Course Outline

Department of Computer Science and Engineering

School of Engineering and Computer Science

Brac University

A. Course General Information:

Course Code:	CSE423 CSE423L
Course Title:	Computer Graphics Computer Graphics Laboratory
Credit Hours (Theory+Lab):	3 + 0
Contact Hours (Theory+Lab):	3 + 1.5
Category:	Core
Type:	Engineering, Lecture + Laboratory
Prerequisites:	-
Co-requisites:	MAT216

B. Course Catalog Description (Content):

Shape drawing algorithms: Line, Circle, Ellipse, 8-way symmetry; Clipping algorithms: Cohen-Sutherland, Cyrus-Beck; Transformation (2D/3D): Translation, Scaling, Rotation, Reflection, Shear, transformation matrices, types; Projection: 3D in 2D space; Color models: RGB, CMYK, HSV; Illumination and Shading.
The course includes a compulsory 3-hour laboratory work each fortnight (once in two weeks).

C. Course Objective:

The objectives of this course are to

01. To make students familiar with the basic steps of the graphics pipeline.
02. To make students understand the theories and underlying mathematics of graphics applications.

D. Course Outcomes (COs):

Upon successful completion of this course, students will be able to

Sl.	CO Description
01	Demonstrate advanced knowledge on the fundamentals of 2D and 3D computer graphics
02	Explain and apply the algorithms commonly used in 3D computer graphics
03	Display competency in a number of advanced computer graphics techniques and applications

E. Course Materials:

i. Text and Reference Books:

Sl.	Title	Author(s)	Publication Year	Edition	Publisher	ISBN
01	Computer Graphics: Principles and Practice	John F. Hughes, James D. Foley, Andries van Dam, Steven K. Feiner	1982	2nd	Pearson	ISBN-13: 978-0201848403 ISBN-10: 9780201848403

ii. Other materials (if any)

buX link (Spring 2022): https://bux.bracu.ac.bd/courses/course-v1:buX+CSE423+2022_Spring/course/

F. Assessment Tools:

Assessment Tools	Weightage (%)
Attendance	5%
Assignments (written+pdf submission)	5%
Quizzes (written+pdf submission, avg. of best n-1)	20%
Laboratory Work	20%
Midterm Examination (on campus)	20%
Final Examination (on campus)	30%

G. Lesson Plan:

No	Topic	Week/Lecture#
	Shape drawing algorithms: Line, Circle, 8-way symmetry;	Week 1-2
	Quiz #1, 22-02-2022, Tuesday, 6:00 pm	
	Clipping algorithm: Cohen-Sutherland	Week 3
	Quiz #2, 01-03-2022, Tuesday, 6:00 pm	
	Clipping algorithm: Cyrus-Beck	Week 4
	Midterm, 16-03-2022, Wednesday, 5:00 pm	
	Overview of Transformation, Modeling	Week 5
	Transformation in details	Week 6-7
	Quiz #3, 09-04-2022, Saturday, 6:00 pm	
	Projection	Week 8
	Color models, Illumination	Week 9
	Quiz #4, 23-04-2022, Saturday, 6:00 pm	
	Shading	Week 10
	Final Exam, 14-05-2022, Saturday, 5:00 pm	

H. Grading policy:

As per Brac University grading policy

I. Course Coordinator:

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