Department of Computer Science
Lesson Plan Session 2024-2025
BACS Semester-VI

Computer Graphics (BACS-321)

January 2025 to April 2025	Topics
1st Week	Introduction: Historical perspective of Computer Graphics, Basic elements of Computer graphics,
2nd week	(Modelling, Rendering, Animation), Applications of Computer Graphics,
3rd Week	Input Devices: Keyboard, Mouse, Light Pen, Graphic Tablets, Joysticks, Trackball, Flatbed Scanner
4th Week	Hard Copy Devices: Laser Printer, Flatbed Plotters
5th Week	Video Display Devices: Pixel, Resolution, Aspect Ratio, Refresh Rate and Interlacing.
6th Week	Cathode Ray Tube, Flat Panel Display-LCD and Plasma Panel.
7th Week	Raster and Random scan display system
8th Week	Fundamental Techniques in Graphics: Line Generation Algorithms-DDA Algorithm, Bresenham's Line Generation Algorithm
9th Week	Circle Generation Algorithms- Bresenham's Algorithm and Midpoint Circle Algorithm. Polygon Filling Algorithms-Scan Line Algorithm.
10th Week	Viewing & Clipping-Point Clipping and Line Clipping, Cohen-Sutherland Line Clipping Algorithm. Polygon Clipping (Sutherland Hodgman Algorithm)
11th Week	2-Dimensional Graphics: Cartesian and Homogeneous Co-ordinate System,
12th Week	Geometric Transformations (Translation, Scaling, Rotation, Reflection).
13th Week	3-Dimensional Graphics: Geometric Transformations (Translation, Scaling, Rotation, Reflection),
14th Week	Mathematics of Projections (Parallel & Perspective).
15th Week	Doubt Clearance

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BACS Semester-VI

PYTHON PROGRAMMING (BACS-322)

January 2025 to April 2025	Topics
1st Week	Introduction to Python: History and Features of Python Programming, Python Interpreter, Variable, identifier and literal. Token, Keywords, Data Types, Arithmetic Operators, Relational Operators
2nd week	Logical Operator, Bitwise Operator, Assignment Operator, Membership Operator, Identity Operator. Operator Precedence. Comment, Indentation, Need for Indentation
3rd Week	Built-in Functions: input, eval, composition, print, type, round, min and max, pow. Type conversion, Random Number generation. Mathematical Function. Getting help on a function, Assert Statement
4th Week	Control Statements: if Conditional Statement, for and while Statements. break, continue and pass statements.
5th Week	Functions: Function Definition and Call, Function Arguments-Variable Function Arguments, Default Arguments, Keyword Arguments, Arbitrary Arguments. Command Line Arguments.
6th Week	Global and local Variables. Accessing local variable outside the scope, Using Global and Local variables in same code, Using Global variable and Local variable with same Name.
7th Week	Strings: String as a compound data type. String operations-Concatenation, Repetition, Membership operation, Slicing operation.
8th Week	String methods-count, find, rfind, capitalize, title, lower, upper, swapcase, islower, isupperistitle, replace, isalpha, isdigit, isalnum. String Processing examples.
9th Week	Lists: List operations-multiplication, concatenation, length, indexing, slicing, min, max, sum, membership operator;
10th Week	List functions-append, extend, remove, pop, count, index, insert, sort, reverse
11th Week	Recursion: Recursive solutions for problems on Numbers, String and list.
12th Week	Object Oriented Programming: Introduction to Classes, Method, Class object, Instance object, Method object.
13th Week	Class as abstract data type, Date Class. Access attributes using functions-getattr, hasattr, setattr, delattr. Built-In Class Attributes of Class object (__dict__, __doc__ , __name__, module__).
14th Week	Graphics: Screen Objects- Point and line, box, polygon, circle, arc. Screen Object Methods move_to (), move_by() ,rotate_by(),Text().Sound-Sound(),play_sound(),stop_sound().
15th Week	Doubt Clearance