b/how-to-use-pencil-2d
2. https://www.bloopanimation.com/animation-for-beginners/

XVI Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
1. …………………………………..
2. …………………………………..
3. …………………………………..

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 27: Use of Basic Shapes in 3D Animation

I. **Practical Significance**

3D animation is one of the trending graphical processes in virtual reality. Unlike 2D animation, 3D animation gives emphasis on 3 different axis i.e. X, Y, and Z. This type of animation focuses on depicting object which is more close to the real world. The Multimedia content developers are looking forward to maximize use of 3D animation wherever it is possible. Most of the projects in virtual reality are being developed in 3D animation. This practical will let student to use basic graphical shapes to build 3D animation.

II. **Relevant Program Outcomes (POs)**

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the results to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **The engineer and society:** Demonstrate knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering practice
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III.

Competency and Practical skills

This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Tools for Building 3D animation.
2. Identify shapes to be used in developing Object.
3. Create object using Shape.
4. Specify dimension of objects.
5. Check output and verify various properties/parameters of object created.

IV. **Relevant Course Outcome(s)**
   a) Develop 3D animation object.

V. **Practical Outcome (POs)**
   a) Design simple 3D animation using basic shapes..

VI. **Relevant Affective domain related Outcome(s)**
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.

4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self

VII. Minimum Theoretical Background
Basics of 3D Animation:-
Use of 3D animation software can be termed as video capturing of the real world which is full of 3D objects and then generating the series of 2D images rapidly to simulate motion in the form of output. While transferring 2D image in third dimension; a z-coordinate axis has to be added along with the default ones i.e. x-axis and y-axis. In addition to this, one just doesn't create objects in 3D; but needs to generate the 2D images of the 3D scene which will resemble the 3D objects.

Procedure:
1. Open new Canvas.
2. Choose appropriate shape from available menu.
3. Create initial object. Add necessary transitions.
4. Modify necessary properties.
5. Save files at specified place. Check and verify result with expected outcome.

VIII. Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	Blender, iClone -7, Any other such software		

IX. Precautions
1. All images must be saved with appropriate extensions (.jpg, .png, .bmp, .gif).

X. Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. Result (Output of the Program)
………………………………………………………………………………....
………………………………………………………………………………
……………………………………………………..………………………...………
………………………………………………………………………………

XII.   Conclusion(s)

....

....

....

....

XIII.   Practical Related Questions

Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(**Note:** Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)

1.   What are basic shapes available with Blender?
2.   What are different layers available with 3D Animations?
3.   Give use of Grab, Scale and rotate in 3D animation.

(Space for answers)

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

XIV. **Exercise**
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(**Note:** Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Create a 3D animation to with the help of basic shapes in Blender.
2. Create a 3D animation to create moving Car in Blender.

(Space for answers)

....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....

XV   References / Suggestions for further Reading
1. https://www.katsbits.com/tutorials/blender/useful-keyboard-shortcuts.php
2. http://download.blender.org/documentation/BlenderHotkeyReference.pdf

XVI   Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
1. …………………………………..
2. …………………………………..
3. …………………………………..
4. ……………………………………

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 28: Create Object in 3D Animation

I.   Practical Significance

Any product, service or process can be visually represented through 3D animation. Real as well as imaginary objects can be created, which can be far more visually appealing than the normal images. For example, in manufacturing industry, the products still to be manufactured can be created in 3D and visualized. The viewers can grasp the processes in a business more easily with the help of 3D animation, at less amount of time. The 3D animations services consists of disparate features well known in 3D Media, Web Media, Marketing Media, Mobile Media and Outsourcing Media. The 3D animation services are one of the unforeseen methods not only for an unwavering product or engagement in activity application but by the same token for an halls of knowledge as a whole.

II.   Relevant Program Outcomes (POs)
- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the results to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III.   Competency and Practical skills
This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Tools for Building 3D animation.
2. Identify shapes to be used in developing Object.
3. Create object using Shape.
4. Specify dimension of objects.
5. Check output and verify various properties/parameters of object created.

IV.   Relevant Course Outcome(s)
   a)   Develop 3D animation object.

V.   Practical Outcome (POs)
   a)   Object creation, types & development methods, sample model development.

VI.   Relevant Affective domain related Outcome(s)
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self

VII.   Minimum Theoretical Background
Timeline 3D animation:-
The timeline is one of the most important toolbars in to make animations. On a timeline you have various frames and keyframes. Like 2D animation 3D animation also has a frame that is simply an intermediary between keyframes, there is no change in the amount of objects on the stage during a normal frame. A key frame is a location on a timeline which marks the beginning or end of a transition. It holds special information that defines where a transition should start or stop. In 3D animation, while working with Multimedia objects one need to consider different layer, axis and Camera angle as well. One can set appropriate camera angle at different timeline.

Procedure:
1. Open new Canvas.
2. Choose appropriate shape from available menu.
3. Create initial object.
4. Add necessary transitions.
5. Modify necessary properties.
6. Save files at specified place
7. Check resultant animation and verify with expected outcome.

VIII.   Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	Blender, iClone – 7, Any other such software		

IX.   Precautions
1. All Files must be saved with appropriate extensions.

X. Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. Result (Output of the Program)

…………………………………………………………………………………………....

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

XII. Conclusion(s)

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

XIII. Practical Related Questions

Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(**Note:** Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)

1. What is Animation??
2. What are potential differences between 2D and 3D animation?
3. List any 4 Universal HotKeys with its application used in Blender.

(Space for answers)

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………..…………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

XIV. Exercise
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(**Note:** Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Create a 3D animation to create cup in Blender.
2. Create a 2D animation to create Car in Blender.

(Space for answers)

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

XV References / Suggestions for further Reading
1. https://www.katsbits.com/tutorials/blender/useful-keyboard-shortcuts.php
2. http://download.blender.org/documentation/BlenderHotkeyReference.pdf

XVI Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30% (15)**
1.	Tool Selection Ability	20% (10)
2.	Follow ethical practices.	10% (05)
Product related (35 Marks)		**70% (35)**
3.	Correctness of result	20% (10)
4.	Correctness in Use of appropriate tools	15% (7.5)
5.	Use of Effects and Transitions	15% (7.5)
6.	Aesthetics in result(s)	5% (2.5)
7.	Timely Submission of report	5% (2.5)
8.	Answer to sample questions	10% (5)
Total (50 Marks)		**100% (50)**

List of Students /Team Members
1. …………………………………..
2. …………………………………..
3. …………………………………..
4. …………………………………

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 29: Lofting and Lathe Creation in 3d Animation

I. **Practical Significance**

Like 2D animations 3D animations can also have varied shapes and styles for depicting an animated object. To have a real life experience one need to create a multimedia object which has shapes and curves. These objects may have different sizes and different properties. For example consider a cup, a cup can be of any size and style depending on its properties the Multimedia Content Developer need to develop suitable one. Lofting and Lathe effects will give a freedom to the Content Developer to build objects as per the requirement of system. In this practical the students will be able to create 3D multimedia objects with some curves and specific shapes by applying *Lofting* and *Lathe* effects.

II. **Relevant Program Outcomes (POs)**

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the results to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Environment and sustainability:** Understand the impact of the engineering solutions in societal and environmental contexts, and demonstrate the knowledge and need for sustainable development.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III. **Competency and Practical skills**

This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Tools for Building 3D animation.
2. Identify shapes to be used in developing Object.
3. Create desired skeleton of object using Shape and curves.
4. Specify dimension of objects.
5. Perform Extrude, Lofting and Lathe effect
6. Check output and verify various properties/parameters of object created.

IV. **Relevant Course Outcome(s)**
a) Develop 3D animation object.

V.   Practical Outcome (POs)
a) Object creation, types - primitives, compound objects, lofting, lathe, Boolean creation methods.

VI.   Relevant Affective domain related Outcome(s)
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self

VII.   Minimum Theoretical Background
Object / Edit Mode Modeling: -
Loft objects are two-dimensional shapes extruded along a third axis. You create loft objects from two or more existing spline objects. One of these splines serves as the path. The remaining splines serve as cross sections, or shapes, of the loft object. As you arrange shapes along the path, 3Ds Max generates a surface between the shapes. Once you create a loft object, you can add and replace cross-section shapes or replace the path. You can also change or animate the parameters of the path and shapes. Another method is to use the Modify panel's Deformations rollout to add complexity. Lathe creates a 3D object by rotating a shape or NURBS curve about an axis. Lathe is a feature that enables you to create a 3D object by rotating a shape or a line around an axis. Lathe will take a 2D spline and make copies of it rotated about an axis.
Use the tool to create the sort of objects that one would produce on a lathe. In fact, it does a sort of circular extrusion of selected elements, centered on the 3D cursor, and around the axis perpendicular to the working view.

Procedure:
1. Create / Load new Start up file.
2. Add necessary object / curves (Bezier / Spline)
3. Draw / Generate necessary Shape.
4. Select Curve from available menu and change its Offset, Bevel and Extrude properties as per the requirements.
5. Save files at specified place
6. Check resultant animation and verify with expected outcome.

VIII.   Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	Blender, iClone 7, Any other such software.		

IX. **Precautions**
   1. All Files must be saved with appropriate extensions.

X. **Resources used**

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. **Result (Output of the Program)**

   ………………………………………………………………………………....
   …………………………………………………………………………………
   …………………………………………………………………………………
   …………………………………………………………………………………

XII. **Conclusion(s)**

   …………………………………………………………………………………
   …………………………………………………………………………………
   …………………………………………………………………………………
   …………………………………………………...…………………………………

XIII. **Practical Related Questions**
   Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.
   (Note: Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)
   1. List significance/use of following properties in 3D animation with its options.
      a. Fill
      b. Offset
      c. Depth
      d. Extrude
   2. Differentiate between Bezier curve and Nurbs curve.
   3. State applications of Lathe and Lofting (2 Each).
                         (Space for answers)

   …………………………………………………………………………………
   …………………………………………………………………………………
   …………………………………………………………………………………
   …………………………………………………...………………………………
   …………………………………………………………………………………
   …………………………………………………………………………………

………

………

………

………

………

XIV. **Exercise**
Attempt Q1 and teacher shall allot Q. 2/Q.3 from the following:
(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Create a 3D animation to depict any two digit number.
2. Create a 3D animation in Blender to depict your name's initial.
    Example (Name is John H. Hedley, Initials J. H. H)

(Space for answers)

………

………

………

………

………

………

………

………

………

………

………

………

………

………

………

………

………

………

………

………

XV   References / Suggestions for further Reading
1. https://www.katsbits.com/tutorials/blender/useful-keyboard-shortcuts.php
2. http://download.blender.org/documentation/BlenderHotkeyReference.pdf

XVI   Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
1. …………………………………..
2. …………………………………..
3. …………………………………..
4. …………………………………..

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 30: Metallic Text in 3D Animation

I.   Practical Significance

Like 3D animation one can also make use of 3D text to give real life feeling to the end users. 3D animation does support various effects on text, these effects allows a Multimedia Content Developer to have proper blend of 3D animations along with 3D text. It is highly expected that with 3D animation one shall have good command over 3D textual effects as well. The 3D text gives wide range of text effects, and Multimedia content developer needs to choose appropriate one as per the requirement of the Multimedia object. In this practical the student will be able to use various web base tools to generate 3D text and use it in their own 3D animation.

II.   Relevant Program Outcomes (POs)
- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the results to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III.   Competency and Practical skills

This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Tools for generating 3D text.
2. Identify effects to be used in generating 3D text.
3. Use specific effects on Text.
4. Check output and verify various properties/parameters of text generated.

IV.   Relevant Course Outcome(s)

b) Develop 3D animation object.

V.   Practical Outcome (POs)

a) Design Metallic text in 3D animation tool.

VI.   Relevant Affective domain related Outcome(s)
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self

VII. Minimum Theoretical Background
Manipulate Objects in 3D

Textual effects are essential as far as any multimedia object design is concern. In 3D animation a content developer can make various textual effects ranging from simple effects like change in font style, size to special effects like Metallic effects. Metallic effects are one which depicts a text as collection of metal body. There are many effects available like Silver, Iron, Gold, and Bronze etc. When a Content Developer creates a Metallic text, they needs to choose the effect that matches to the theme of Multimedia object. By applying certain transitions to these fonts one can even generates animated texts as well.

Procedure:
1. Select appropriate web based tool.
2. Choose appropriate template from available menu.
3. Write down text on which the effects are to be applied.
4. Add necessary transitions.
5. Select appropriate background matching to the multimedia object.
6. Check resultant textual effect and verify with expected outcome.
7. Save files at specified place

VIII. Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	c) Blender d) https://designcold.com/logo-and-text-effects/create-metallic-text-glow-online-188.html e) http://www.textfx.co/ f) Any Other Such Software		

IX. Precautions
1. All files must be saved with appropriate extensions.

X. Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. Result (Output of the Program)

…………………………………………………………………………………………....

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

XII. Conclusion(s)

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

………………………………………………………………………….........................

XIII. Practical Related Questions

Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(**Note:** Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)

1. List different text styles are available with 3D text effects.
2. List properties needs to be change w.r.t. text while applying metallic text effect.
3. List practical applications for 3D Metallic Text Effects (Any 2).

(Space for answers)

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

……………………………………………………………………….........................

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

……………………………………………………………………….........................

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

XIV. Exercise
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Open following website and perform specified task
   URL : http://www.textfx.co/.
   a. Select Theme "Metallic".
   b. Choose appropriate Template from available Templates.
   c. Add your Name and Generate 3D Text.
   d. Save generated Text effect file at Desktop.

2. Open following website and perform specified task.
   URL: https://designcold.com/logo-and-text-effects/create-metallic-text-glow-online-188.html
   a. Enter Your College name in text box specified on screen.
   b. Press "OK" to generate metallic text.
   c. Save file at specified folder.

(Space for answers)

……
……
……
……
……
……
……
……
……
……
……
……
……
……
……

XV References / Suggestions for further Reading
   1. https://designcold.com/logo-and-text-effects/create-metallic-text-glow-online-188.html
   2. http://www.textfx.co/

XVI Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
1. …………………………………..

2. …………………………………..

3. …………………………………..

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 31: Use Lightning Effect in Multimedia Object

I.   Practical Significance

Lightning effects one of the most popular effects that are used in animation. Almost all Multimedia Content Developer uses lightning effect in their animations. Lightning effects are used in animation as well as editing a photos and video. These effects come under special effect category where the Multimedia author needs to decide whether or not to proceed with such effects. Lightning effects give real emphasis on certain scenario based on that decision of adopting effects shall be taken. In this practical the student will be able to apply lightning effects on text as well as image.

II.   Relevant Program Outcomes (POs)

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the results to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III.   Competency and Practical skills
This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.

1. Select related web based tools for generating effect.
2. Identify type of effect to be used in generating lightning effect.
3. Select specific effects on 3D Text / Image.
4. Apply effect on Multimedia object.
5. Check output and verify various properties/parameters of effects applied.
6. Save generated file(s) at specified location.

IV.   Relevant Course Outcome(s)
   a) Develop 3D animation object.

V.   Practical Outcome (POs)
   a) Apply Lighting effect to 3D object.

VI.   Relevant Affective domain related Outcome(s)
1.   Follow ethical practices.
2.   Demonstrate working as a leader / a team member.
3.   Practice good housekeeping.
4.   Participate in team problem solving activities.
5.   Prioritizes time effectively to meet the needs of the team and self

VII.   Minimum Theoretical Background
Special Effects in 3D Animation:-
Adding special effects is an important part of creating high-quality animation. Applying an effect is not mandatory, but it will certainly help to catch your audience's attention. Lighting is one of the first special effects one should consider when enhancing the look of animation. If done properly, lighting effects will add a lot of volume and depth to character, contributing to a more realistic environment and a more convincing animation. Before beginning to add any lighting effects, one should plan where light source is located, its angle and its level of intensity. This preparation is essential to prevent bad shading or incorrect shadow positioning and direction. The best method is to make a quick map of scene and position the light on the map. This will help to determine the origin and angle of the light and where the shadow will fall.

Procedure:
1.   Select appropriate web based tool.
2.   Import object where lightning effect to be apply..
3.   Select type of lightning effect.
4.   Generate resultant file containing lightning effect.
5.   Check resultant textual effect and verify with expected outcome.
6.   Save files at specified place

VIII.   Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	b) Blender c) https://photofunia.com/effects/lightning d) https://www196.lunapic.com/editor/?action=lightning e) Any other such software		

IX.   Precautions
1.   All Files must be saved with appropriate extensions.

X.   Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI. Result (Output of the Program)

……………………………………………………………………………………………...

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

XII.   Conclusion(s)

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

XIII.   Practical Related Questions

Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(**Note:** Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)

1. List different styles of lightning effects.
2. Enlist the differences between file generated as an output by using aforementioned methodologies. (Mentioned in tools specified in section VIII. 3)
3. What are the factors to be considered before applying lighting effect?

(Space for answers)

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

XIV. Exercise
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(**Note:** Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Open following website and perform specified task
    URL : https://photofunia.com/effects/lightningx.
    a. Import an image where Lightning effect is to be apply.
    b. Choose appropriate Template from available Templates.
    c. Generate the file containing lightning effect.
    d. Save generated file at Desktop.

2. Open following website and perform specified task.
    URL : https://www196.lunapic.com/editor/?action=lightning
    a. Import any image of your choice.
    b. Apply Lightning effect from Filter Menu or any other available menu.
    c. Save file at specified folder.

3. Open following website and perform specified task.
    URL : https://www196.lunapic.com/editor/?action=lightning
    http://www5.flamingtext.com/All-Logos
    a. Search electric Design from available logo.
    b. Choose desired variations from available templates.
    c. Write your name in "LOGO TEXT" box.
    d. Set font size to 75 pts.
    e. Choose appropriate font type.
    f. Generate logo by Clicking on "NEXT".
    g. Save Logo at specific drive

(Space for answers)

………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………

XV   References / Suggestions for further Reading

1. https://photofunia.com/effects/lightning
2. https://www196.lunapic.com/editor/?action=lightning
3. http://www5.flamingtext.com/All-Logos

XVI Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members

1. …………………………………..
2. …………………………………..
3. …………………………………..
4. …………………………………...

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

Practical No. 32: Rendering Effects and Animation with 3D Objects.

I.   **Practical Significance**

Like 2D animation the Multimedia Content Developer can also design and use 3D animations. Creating a 3D animation is pretty much same as one can do in 2D animation. The Content Developer needs to identify objects which will participate in animation. Once these objects are finalized and render, the Developer can make appropriate transitions on each object by forming pair / group of object which participates in animations. In this practical the student will be able to design and perform simple 3D animation with the help of basic objects and shapes in Blender.

II.   **Relevant Program Outcomes (POs)**

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Electronics related problems.
- **Discipline knowledge:** Apply Computer Programming knowledge to solve broad-based Electronics related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use the result to solve broad-based Electronics related problems.
- **Engineering tools:** Apply relevant Computer programming / electrical technologies and tools with an understanding of the limitations.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

III.   **Competency and Practical skills**

This practical is expect to develop the following skills in you

Develop applications using core Graphical Concepts.
1. Select related Graphical Tools / online tools.
2. Check specification for multimedia application.
3. Select appropriate object for applying effect.
4. Apply/ Render required effects for object(s) by adjusting required values.
5. Change values of timeline
6. Verify the results and Save resultant image in appropriate image format.

IV.   **Relevant Course Outcome(s)**
   - a) Develop 3D animation object.

V.   **Practical Outcome (POs)**
   - a) Render the animation by review key framing, animating props and cameras, render settings to prepare a scene.

VI. **Relevant Affective domain related Outcome(s)**
1. Follow ethical practices.
2. Demonstrate working as a leader / a team member.
3. Practice good housekeeping.
4. Participate in team problem solving activities.
5. Prioritizes time effectively to meet the needs of the team and self

VII. **Minimum Theoretical Background**
Animation in 3D

The 3D animations can be achieved by rendering appropriate scene which will last during animation timeline. A content developer needs to use appropriate props while depicting animation. Frames and key-frames plays vital role in creating any animation like 2D. The Developer needs to consider camera angle in 3D. By having appropriate camera angle, one can make the animation feel more to the reality. One needs to give lots of efforts on rendering scene and preparing same for effective animation.

Procedure:

1. Select appropriate animation tool / Web base tool.
2. Import required object and apply necessary effects on them.
3. Make pair / Join Object (if necessary, i.e. more than one object are used).
4. Specify new location for object at which it shall be placed at the end of animation.
5. Make Necessary changes in Timeline and frames.
6. Save Animation and verify with the expected animation.

VIII. **Resources required**

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards	As per batch size	For all Experiments
2	Operating system	Windows 7/LINUX version 5.0 or later		
3	Software	Blender , iClone 7 (Trial Version) , Any other such software		

IX. **Precautions**
1. All images must be saved with appropriate extensions

X.   Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	
2	Software	
3	Any other resource used	

XI.   Result (Output of the Program)

………………………………………………………………………………………....

………………………………………………………………………………………

………………………………………………………………………………………....

………………………………………………………………………………………

XII.   Conclusion(s)

………………………………………………………………………………………

………………………………………………………………………………………

………………………………………………………………………........................

………………………………………………………………………………………

XIII.   Practical Related Questions

Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(Note: Use Point VIII to X and XIII to XV for all relevant practical exercise use blank pages provided or attach more pages if needed.)

  a. Describe to need of considering appropriate camera angle while preparing 3D animation.
  b. What Is Modeling And Texturing?
  c. What is virtual reality?

(Space for answers)

………………………………………………………………………………………

………………………………………………………………………………………

………………………………………………………………………………………

………………………………………………………………………........................

………………………………………………………………………………………

………………………………………………………………………………………

………………………………………………………………………………………

………………………………………………………………………........................

………………………………………………………………………………………

………………………………………………………………………………………

………………………………………………………………………………………

XIV. **Exercise**
Attempt Q1. and teacher shall allot Q. 2/Q.3 from the following:
(**Note:** Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Create Simple 3D animation to move two objects in same line.
2. Create Simple 3D animation to scale, rotate two objects.
   URL: https://www.youtube.com/watch?v=HHd2OLhYnEU
3. Create a simple 3D animation to move an object in specified path.
   URL : https://www.youtube.com/watch?v=SqOso5jgYa4

(Space for answers)

....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....
....

XV   References / Suggestions for further Reading
1. https://www.fotor.com/app.html#/design
2. http://watereffect.net/

XVI   Assessment Scheme

Performance indicators		Weightage
Process related(15 Marks)		**30%**
1.	Tool Selection Ability	20%
2.	Follow ethical practices	10%
Product related (35 Marks)		**70%**
3.	Correctness of result	20%
4.	Correctness in Use of appropriate tools	15%
5.	Use of Effects and Transitions	15%
6.	Aesthetics in result(s)	5%
7.	Timely Submission of report	5%
8.	Answer to sample questions	10%
Total (50 Marks)		**100%**

List of Students /Team Members
1. …………………………………..
2. …………………………………..
3. …………………………………..
4. …………………………………..

Marks Obtained			Dated signature of Teacher
Process Related(15)	**Product Related(35)**	**Total(50)**	

List Of Laboratory Manuals Developed by MSBTE

First Semester:

1	Fundamentals of ICT	22001
2	English	22101
3	English Work Book	22101
4	Basic Science (Chemistry)	22102
5	Basic Science (Physics)	22102

Second Semester:

1	Bussiness Communication Using Computers	22009
2	Computer Peripherals & Hardware Maintenace	22013
3	Web Page Design with HTML	22014
4	Applied Science (Chemistry)	22202
5	Applied Science (Physics)	22202
6	Applied Machines	22203
7	Basic Surveying	22205
8	Applied Science (Chemistry)	22211
9	Applied Science (Physics)	22211
10	Fundamental of Electrical Engineering	22212
11	Elements of Electronics	22213
12	Elements of Electrical Engineering	22215
13	Basic Electronics	22216
14	'C' programming Language	22218
15	Basic Electronics	22225
16	Programming in "C"	22226
17	Fundamentals of Chemical Engineering	22231

Third Semester:

1	Applied Multimedia Techniques	22024
2	Advanced Serveying	22301
3	Highway Engineering	22302
4	Mechanics of Structures	22303
5	Building Construction	22304
6	Concrete Technology	22305
7	Strength Of Materials	22306
8	Automobile Engines	22308
9	Automobile Transmission System	22309
10	Mechanical Operations	22313
11	Technology Of Inorganic Chemicals	22314
12	Object Oriented Programming Using C++	22316
13	Data Structure Using 'C'	22317
14	Computer Graphics	22318
15	Database Management System	22319
16	Digital Techniques	22320
17	Principles Of Database	22321
18	Digital Techniques & Microprocessor	22323
19	Electrical Circuits	22324
20	Electrical & Electronic Measurment	22325
21	Fundamental Of Power Electronics	22326
22	Electrical Materials & Wiring Practice	22328
23	Applied Electronics	22329
24	Electrical Circuits & Networks	22330
25	Electronic Measurments & Instrumentation	22333
26	Principles Of Electronics Communication	22334
27	Thermal Engineering	22337
28	Engineering Matrology	22342
29	Mechanical Engineering Materials	22343
30	Theory Of Machines	22344

Fourth Semester:

1	Hydraulics	22401
2	Geo Technical Engineering	22404
3	Chemical Process Instrumentation & Control	22407
4	Fluid Flow Operation	22409
5	Technology Of Organic Chemicals	22410
6	Java Programming	22412
7	GUI Application Development Using VB.net	22034
8	Microprocessor	22415
9	Database Managment	22416
10	Electric Motors And Transformers	22418
11	Industrial Measurements	22420
12	Digital Electronics And Microcontroller Applications	22421
13	Linear Integrated Circuits	22423
14	Microcontroller & Applications	22426
15	Basic Power Electronics	22427
16	Digital Communication Systems	22428
17	Mechanical Engineering Measurments	22443
18	Fluid Mechanics and Machinery	22445
19	Fundamentals Of Mechatronics	22048

Fifth Semester:

1	Design of Steel and RCC Structures	22502
2	Public Health Engineering	22504
3	Heat Transfer Operation	22510
4	Environmental Technology	22511
5	Operating Systems	22516
6	Advanced Java Programming	22517
7	Software Testing	22518
8	Control Systems and PLC's	22531
9	Embedded Systems	22532
10	Mobile and Wireless Communication	22533
11	Industrial Machines	22523
12	Switchgear and Protection	22524
13	Energy Conservation and Audit	22525
14	Power Engineering and Refrigeration	22562
15	Solid Modeling and Additive Manufacturing	22053
16	Guidelines & Assessment Manual for Micro Projects & Industrial Training	22057

Sixth Semester:

1	Solid Modeling	17063
2	Highway Engineering	17602
3	Contracts & Accounts	17603
4	Design of R.C.C. Structures	17604
5	Industrial Fluid Power	17608
6	Design of Machine Elements	17610
7	Automotive Electrical and Electronic Systems	17617
8	Vehicle Systems Maintenance	17618
9	Software Testing	17624
10	Advanced Java Programming	17625
11	Mobile Computing	17632
12	System Programing	17634
13	Testing & Maintenance of Electrical Equipments	17637
14	Power Electronics	17638
15	Illumination Engineering	17639
16	Power System Operation & Control	17643
17	Environmental Technology	17646
18	Mass Transfer Operation	17648
19	Advanced Communication System	17656
20	Mobile Communication	17657
21	Embedded System	17658
22	Process Control System	17663
23	Industrial Automation	17664
24	Industrial Drives	17667
25	Video Engineering	17668
26	Optical Fiber & Mobile Communication	17669
27	Therapeutic Equipment	17671
28	Intensive Care Equipment	17672
29	Medical Imaging Equipment	17673

Pharmacy Lab Manual

First Year:

1	Pharmaceutics - I	0805
2	Pharmaceutical Chemistry - I	0806
3	Pharmacognosy	0807
4	Biochemistry and Clinical Pathology	0808
5	Human Anatomy and Physiology	0809

Second Year:

1	Pharmaceutics - II	0811
2	Pharmaceutical Chemistry - II	0812
3	Pharmacology & Toxicology	0813
4	Hospital and Clinical Pharmacy	0816

HEAD OFFICE

Secretary,

Maharashtra State Board of Technical Education

49, Kherwadi, Bandra (East), Mumbai - 400 051

Maharashtra (INDIA)

Tel: (022)26471255 (5 -lines)

Fax: 022 - 26473980

Email: -secretary@msbte.com

Web -www.msbte.org.in

REGIONAL OFFICES:

MUMBAI

Deputy Secretary (T),

Mumbai Sub-region,

2nd Floor, Govt. Polytechnic Building,

49, Kherwadi, Bandra (East)

Mumbai - 400 051

Phone: 022-26473253 / 54

Fax: 022-26478795

Email: rbtemumbai@msbte.com

PUNE

Deputy Secretary (T),

M.S. Board of Technical Education,

Regional Office,

412-E, Bahirat Patil Chowk,

Shivaji Nagar, Pune

Phone: 020-25656994 / 25660319

Fax: 020-25656994

Email: rbtepn@msbte.com

NAGPUR

Deputy Secretary (T),

M.S. Board of Technical Education

Regional Office,

Mangalwari Bazar, Sadar, Nagpur - 440 001

Phone: 0712-2564836 / 2562223

Fax: 0712-2560350

Email: rbteng@msbte.com

AURANGABAD

Deputy Secretary (T),

M.S. Board of Technical Education,

Regional Office,

Osmanpura, Aurangabad -431 001.

Phone: 0240-2334025 / 2331273

Fax: 0240-2349669

Email: rbteau@msbte.com