

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA-8
(Affiliated to Krishna University, Machilipatnam)

SYLLABUS

Subject: Computer Science

Semester: V/VI

Course Title: Digital Imaging

Course Code: 20CSSEC42DI3

No. of Hours: 45 LTP: 300

Credits: 3

Objectives

- To learn the fundamentals of Computer Graphics.
- To achieve a level of comfort with the tools and techniques needed to create digital images.
- To experiment with new ways to connect digital technologies to one's own creative practice.

Course Outcomes

CO1: Gain knowledge about Types of Graphics, Objects and video editing tools.

CO2: Show their skills in editing and altering photographs.

CO3: Gain knowledge in using the layers.

CO4: Apply knowledge in using selection and drawing tools.

CO5: Gain knowledge in using touch up tools and filters.

UNIT-I

(9 Hrs.)

Types of Graphics – Raster vs Vector Graphics

Types of Objects – Audio formats, Video formats, Image formats, Text document formats.

Types of video editing, Different color modes, Image Scanner –
Types of Image Scanners.

UNIT-II

(9 Hrs.)

What is GIMP– GIMP tool box window, Layers Dialog, Tool Options Dialog, Image window, Image window menu

UNIT-III

(9 Hrs.)

Improving Digital Photos– Opening files- Rescaling saving files
Cropping, Brightening & Darkening, Rotating, Sharpening.

Introduction to layers– What is layer- Using layer to add text, Using move tool, Changing colors, Simple effects on layers, Performing operations on layers, Using layers to copy and paste.

UNIT-IV

(9 Hrs.)

Drawing– Drawing lines and curves, Changing colors and brushes, Erasing, Drawing rectangles, Circles and other shapes, Outlining and filling regions,

Filling with patterns and gradients.

Selection- Working with selections, Select by color and fuzzy, Select Bezier paths, Modifying selections with selection modes.

UNIT-V

(9 Hrs.)

Erasing and Touching Up- Dodge and burn tool, Clone tool, Sharpening using convolve tool, Correcting Color Balance.

Filters- Filters, Blur, Enhance, Noise Filters.

Co-Curricular Activities

- Assignments on problem solving
- Group discussions
- Student presentations and seminars
- Online quizzes
- Project work

Prescribed Book

1. Beginning GIMP from Novice to professional by Akkana Peck, Second Edition, Apress.

Reference Book

1. An introduction to digital multimedia by Savage, T. M. and Vogel, K. E. 2008.

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Blueprint

Subject: Computer Science
Course Title: Digital Imaging
Time: 3 Hrs.

Semester: V/VI
Course Code: 20CSSEC42DI3
Max. Marks: 100

SECTION – A

Answer **ALL** questions

20 x 1 = 20M

Q. No.	UNIT	Marks Weightage	RBT LEVEL
1	I	1	No. of questions to be set RBT1 – 8 RBT2 – 8 RBT3 – 2 RBT4 – 2
2	I	1	
3	II	1	
4	II	1	
5	III	1	
6	III	1	
7	IV	1	
8	IV	1	
9	V	1	
10	V	1	
11	I	1	
12	I	1	
13	II	1	
14	II	1	
15	III	1	
16	III	1	
17	IV	1	
18	IV	1	
19	V	1	
20	V	1	

SECTION – BAnswer any **FOUR** questions**4 x 8 = 32M**

Q. No.	UNIT	Marks Weightage	RBT LEVEL
21	I	8	No. of questions to be set RBT1 – 2 RBT2 – 2 RBT3 – 1 RBT4 – 1
22	II	8	
23	III	8	
24	IV	8	
25	V	8	
26	I / II / III / IV / V	8	

SECTION – CAnswer any **FOUR** questions**4 x 12 = 48M**

Q. No.	UNIT	Marks Weightage	RBT LEVEL
27	I	12	No. of questions to be set RBT1 – 2 RBT2 – 2 RBT3 – 1 RBT4 – 1
28	II	12	
29	III	12	
30	IV	12	
31	V	12	
32	I / II / III / IV / V	12	

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA – 8
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Model Question Paper

Subject: Computer Science
Course Title: Digital Imaging
Time: 3 Hrs.

Semester: V/VI
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Max. Marks: 100

SECTION – A

Answer **ALL** questions

20 x 1 = 20M

1. What is the difference between Raster and Vector graphics?
 - A. Raster graphics are composed of pixels, while Vector graphics are composed of paths.
 - B. Vector graphics contain no visual data.
 - C. Raster graphics are composed of paths, while Vector graphics are composed of pixels.
 - D. Raster graphics are measured in points, while Vector is measured in pixels.
2. What are the names of the various colour image processing categories?
 - A. Pseudo-color and Multi-color processing
 - B. Half-color and pseudo-color processing
 - C. Full-color and pseudo-color processing
 - D. Half-color and full-color processing
3. Approaches to image processing that work directly on the pixels of incoming image work in _____.
 - A. Spatial domain
 - B. Inverse transformation
 - C. Transform domain
 - D. Color processing
4. In digital imaging is the curve tool used for?
 - A. Blending objects in photos
 - B. Highlighting curvy roads in maps
 - C. Collecting exposure problems in photos
 - D. Correcting aligning problems in photos
5. _____ determines the quality of a digital image.
 - A. The discrete gray levels
 - B. The number of samples
 - C. discrete gray levels & number of samples
 - D. Morphological processing
6. Which of the following is the abbreviation of JPEG?
 - A. Joint Photographic Experts Group
 - B. Joint Photographs Expansion Group

- C. Joint Photographic Expanded Group
 - D. Joint Photographic Expansion Group
7. Which of the following is considered as the Second step to rotate an object X about an arbitrary point?
 - A. Translation
 - B. Rotation
 - C. Inverse Translation
 - D. Scaling
 8. Scaling is a transformation that changes_____
 - A. Shape of an object
 - B. Size of an object
 - C. either both
 - D. neither both
 9. An alternate approach used in place of the median filtering is_____
 - A. Sharpening
 - B. Laplacian filter
 - C. Gaussian filter
 - D. Using a mask
 10. Digital storage for image processing applications falls into ___ categories.
 - A. short-term storage
 - B. online storage
 - C. archival storage
 - D. Bandwidth
 11. _____ determines the quality of a digital image.
 12. The effect caused by the use of an insufficient number of intensity levels in smooth areas of a digital image _____.
 13. _____ graphic filters modify the image dramatically.
 14. A _____ is any kind of object or element in a composition an image, text, or a shape.
 15. The effect caused by the use of an insufficient number of intensity levels in smooth areas of a digital image _____.
 16. _____ is a commercial use of Image Subtraction.
 17. Digital image with intensity level within the range $[0,1-1]$ is called _____.
 18. Images in digital image processing are classified into _____ number of types
 19. Digital image processing refers to the processing of a finite number of elements referred to as _____.
 20. An _____ consists of erosion followed by dilation.

SECTION – B

Answer any **FOUR** questions

4 x 8 = 32M

21. Explain about Types of Graphics in digital imaging.
22. Describe video editing with examples in digital imaging.
23. Discuss about the Image window menu in GIMP.
24. Analyse the Improving Digital Photos in digital imaging.
25. Outline the concept Drawing in digital imaging.
26. Explain the Erasing and Touching Up in digital imaging.

SECTION – C

Answer any **FOUR** questions

4 x 12 = 48M

27. Explain about Types of Objects in digital imaging.
28. Discuss GIMP tool box window.
29. Analyse Introduction to layers in digital imaging.
30. Elaborate the Selection in digital imaging.
31. Summarize about Image window menu in GIMP.
32. Describe the Filters in digital imaging.