Course – computer graphics and multimedia application

UNIT-I

Introduction: The Advantages of Interactive Graphics, Representative Uses of Computer

Graphics, Classification of Application Development of Hardware and software for Computer Graphics,

Conceptual Framework for Interactive Graphics, Overview, Scan: Converting Lines, Scan Converting Circles,

Scan Converting Ellipses.

UNIT-II

Hardcopy Technologies, Display Technologies, Raster-Scan Display System, Video Controller, Random-Scan Display processor, Input Devices for Operator Interaction, Image Scanners and

Working exposure on graphics tools like Dream Weaver, 3D Effects etc, Clipping

Southland- Cohen Algorithm, Cyrus-Beck Algorithm, Midpoint Subdivision Algorithm

UNIT-III

Geometrical Transformation

2D Transformation, Homogeneous Coordinates and Matrix Representation of 2D Transformations, composition of 2D Transformations, the Window-to-Viewport Transformations, Introduction to 3D Transformations Matrix.

UNIT-IV

Representing Curves & Surfaces

Polygon meshes parametric, Cubic Curves, Quadric Surface;

Solid Modelling

Representing Solids, Regularized Boolean Set Operation primitive Instancing Sweep

Representations, Boundary Representations, Spatial Partitioning Representations,

Constructive Solid Geometry Comparison of Representations.

UNIT-V

Introductory Concepts: Multimedia Definition, CD-ROM and the multimedia highway, Computer Animation

(Design, types of animation, using different functions)

UNIT-VI

Uses of Multimedia, Introduction to making multimedia – The stage of Project, hardware & software

requirements to make good multimedia skills and Training opportunities in Multimedia Motivation for

Multimedia usage

Course – operating system

UNIT-I

Introduction, What is an operating system, Simple Batch Systems, Multi-programmed Batch systems, Time-

Sharing Systems, Personal – Computer Systems, Parallel systems, Distributed systems, Real- Time Systems.

Memory Management: Background, Logical versus physical Address space, swapping, Contiguous allocation,

Paging, Segmentation

Virtual Memory: Demand Paging, Page Replacement, Page- replacement Algorithms, Performance of Demand
Paging, Allocation of Frames, Thrashing, Other Considerations

UNIT-II

Processes: Process Concept, Process Scheduling, Operation on Processes
CPU Scheduling: Basic Concepts, Scheduling Criteria, Scheduling Algorithms, Multiple – Processor
Scheduling.
Process Synchronization: Background, The Critical – Section Problem, Synchronization Hardware,
Semaphores, Classical Problems of Synchronization

UNIT-III

Deadlocks: System Model, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock prevention,
Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock

UNIT-IV

Device Management: Techniques for Device Management, Dedicated Devices, Shared Devices, Virtual
Devices; Input or Output Devices, Storage Devices, Buffering, Secondary Storage Structure: Disk Structure,
Disk Scheduling, Disk Management, Swap- Space Management, Disk Reliability

UNIT-V

Information Management: Introduction, A Simple File system, General Model of a File System, Symbolic
File System, Basic File System, Access Control Verification, Logical File System, Physical File system File –
System Interface; File Concept, Access Methods, Directory Structure, Protection,

Consistency Semantics File –

System Implementation: File – System Structure, Allocation Methods, Free-Space Management

Course – software Engineering

UNIT-I

Software Engineering: Definition and paradigms, a generic view of software engineering.

UNIT-II

Requirements Analysis: Statement of system scope, isolation of top level processes and entities and their
allocation to physical elements, refinement and review.
Analyzing a problem, creating a software specification document, review for correctness, consistency, and
completeness.

UNIT-III

Designing Software Solutions: Refining the software Specification; Application of fundamental design
concept for data, architectural and procedural designs using software blue print methodology and object
oriented design paradigm; Creating design document: Review of conformance to software requirements and
quality.

UNIT-IV

Software Implementation: Relationship between design and implementation, Implementation issues and
programming support environment, Coding the procedural design, Good coding

style and review of correctness
and readability.

UNIT-V
Software Maintenance: Maintenance as part of software evaluation, reasons for maintenance, types of
maintenance (Perceptive, adaptive, corrective), designing for maintainability, techniques for maintenance.

UNIT-VI
Comprehensive examples using available software platforms/case tools, Configuration Management.

Course – optimization Techniques

UNIT-I
Linear programming
Central Problem of linear Programming ,various definitions including Statements of basic theorem and also
their properties, simplex methods, primal and dual simplex method, transport problem, tic-tac problem, and its
solution. Assignment problem and its solution. Graphical Method Formulation, Linear Programming Problem.

UNIT-II
Queuing Theory
Characteristics of queuing system, Classification of Queuing Model Single

Channel Queuing Theory,
Generalization of steady state M/M/1 queuing models (Model-I, Model-II).

UNIT-III
Replacement Theory
Replacement of item that deteriorates replacement of items that fail. Group replacement and individual
replacement.

UNIT-IV
Inventory Theory
Cost involved in inventory problem- single item deterministic model economics, long size model without
shortage and with shortage, having production rate infinite and finite.

UNIT-V
Job Sequencing
Introduction, solution of sequencing problem ,Johnson s algorithm for n jobs through 2 machines

Course – Mathematics iii

UNIT-I
COMPLEX VARIABLES: Complex Number System, Algebra of Complex Numbers, Polar Form, Powers and
Roots, Functions of Complex Variables, Elementary Functions, Inverse Trigonometric Function.

UNIT-II
SEQUENCE, SERIES AND CONVERGENCE: Sequence, Finite and Infinite

Sequences, Monotonic

Sequence, Bounded Sequence, Limit of a Sequence, Convergence of a Sequence, Series, Partial Sums,

Convergent Series, Theorems on Convergence of Series (statement, alternating series, conditional convergent),

Leibnitz Test, Limit Comparison Test, Ratio Test, Cauchy's Root Test, Convergence of Binomial and

Logarithmic Series, Raabe's Test, Logarithmic Test, Cauchy's Integral Test (without proof)

UNIT-III

VECTOR CALCULUS: Differentiation of Vectors, Scalar and Vector Fields, Gradient, Directional

Derivatives, Divergence and Curl and their Physical Meaning.

UNIT-IV

FOURIER SERIES: Periodic Functions, Fourier series, Fourier Series of Even and Odd Functions, Half Range

Series.

UNIT-V

ORDINARY DIFFERENTIAL EQUATIONS OF FIRST ORDER: Variable- Separable Method,

Homogeneous Differential Equations, Exact Differential Equations, Linear Differential Equations, Bernoulli's

Differential Equations, Differential Equations of First Order and First Degree by Integrating Factor.

UNIT-VI

ORDINARY DIFFERENTIAL EQUATIONS OF SECOND ORDER: Homogenous Differential Equations

with Constant Coefficients, Cases of Complex Roots and Repeated Roots, Differential Operator, Solutions by

Methods of Direct Formulae for Particular Integrals, Solution by Undetermined Coefficients, Cauchy

Differential Equations, (only Real and Distinct Roots) Operator Method for Finding Particular Integrals, (Direct

Formulae).

Reference Book