CS15: Data Communication and Computer Networks

(5 Hours – 4 Credits)

Unit I:

Introduction: A Brief History – Applications – Computer Networks – Categories of Networks – Standards and Standards Organizations – Network Architecture – Open Systems and OSI Model – TCP/IP Architecture. **Communication Media and Data Transmission:** Fourier Analysis – Analog and Digital Data Transmission – Modulation and Demodulation – Transmission Media – Wireless Communications – Data Transmission Basics – Transmission Mode – Interfacing – Multiplexing. **Error Detection and Correction:** Types of Errors – Error Detection – Error Correction.

Data Link Control and Protocol Concepts: Flow Control – Error Control – Asynchronous Protocols – Synchronous Protocols – High-Level Data Link Control (HDLC).

Unit II:

Local Area Networks: Types of Networks and Topology –LAN Transmission Equipment – LAN Installation and Performance.

Ethernet: IEEE Standard 802.3 **Token Bus**: IEEE Standard 802.4 **Token Ring:** IEEE Standard 802.5 – Fiber Distributed Data Interface (FDDI) – **Distributed Queue Dual Bus (DQDB):** IEEE Standard 802.6 – LAN Operating Systems and Protocols – Ethernet Technologies.

Wide Area Networks: WAN Transmission Methods – WAN Carrier Types – WAN Transmission Equipments – WAN Design and Multicast Considerations – WAN Protocols.

Unit III:

Integrated Services and Routing Protocols: Integrating Services – ISDN Services – ISDN Topology – ISDN Protocols – Broadband ISDN – Asynchronous Transfer Mode (ATM) – Principal Characteristics of ATM – Frame Relay – Comparison of ISDN, ATM and Frame Relay.

Wireless LANS: WLAN Applications – Wireless LAN Requirements – Planning for Wireless LANs – Wireless LAN Architecture – IEEE 802.11 Protocol Layer – IEEE 802.11 Physical Layer – Designing the Wireless LAN Layout – WAP Services.

Unit IV:

Internet Working: Principles of Internet Working – Routing Principles – Internetwork Protocols (IP) – Shortcomings of IPv4 – IP Next Generation.

TCP Reliable Transport Service: Transport Protocols – The Service TCP Provides to Applications – End –to-End Service and Datagrams – Transmission Control Protocol – User Datagram Protocol.

Unit V:

Network Applications: Client-Server Model – Domain Name System (DNS) – Telnet – File Transfer and Remote File access – Electronic Mail – World Wide 397 Web (WWW)

Network Management: Goal of Network Management – Network Management Standards – Network Management Model – Infrastructure for Network Management – Simple Network Management Protocol (SNMP).

Text Book:
Data Communications and Computer Networks, Brijendra Singh
,Second Edition, PHI, 2006.
Unit I : Chapters 1,2,3,5
Unit II : Chapters 6, 7
Unit III : Chapters 8, 9
Unit IV : Chapters 10,11
Unit V : Chapter 12

Reference Books:
1. Computer Networks, Andrew S Tanenbaum, 4th Ed, Prentice Hall of India, 2006.
2. Data Communications and Computer Networks , Prakash C. Gupta,
Prentice Hall of India, 2005.
3. Data and Computer Communications, William Stallings, PHI, 2007.
4. Data Communication and Networking ,Behrouz A. Forouzan, TMH, 2005.
5. Data Communications and Networks , Achyut S Godbole, TMH,2005.

CS16: Lab 11: Web Technology

(6 Hours – 4 Credits)
(Select one question from JavaScript and ASP.net)

JavaScript & JSP
1. Write a JavaScript Program To Generate Fibonacci Series
2. Write a JavaScript Program For Checking Palindrome Or Not
3. Write a JavaScript Program To Validate Form
4. Write a JavaScript Program To Create Popup Window
5. An Html Form With A JavaScript Event Handler
6. Write a JavaScript Program To Remove Items From A Dropdown List
7. Write a JavaScript Program To Display A Random Image
8. Write a JavaScript Program To Valid An Email Address.
9. Write a JSP to add the contents of another JSP file using **@include** directive.
10. Write a JSP to check whether the given number is prime or not.
11. Write a JSP to forward one JSP file to another JSP file using **forward** action.

ASP.Net
12. Working with Page and Forms Using Asp .Net.
13. To Create An Account Registration Form And Perform The Following Validation
a) User Name398
b) Password
c) Retype Password
d) Gender
e) Email-Id
f) Date Of Birth
g) Mobile
14. To Read Student Details From Xml File
15. To Display Vehicle Details In Tree View Control From Xml File
16. Create Any Application Program Using Menu Server Control
17. To Process Student Database Using **Sqldatasourc**e Control
18. To Display Employee Details From The Database Using S**itemapdatasource**
19. To Read And Display Personal Database Using **Xmldatasource** Control
20. Create A Web Page For Your Department

21. Send An Mail

CS17: Data Mining

(5 Hours - 4 Credits)

Unit I:

Introduction: Data mining application – data mining techniques – data mining case studies the future of data mining – data mining software. **Association rules mining:** Introduction -Basics-task and a Naive algorithm- Apriori algorithm – improve the efficiency of the Apriori algorithm – mining frequent pattern without candidate generation (FP-growth) – performance evaluation of algorithms.

Unit II:

Data warehousing: Introduction – Operational data sources- data warehousing – Data Warehousing design – Guidelines for data warehousing implementation - Data warehousing -Metadata. **Online analytical processing (OLAP):** Introduction – OLAP characteristics of OLAP system – Multidimensional view and data cube - Data cube implementation – Data Cube operations OLAP implementation guidelines.

Unit III:

Classification: Introduction – decision tree – over fitting and pruning - DT rules – Naïve Bayes method- estimation predictive accuracy of classification methods - other evaluation criteria for classification method – classification software.

Unit IV:

Cluster analysis: cluster analysis – types of data – computing distances types of cluster analysis methods - partitioned methods – hierarchical methods – density based methods – Dealing with large databases – quality and validity of 399 cluster analysis methods – cluster analysis software.

Unit V:

Web data mining: Introduction- web terminology and characteristics locality and hierarchyin the web- web content mining-web usage mining- web structure mining – web mining software. **Search engines:** Search engines functionality- search engines architecture – Ranking of web pages.

Text Books

Introduction to Data mining with case studies, G.K. Gupta, PHI Private limited, New Delhi, 2008.
Unit I : Chapters 1 & 2
Unit II : Chapters 7 & 8
Unit III : Chapter 3
Unit IV: Chapter 4
Unit V : Chapters 5 & 6

Reference Books

1. Data Warehousing, Data Mining & OLAP, Alex Berson and Stephen J. Smith, Tata Mc Graw Hill Edition, Tenth Reprint 2007
2. Data Mining Concepts and Techniques, Jiawei Han and Micheline

Kamber, Second Edition, Elsevier, 2007
3.Insights into Data Mining K.P. Soman, Shyam Diwakar, V. Ajay, Theory and Practice, PHI Publications Eastern Economy Edition 6th Printing, 2012

ES2. 1: Computer Graphics

(5 Hours – 4 Credits)

Unit I:

A survey of computer graphics: Computer-Aided Design - Presentation Graphics – Computer Art – Entertainment – Education and Training – Visualization – Image Processing
– Graphical User Interfaces.
Overview of Graphics Systems: Video Display Devices – Raster Scan Systems – Random Scan Systems – Input Devices – Hard Copy Devices.

Unit II:

Output Primitives: Points and Lines – Line Drawing Algorithms – Circle Generating Algorithms – Ellipse Generating Algorithms – Filled Area primitives.

Unit III:

Attributes of Output Primitives: Line Attributes – Curve Attributes – Color and Gray Scale Levels – Area Fill Attributes – Character Attributes – Bundled Attributes – Inquiry Functions – Antialiasing.400

Unit IV:

Two–Dimensional Geometric Transformations: Basic Transformations – Matrix Representations – Composite Transformations – Other Transformations – Transformations between Coordinate Systems.

Unit V:

Two –Dimensional Viewing : The Viewing Pipeline – Viewing Coordinate Reference Frame – Window –to- Viewport Coordinate Transformation – Two-Dimensional Viewing Functions – Clipping Operations – Point Clipping – Line Clipping – Polygon Clipping – Curve Clipping – Text Clipping – Exterior Clipping.

Text Book:

Computer Graphics, Donald Hearn and M. Pauline Baker, Prentice Hall Of India Pvt. Ltd., New Delhi, Second Edition, 1994.
Unit I : Chapters 1.1 – 1.8, 2. 1-2.3, 2.5, 2.6
Unit II : Chapters 3.1, 3.2, 3.5-3.7, 3.11
Unit III : Chapters 4.1 – 4.8
Unit IV : Chapters 5.1 – 5.5
Unit V : Chapters 6.1 – 6.11

Reference Books:

1. Computer Graphics, Multimedia and Animation – Malay K. Pakhira, Prentice Hall Of India Pvt. Ltd. , New Delhi – 2008
2. Fundamentals Of Computer Graphics And Multimedia – D. P. Mukherjee, Prentice Hall Of India Pvt. Ltd. , New Delhi – 1999
3. Multimedia Graphics, John Villamil, Casanova ,LeonyFernanadez, Eliar, PHI,1998.

SBS 6: Quantitative Aptitude

(2 Hours - 2 Credits)

Unit I:

Numbers - HCF & LCM of numbers – Decimal Fractions

Unit II:

Square roots and Cube roots- Average – Problems on ages.

Unit III:

Percentage – Profit and Loss – Ratio and Proportion.

Unit IV:

Time and Work – Time and Distance.

Unit V:

Simple Interest – Compound Interest.

Text Book:

Quantitative Aptitude, R.S. Aggarwal, S. Chand & Company Ltd, New Delhi,Reprint 2011.

Unit I : Page nos. 3-29, 30-45, 46-66
Unit II : Page nos. 117-138, 139-160, 182-194
Unit III : Page nos. 208-250, 251-293, 294-310
Unit IV : Page nos. 341-370, 384-404
Unit V : Page nos. 445-465, 466-486

Reference Books:

1. Quantitative Aptitude and reasoning, R.V. Praveen, PHI Learning, 2nd Edition 2013. 2.Magical book on Quicker Maths, M.Tyra, BSC Publishing Co. Pvt.Ltd, Delhi. Reprint, 2011.
2. Quantitative Aptitude for Competitive Exams, Abhijit Guha, 4th Edition, Tata Mc Graw Hill Company, New Delhi.