

DEERWALK INSTITUTE OF TECHNOLOGY

Bachelor in Science in Computer Science and Information Technology

Course Plan

Course Title: Computer Graphics

Course Code: CSC-254

Time:	Monday	3:00 – 4:40 (Sec A)
	Tuesday	3:00 – 4:40 (Sec B)
	Wednesday	3:00 – 3:50 (Sec A) and 3:50 – 4:40 (Sec B)
	Thursday	3:00 – 3:50 (Sec B)
	Friday	3:50 – 4:40 (Sec A)

Total Class Hours: 55

Instructor: Er. Loknath Regmi

Email: lregmi@deerwalk.edu.np

COURSE DESCRIPTION:

The objective of this course is to understand the theoretical foundation of 2D and 3D graphics.

COURSE OBJECTIVE:

After completing this course, the target student will gain knowledge in creation, manipulation and storage of simple 2D and 3D graph in an algorithmic approach. It helps the target student in gaining fundamental and conceptual clarity in the area of generation of simple graphs, transformation, clipping, clipping, 3D object representation and shading. Moreover students will be able to know the importance of mathematics to implement the course objective.

TEXT BOOKS:

1. Donald Hearn, Pauline Baker, Computer Graphics – C Version, second edition, Pearson Education, 2004.

REFERENCES:

3. James D. Foley, Andries Van Dam, Steven K. Feiner, John F. Hughes, Computer Graphics- Principles and practice, Second Edition in C, Pearson Education, 2007.

COURSE SCHEDULE

Week 1: **Tentative Dates: 18 - 22th August, 2014**

Briefing about course, introduction to CG, advantages of CG, application areas of CG .

Week 2: **Tentative Dates: 25- 29th August, 2014**

Scan conversion algorithms (line, circle, ellipse)

Assignment 1

Week 3: **Tentative Dates: 01 - 05th September, 2014**

Area Filling (Rectangle, Ellipse), Clipping (Lines, Circle, Ellipse), Clipping Polygons

Class Test 1

Week 4: **Tentative Dates: 8 - 12th September, 2014**

Hardware and Software for Computer Graphics. (Hard Copy, Display Technologies), Random Scan Display System, Video Controller, Random Scan Display Processor.

Assignment 2

Week 5: **Tentative Dates: 15 - 19th September, 2014**

2D transformation

Week 6: **Tentative Dates: 22 - 6 September, 2014**

3D Transformation, homogeneous coordinate representation.

Assignment 3

Class Test 2

Week 7: **Tentative Dates: 13 - 17th October, 2014**

3D Viewing, window to viewport transformation

Week 8: **Tentative Dates: 27 – 31th October, 2014**

3D Object Representation, Projections, Mathematics of Projections.

Assignment 4

Week 9: Tentative Dates:- 03 - 7th November, 2014

Representing Curves and Surfaces,(Polygon Meshes, Parametric Cubic Curves, Quadratic Surface)

Class Test 3

Week 10: Tentative Dates:- 17 - 21th november, 2014

Solid Modeling (Sweep Representation, Boundary Representation, Spatial Partitioning Representation)

Assignment 5

Week 11: Tentative Dates:- 24 - 28th November, 2014

Visible Surface Determination. Various Techniques, Algorithms for Visible Surface Detection, (Z-Buffer, List priority, Scan Line Algorithms)

Week 12: Tentative Dates:- 1 - 5th December, 2014

Visible Surface Determination. Various Techniques, Algorithms for Visible Surface Detection, (Scan Line Algorithms , area sub division, ray tracing)

Class Test 4

Week 13: Tentative Dates:- 8 - 12th December, 2014

Shading and Illumination models (introduction, illumination model)

Week 14: Tentative Dates:- 15 - 19th December, 2014

Shading and Illumination models (Phong-shading model)
Introduction to virtual reality

Week 15: Tentative Dates:- 22 - 26th December, 2014

Revision Week
