| | | | | | |
|---|---|---|---|---|---|
| 4. | Learning UML 2. 0 | Kim Hamilton, Russ Miles | O'Reilly Media | | 2006 |
| 5. | The unified modeling language user guide | Grady Booch, James Rumbaugh, Ivar Jacobson | Addison-Wesley | | 2005 |
| 6. | UML A Beginners Guide | Jason T. Roff | McGraw Hill Professional | | 2003 |

| **B. Sc. (Information Technology)** | | **Semester – IV** | |
|---|---|---|---|
| **Course Name: Computer Graphics and Animation** | | **Course Code: USIT4P5** | |
| **Periods per week**<br>**1 Period is 50 minutes** | **Lectures per week** | **3** | |
| | | **Hours** | **Marks** |
| **Evaluation System** | **Practical Examination** | **2½** | **50** |
| | | | |

| **List of Practical** | |
|---|---|
| **1.** | **Solve the following:** |
| a. | Study and enlist the basic functions used for graphics in C / C++ / Python language. Give anexample for each of them. |
| b. | Draw a co-ordinate axis at the center of the screen. |
| | |
| **2.** | **Solve the following:** |
| a. | Divide your screen into four region, draw circle, rectangle, ellipse and half ellipse in each region with appropriate message. |
| b. | Draw a simple hut on the screen. |
| | |
| **3.** | **Draw the following basic shapes in the center of the screen :** |
| | i. Circle ii. Rectangle iii. Square iv. Concentric Circles v. Ellipse vi. Line |
| **4.** | **Solve the following:** |
| a. | Develop the program for DDA Line drawing algorithm. |
| b. | Develop the program forBresenham's Line drawing algorithm. |
| | |
| **5.** | **Solve the following:** |
| a. | Develop the program for the mid-point circle drawing algorithm. |
| b. | Develop the program for the mid-point ellipse drawing algorithm. |
| | |
| **6.** | **Solve the following:** |
| a. | Write a program to implement 2D scaling. |
| b. | Write a program to perform 2D translation |
| | |

| | |
|---|---|
| **7.** | **Solve the following:** |
| a. | Perform 2D Rotation on a given object. |
| b. | Program to create a house like figure and perform the following operations.<br>i.Scaling about the origin followed by translation.<br>ii. Scaling with reference to an arbitrary point.<br>iii. Reflect about the line y = mx + c. |
| | |
| **8.** | **Solve the following:** |
| a. | Write a program to implement Cohen-Sutherland clipping. |
| b. | Write a program to implement Liang - Barsky Line Clipping Algorithm |
| | |
| **9.** | **Solve the following:** |
| a. | Write a program to fill a circle using Flood Fill Algorithm. |
| b. | Write a program to fill a circle using Boundary Fill Algorithm. |
| | |
| **10.** | **Solve the following:** |
| a. | Develop a simple text screen saver using graphics functions. |
| b. | Perform smiling face animation using graphic functions. |
| c. | Draw the moving car on the screen. |

**Books and References:**

| Sr. No. | Title | Author/s | Publisher | Edition | Year |
|---|---|---|---|---|---|
| 1. | Computer Graphics - Principles and Practice | J. D. Foley, A. Van Dam, S. K. Feiner and J. F. Hughes | Pearson Education | Second Edition | |
| 2. | Steve Marschner, Peter Shirley | Fundamentals of Computer Graphics | CRC press | Fourth Edition | 2016 |
| 3. | Computer Graphics | Hearn, Baker | Pearson Education | Second | |
| 4. | Principles of Interactive Computer Graphics | William M. Newman and Robert F. Sproull | Tata McGraw Hill | Second | |