

HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN

B.C.A. Semester – IV

Elective-II : BCA-404 : Computer Graphics

Teaching Scheme (Per week)		Teaching Scheme (Per semester)		Examination Scheme					
				INT		EXT		TOTAL	
Th. (hours)	Pr. (hours)	Total Hours	Credit	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)
4	--	40	4	30	--	70	--	100	--

Unit - I

[18 Marks]

Overview of Graphics System : Application of computer graphics ,Video Display Devices, Refresh Cathode-Ray Tubes, Raster-scan Displays, Random-Scan Displays, Color CRT Monitors, Raster-Scan System, Random-Scan System, Graphics Monitors and workstations, Input Devices. Hard Copy Devices, Graphics Software.

Unit - II

[17 Marks]

Output Primitives and Attributes of Output Primitives: Output Primitives Points and Lines, Line Drawing Algorithms, Circle Generating Algorithms, Scan-Line Polygon Fill Algorithm, Inside-Outside tests, Boundary-Fill Algorithm, Flood Fill Algorithm, Cell Array, Character Generation **Attributes of Output Primitives:** Line attributes ,Color and Grayscale Levels, Area fill Attributes, Character Attributes, Bundled Attributes.Antialiasing

Unit - III

[18 Marks]

Two-Dimension Geometric Transformation: Basic Transformation, Translation, Rotation, Scaling, Matrix Representation and Homogeneous Coordinates, **Composite transformations:** Translation, Rotation, Scaling. **Other Transformation:** Reflection and shear.

Unit - IV

[17 Marks]

Two Dimensional Viewing : The Viewing Pipeline, Viewing Coordinate Reference Frame, Window-to-View port Coordinate Transformation, Two-Dimensional Viewing Function, Clipping Operation, Point Clipping, Line Clipping, Polygon Clipping, Curve Clipping, Text Clipping.

Text Book:

1. **Computer Graphics**, Donald Hearn, M. Pauline Baker,

Question Paper Scheme:

University Examination Duration: 3 Hours.

Q.1 - Unit-I (18 Marks)

- A. Objective/ Short Questions.
- B. Descriptive/ Long questions.

Q.2 - Unit-II (17 Marks)

- A. Objective/ Short Questions.
- B. Descriptive/ Long questions.

Q.3 - Unit-III (18 Marks)

- A. Objective/ Short Questions.
- B. Descriptive/ Long questions.

Q.4 - Unit-IV (17 Marks)

- A. Objective/ Short Questions.
- B. Descriptive/ Long questions.

Note: All Objective/ Short Questions are compulsory, no option will be given.

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Subject:
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Keywords:
Comments:
Creation Date: 3/25/2012 10:32:00 AM
Change Number: 44
Last Saved On: 3/26/2012 10:01:00 AM
Last Saved By: VP
Total Editing Time: 36 Minutes
Last Printed On: 6/7/2012 4:23:00 PM
As of Last Complete Printing
Number of Pages: 2
Number of Words: 373 (approx.)
Number of Characters: 2,131 (approx.)