

SHRI VENKATESHWARA UNIVERSITY



Syllabus

BACHELOR OF COMPUTER APPLICATION
(BCA)
V Semester (Programme)

(w.e.f. 2019-20)

SCHOOL OF ENGINEERING & TECHNOLOGY

Subject: -	Subject Code	Max.marks	Credit
Data base management system	BCA-501	70	3

S.N .	Unit number	Topics	Sub Topics
1.	1.	Introduction	Characteristics of database approach, data models, DBMS architecture and data independence.
2.	2.	E-R Modeling	Entity types, Entity set, attribute and key, relationships, relation types, roles and structural constraints, weak entities, enhanced E-R and object modeling, Sub classes; Super classes, inheritance, specialization and generalization.
3.	3.	File Organization	Indexed sequential access files; implementation using B & B++ trees, hashing, hashing functions, collision resolution, extendible hashing, dynamic hashing approach implementation and performance.
4.	4.	Relational Data Model	Relational model concepts, relational constraints, relational algebra SQL: SQL queries, programming using SQL.
5.	5.	EER and ER to relational mapping	Data base design using EER to relational language.
6.	6.	Data Normalization	Functional Dependencies, Normal form up to 3 rd normal form. Concurrency Control: Transaction processing, locking techniques and associated, database recovery, security and authorization. Recovery Techniques, Database Security

Referential Books:

1. Abraham Silberschatz, Henry Korth, S.Sudarshan, "Database Systems Concepts", 4th Edition, McGraw Hill, 1997.
2. Jim Melton, Alan Simon, "Understanding the new SQL: A complete Guide", Morgan Kaufmann Publishers, 1993.
3. A.K.Majumdar, P. Bhattacharya, "Database Management Systems", TMH,

1996. 4. Bipin Desai, “An Introduction to database systems”, Galgotia Publications, 1991.

Subject: -	Subject Code	Max.marks	Credit
Java Programming and Dynamic Webpage Design	BCA-502	70	3

S.N .	Unit number	Topics	Sub Topics
1.	1.	Java Programming	Data types, control structured, arrays, strings, and vector, classes (inheritance, package, exception handling) multithreaded programming.
2.	2.	Java Applets	Java applets, AWT controls (Button, Labels, Combo box, list and other Listeners, menu bar) layout manager, string handling (only main functions
3.	3.	Networking	Networking (datagram socket and TCP/IP based server socket) event handling, JDBC: Introduction, Drivers, Establishing Connection, Connection Pooling.
4.	4.	HTML	HTML: use of commenting, headers, text styling, images, formatting text with , special characters, horizontal rules, line breaks, table, forms, image maps, <META> tags, <FRAMESET> tags, file formats including image formats.
5.	5.	Java Servlets	Introduction, HTTP Servlet Basics, The Servlet Lifecycle, Retrieving Information, Sending HTML Information, Session Tracking, Database Connectivity
6.	6.	Java Server Pages	Introducing Java Server Pages, JSP Overview, Setting Up the JSP Environment, Generating Dynamic Content, Using Custom Tag Libraries and the JSP Standard Tag Library, Processing Input and Output

Subject: -	Subject Code	Max.marks	Credit
Computer Network	BCA-503	70	4

S.N .	Unit number	Topics	Sub Topics
1.	1.	Basic Concepts	Components of data communication, distributed processing, standards and organizations. Line configuration, topology, Transmission mode, and categories of networks.
		OSI and TCP/IP Models	Layers and their functions, comparison of models. Digital Transmission: Interfaces and Modems: DTE-DCE Interface, Modems, Cable modems.
		Transmission Media	Guided and unguided, Attenuation, distortion, noise, throughput, propagation speed and time, wavelength, Shannon capacity, comparison of media
2.	2.	Telephony	Multiplexing, error detection and correction: Many to one, One to many, WDM, TDM, FDM, Circuit switching, packet switching and message switching. Data link control protocols: Line discipline, flow control, error control, synchronous and asynchronous protocols, character and bit oriented protocols, Link access procedures.
3.	3.	Point to point controls	Transmission states, PPP layers, LCP, Authentication, NCP. Services, Historical outline, subscriber's access, ISDN Layers and broadcast ISDN.
		ISDN	Repeaters, bridges, gateways, routers, The Network Layer; Design issues, Routing algorithms, Congestion control Algorithms, Quality of service, Internetworking, Network-Layer in the internet.
		Devices	Transport layer functions, connection management, functions of session layers, presentation layer and application layer.
4.	4.	Transport and upper layers in OSI Model	
5.	5.		

Referential Books:

th

1. A.S.Tanenbaum, "Computer Networks"; Pearson Education Asia, 4 Ed. 2003.
2. Behrouz A.Forouzan, "Data Communication and Networking", 3rd Ed. Tata MCGraw Hill,2004.
3. William Stallings, "Data and computer communications", Pearson education Asia, 7thEd..2002.

Subject: -	Subject Code	Max.marks	Credit
Numerical Methods	BCA-504	70	4

S.N	Unit number	Topics	Sub Topics
1.	1.	Roots of Equations	Bisections Method, False Position Method, Newton's Raphson Method, Rate of convergence of Newton's method.
2.	2.	Interpolation and Extrapolation	Finite Differences, The operator E, Newton's Forward and Backward Differences, Newton's dividend differences formulae, Lagrange's Interpolation formula for unequal Intervals, Gauss's Interpolation formula, Starling formula, Bessel's formula, Laplace-Everett formula.
3.	3.	Numerical Differentiation Numerical Integration	Introduction, direct methods, maxima and minima of a tabulated function, General Quadratic formula, Trapezoidal rule, Simpson's One third rule, Simpson's three- eight rule.
4.	4.	Solution of Linear Equation	Gauss's Elimination method and Gauss's Siedel iterative method.
5.	5.	Solution of Differential Equations	Euler's method, Picard's method, Fourth-order Runga - Kutta method.

Referential Books:

1. Scarbourogh, "Numerical Analysis".
1. Gupta & Bose S.C. "Introduction to Numerical Analysis, "Academic Press, Kolkata, 3.
- S.S.Shashtri, " Numerical Analysis", PHI