

DCS-601- COMPUTER GRAPHICS, MULTIMEDIA & ANIMATION

UNIT-I

Introduction to Computer Graphics: Definition of Computer Graphics, Application of Computer Graphics, Graphics Hardware, Input and Output Devices, Display Devices, Refreshing Display Devices, Raster-Scan, Random-Scan.

UNIT-II

Graphics Primitives: Points and Lines, Line-drawing Algorithms, DDA Algorithm, Bresenham's line Algorithm, Circle generating Algorithm, Midpoint Circle of Algorithm, Polygon Filling Algorithm, Scan Line.

UNIT-III

Transformation 2-D Viewing and Clipping: Basic Transformations (2D and 3D), Translation, Rotation, Scaling, Shear, Reflection, Composite Transformations, Rotations about a point, Reflection about a line, Homogeneous Coordinate Systems, Clipping Point Clipping Line Clipping, Cohen-Sutherland Clipping algorithm, Polygon Clipping, Sutherland Hodgeman Algorithm.

UNIT-IV

Projection Parallel Projection: Orthographic, Axonometric, Oblique, Perspective Projection, Standard Perspective Projection General Perspective Projection, Vanishing Points.

UNIT-V

Shading, Colour model and Illumination: Chromaticity diagram RGB, CMY, HSV, HLS, CIE models, Realism in rendering, Image manipulation, Illumination models, shading models for polygons, Gouraud and Phong shading, shadows, Transparency, Image Filtering, image processing, geometric Transformation of images.

REFERENCES:

1. Computer Graphics, Multimedia and Animations by Malay K. Pakhira, PHI Learning.
2. Computer Graphics by Donald Hearn and M. Pauline Baker, PHI.
3. Computer Graphics Principles and Practices second edition by James D. Foley, Andeies van Dam, Stevan K. Feiner and Johb F. Hughes, 2000, Addition Wesley.
4. Multimedia on the PC, Sinclair, BPB.

LIST OF EXPERIMENTS:-

1. Write a program for 2D line drawing as Raster Graphics Display.
2. Write a program for circle drawing as Raster Graphics Display.
3. Write a program for polygon filling as Raster Graphics Display.
4. Write a program for polygon clipping.
5. Write a program for displaying 3D objects as display using perspective transformation.
6. Devise a routine to produce the animation effect of a square transforming to a triangle and then to a circle
7. Write a program to show a bitmap image on your computer screen.
8. Write a program to play “wave” or “midi” format sound files.
9. Write a program for line clipping.

DCS-602-DOT NET TECHNOLOGY

UNIT-I

Introduction to .NET: Introduction to Microsoft, .Net Framework, Building blocks in .Net, Drawback of previous languages, Understand .Net, Common language runtime (CLR), Common type system (CTS), Difference between ASP and ASP. Net, Introduction to IIS, web application and it's usage, ASP.Net IDE Visual studio .Net, Creation of web forms, Using web form controls.

UNIT-II

ASP.Net Objects and components: Response object, Server object, Application object, Session object, ASP.Net scope, state, view state, post back and configuration, Object Creation: Scripting, Drive, Folder, File, Use of object, Server Components: Ad Rotator, Content Linker, Browser Capabilities Use and Creation of global.asa file, Application object: Events, Methods and collections, Example, Session object: Enabling and disabling of session, Event, Properties, Method, Collection.

UNIT-III

ADO.Net ADO.Net in ASP. Net: Connection, Dataset and data reader, Data table and data row, Web.config introduction, Binding data with data grid, Accessing and manipulating data, ADO .Net: Server control templates and data binding techniques, Data access in .Net using ADO.Net, Server control templates available for data binding like repeater, data list and data grid controls.

UNIT-IV

ASP Transactions and e-mail Transactions, Transaction db design, CDONTS object, Email sending web page creation

UNIT-V

Working with XML in ASP.NET: Basics of XML, XML support in .NET, XML Validation Overview, XML Parsing API's in .NET, Parsing XML with the XmlTextReader, Parsing XML using DOM Objects, Generating XML with the XmlTextWriter, Introduction to XSLT, Transforming XML using .NET's XSLT classes, Viewing relational data as XML, Dataset XML Properties and Methods, Using the XmlDataDocument Class Syncing between DataSets and XmlDataDocuments.

REFERENCES:

1. G. Andrew Duthie Microsoft ASP.Net ,Step, Microsoft .Net.
- 2) Programming with C# .NET by J.G. R. Sathiaseelan and N. Sasikaladevi ,PHI Learning.
- 3) Stephen Walther, ASP.Net Unleashed, SAMS.
- 4) Microsoft ASP.NET 4.0 Step by Step by Shepherd, PHI Learning.
- 5) Jesse Liberty, Dan Hurwitz-Programming ASP.Net.

LIST OF EXPERIMENTS:

1. Design registration form of polytechnic college using text box, text area, radio list, check list, button etc. using Autopostback property.
2. Creation of file, entry, reading data from a file.
3. Create following using components: (1) Advertisement (using Adrotator) (2) Book example (using Next function) (3) Find capabilities of browser (Browser object capabilities)
4. Application to send email.
5. Using the Xml Text Reader to Parse XML
6. Creating XML Documents with the Xml Text Writer
7. Examining the Web. config File
8. Design application for following function:
 - (1) Login
 - (2) Surfing
 - (3) Logout taking into considerations (Application, Session, Server object, global.asa file and their events, methods and collection) also demonstrate enabling and disabling of session).
9. Online application (student, employee, product, shopping mall)
 - (a) Using dataset, datareader
 - (b) Using datatable and datarow (use datagrid to display data)
 - (c) Bind data to datagrid using properties/templates
 - (d) Display details (student, employee, product, etc.) using data list (4 cols per line)
10. Working with Data readers, Transactions.

DCS-603[A]– NETWORK SECURITY AND MANAGEMENT

UNIT-I

Introduction: Security overview, Computer security, network security, Key principles of Network security-Confidentially, Integrity, Availability, Threats to security need of security, types of security, Security issues.

UNIT-II

Information System Security Management: Security Polices, Security Awareness, security control, Physical Controls, Procedural Controls, Technical Controls and Legal and liability, Identification and Authentication Password, Biometrics, Single Sign On.

UNIT-III

Secrete Communication: Introduction to secrete communication, Basics of Cryptography, Substitution cipher, Cryptographic primitives, Encryption, Symmetric Encryption, Stream cipher, Block cipher, Sharing Keys, Asymmetric Encryption- Using Certificate Authority, Digital signature, SSL (Secure Socket Layer), TLS (Transport Secure Layer), Hashing algorithms.

UNIT-IV

Network management: Definition need and advantages, Windows NT Networking Architecture, Windows NT Operating System Design and Basics, Open Systems and Industry Standards, Client/Server Computing, Interoperating with Other Networks, Remote Access Service-Point to point protocol, Network Security and Domain Planning- Security Model Architecture, Controlling Access- User Accounts, User Rights.

UNIT-V

Network Services: Enterprise Level- Installing and Configuring TCP/IP, Configuring TCP/IP Clients, Dynamic IP Addressing Configuring DHCP, Accessing the DHCP Manager, Managing DHCP Scopes, Reserving IP addresses, Installing and Configuring WINS, Installing DNS Service.

REFERENCES:

- 1 Fundamentals of Network Security by John E. Canavan.
2. Network Security Bible by Dr. Eric Cole, Dr. Ronald Krutz, and James W. Conley.
3. Network Management: A Practical Perspective by Allan Leinwand and Karen Fang.
4. Forouzan, TCP/IP Protocol Suite 4th edition, TMH.
5. J.Richard Burkey, Network Management Concept and Practice, PHI.

DCS-603[B]– DISTRIBUTED SYSTEM

UNIT-I

Introduction to distributed systems: Architecture for Distributed System, Goals of Distributed system, Hardware and Software concepts, Distributed Computing Model, Advantages & Disadvantage distributed system, Issues in designing Distributed System.

UNIT-II

Distributed Share Memory and Distributed File System: Basic Concept of Distributed Share Memory (DSM), DSM Architecture & its Types, Design & Implementations issues In DSM System, Structure of Share Memory Space, Consistency Model, and Thrashing, Desirable features of good Distributed File System, File Model, File Service Architecture, File Accessing Model, File Sharing Semantics, File Caching Scheme, File Application & Fault tolerance, **Naming:** Features, System Oriented Names, Object Locating Mechanism, Human Oriented Name.

UNIT –III

Inter Process Communication and Synchronization: API for Internet Protocol, Data Representation & Marshaling, Group Communication, Client Server Communication, RPC-Implementing RPC Mechanism, Stub Generation, RPC Messages, Synchronization, Clock Synchronization, Mutual Exclusion, Election **Algorithms:** Bully & Ring Algorithms.

UNIT-IV

Distributed Scheduling and Deadlock: Distributed Scheduling Issues in Load Distributing, Components for Load Distributing Algorithms, Different Types of Load Distributing Algorithms, Task Migration and its issues. Deadlock-Issues in deadlock detection & Resolutions, Deadlock Handling Strategy, Distributed Deadlock Algorithms.

UNIT-V

Distributed Multimedia & Database system: Distributed Data Base Management System (DDBMS), Types of Distributed Database, and Distributed Multimedia, Characteristics of multimedia Data, Quality of Service Managements, Case Study of Distributed System, Amoeba, Mach, Chorus.

REFERENCES:

1. Sinha, Distributed Operating System Concept & Design, PHI
2. Coulouris & Dollimore, Distributed System Concepts and Design, Pearson Pub
3. Singhal & Shivratri, Advance Concept in Operating System, McGraw Hill

4. Attiya & Welch, Distributed Computing, Wiley Pub.

CS-604[A]- DATA MINING & WAREHOUSING

UNIT-I

Fundamentals of Data Mining: Data mining, The history of the data mining, Data Mining strategies, Popular data mining techniques, Data mining applications, Challenges of data mining, The future of data mining.

UNIT-II

Data Processing and Data Warehousing: Data, information and knowledge, Types of data, Data warehouses, Data cleaning, Data de-normalization, Data transformation, Data quality measure, OLAP(Online Analytical Processing), Data Sampling.

UNIT-III

Weka an Attractive Data Mining Tool: Introduction, Installing Weka, Weka data file format, Starting Weka, Data Visualization, Data filtering, Selecting Attributes, Data Mining with Weka.

UNIT-IV

Association Rule Mining: Transaction data, Concepts of association rules, Relevance of association rule mining, Functions of association rule mining, Improvement and share, The problem of large datasets, Apriority algorithm, Strengthens and weakness of Association Rule Mining, Application of Association Rule Mining.

UNIT-V

The Clustering Task: Introduction, Distance Measure, Types of clustering, Clustering through Weka, K-Means algorithms, Clustering Validation, Strengthens and weakness of Clustering algorithms, Applications of Clustering algorithms.

REFERENCES:

1. Data Mining and Data Warehousing by Bharat Bhushan Agarwal.
2. M.Kaufman. Data Mining Techniques; Arun K.Pujari ; University Press.

CS-604[B]-ARTIFICIAL INTELLIGENCE

UNIT-I

Introduction To Ai: Meaning and definition of Artificial Intelligence, Characteristics of AI Problems, Scope and Future Expectation of AI, Application of AI.

UNIT-II

Problem Solving and Control Strategies: State Space Representation, Problem Characteristics, Production System and its type, Characteristics of Production System, Breadth First Search and Depth First Search, Forward and Backward Chaining, Control Strategies and its Type.

UNIT-III

Knowledge Representation: Representation and Mapping , Approaches to Knowledge Representation, Issues in Knowledge Representation, Knowledge Representation using Predicate Logic and Propositional Logic, Resolution and Refutation, Deduction, Theorem Proving, Procedural Knowledge and Declarative Knowledge, Introduction to Reasoning, Various types of Reasoning methods like Forward, Backward, monotonic, non-monotonic, probabilistic Reasoning, Baye's Theorem, Bayesian Network, Semantic Networks, Frames, Conceptual Dependency, Scripts.

UNIT-IV

Knowledge Representation: Representation and Mapping, Approaches to Knowledge Representation, Issues in Knowledge Representation, Knowledge Representation using Predicate Logic and Propositional Logic, Resolution and Refutation, Deduction, Theorem Proving, Procedural Knowledge and Declarative Knowledge, Introduction to Reasoning, Various types of Reasoning methods like Forward, Backward, monotonic, non-monotonic, probabilistic Reasoning, Baye's Theorem, Bayesian Network, Semantic Networks, Frames, Conceptual Dependency, Scripts.

UNIT-V

Learning and Natural Language Processing : Introduction to Learning , Types of Learning , Learning in neural network, Learning Processes, Error Correction Learning, Memory based Learning, Hebbian Learning, Competitive Learning, Learning with teacher, Learning without teacher , Introduction to NLP and its different Phases , Parsing Techniques, Context Free Grammar , Recursive Transition nets (RTN), Augmented Transition nets (ATN), CSE and Logic Grammars, Semantic Analysis.

REFERENCES:

1. Introduction to AI & ES by DAN W. Patterson, PHI learning
2. Introduction to Artificial Intelligence by Eugene Charniak and Drew McDermott, Addison Wesley.
3. Principles of Artificial Intelligence by Nils J. Nilson.

DCS-605 MAJOR PROJECT

The aim of the final year project is to develop student's knowledge for solving technical problems through structure project research study in order to produce competent and sound engineers. It provides the students with the opportunity to design undertake or conduct an independent research or study related to their degree course.

Following are the compulsory objectives to be needed :

1. It should be from the approved area of the subject.
2. Students must submit a written report of the same.
3. Students must submit outline and action plan for the project execution
4. Each student is required to prepare a project report and present the same at the final examination with a ppt. demonstration.
5. The project should be authentic and must not be copied from anywhere and it should be working.