Annexure No.	32 H
SCAA Dated	29.02.2008

BHARATHIAR UNIVERSITY, COIMBATORE-46
SCHOOL OF DISTANCE EDUCATION

B.Sc.[IT]
SCHEME OF EXAMINATION FOR THE ACADEMIC YEAR 2007-08 (Non-semester)

Year	Sub Code	Subject	Exam. Hrs.	Max. Marks
I		PART-I: Language-I	3	**100**
		PART-II: Language-II(English)	3	**100**
		Allied 1: MATHEMATICAL FOUNDATION FOR COMPUTER SCIENCE	3	**100**
		Core 1: DIGITAL FUNDAMENTALS AND ARCHITECTURE	3	**100**
		Core 2:DATA STRUCTURES AND C PROGRAMMING	3	**100**
II		Core 3: OBJECT ORIENTED PROGRAMMING WITH C++	3	**100**
		Core 4: SYSTEM SOFTWARE AND OPERATING SYSTEM	3	**100**
		Core 5: SOFTWARE ENGINEERING	3	**100**
		Core 6: INTERNET & JAVA PROGRAMMING	3	**100**
		Core (Lab-1): C++ and JAVA	3	**100**
III		Core 7: PRINCIPLES OF DATA COMMUNICATION AND NETWORKS	3	**100**
		Core 8: RELATIONAL DATABASE MANAGEMENT SYSTEM AND ORACLE	3	**100**
		Core 9: VISUAL PROGRAMMING	3	**100**
		Core 10: WEB TECHNOLOGY	3	**100**
		Core (Lab-2) : VISUAL BASIC & ORACLE	3	**100**
		Total		**1500**

BHARATHIAR UNIVERSITY , COIMBATORE -46

Course	**B. Sc. (Information Technology) - SDE**
Effective from	**2007-2008 and Onwards**
Year	**I**
Subject	**ALLIED 1 : MATHEMATICAL FOUNDATIONS FOR COMPUTER SCIENCE**

Subject Description:

This subject deals with mathematical concepts like matrices, numerical analysis and statistical methods for computer science and applications

Goal:

To learn about the mathematical structures for computer applications.

Objective:

On successful completion of this subject the students should have :

- Understanding the concepts of mathematics
- Learning applications of statistical and numerical methods for computer science

Unit I

Matrices – Introduction – Determination – Inverse of a matrix – Rank of a Matrix - Eigen value Problems

Unit II

Set theory-Introduction-Set & its Elements-Set Description-Types of sets-Venn-Euler Diagrams- Set operations & Laws of set theory-Fundamental products-partitions of sets-minsets-Algebra of sets and Duality-Inclusion and Exclusion principle

Unit III

Mathematical logic – Introduction- prepositional calculus –Basic logical operations-Tautologies-Contradiction-Argument-Method of proof- Predicate calculus.

Unit IV

Relations – Binary Relations – Set operation on relations-Types of Relations – Partial order relation – Equivalence relation – Composition of relations – Functions – Types of functions – Invertible functions – Composition of functions.

Unit V

Graph Theory – Basic terminology – paths, cycle & Connectivity – Sub graphs - Types of graphs – Representation of graphs in compute memory - Trees – Properties of trees – Binary trees – traversing Binary trees – Computer Representation of general trees.

Text Book:

1. Engineering Mathematics Volume II – Dr M.K. Venkataraman – NPC (Unit I)
2. Discrete Mathematics – J.K. Sharma Second Edition – 2005 , Macmillan India Ltd.

Reference Books:

1. Discrete Mathematics Structures with Applications to computer science - J. P Tremblay R Manohar – Mc Graw Hill International Edition.
2. Discrete Mathematics – Dr M. K. Venketaramen, Dr N.Sridharan, N. Chandarasekaran – The National publishing Company Chennai.

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Course	**B. Sc. (Information Technology) - SDE**
Effective from	**2007-2008 and Onwards**
Year	**I**
Subject	**CORE 1 :DIGITAL FUNDAMENTALS AND ARCHITECTURE**

Subject Description: This subject deals with fundamentals of digital computers, Microprocessors and system architecture.

Goal: To learn about computer fundamentals and its organization.

Objective: On successful completion of this subject the students should have :

- Knowledge on digital circuits
- Microprocessor architecture
- Interfacing of various components

Unit I :

Number System and Binary Codes: Decimal, Binary, Octal, Hexadecimal – Binary addition, Multiplication, Division – Floating point representation, Complements, BCD, Excess3, Gray Code.Arithmetic Circuits: Half adder, Full adder, Parallel binary adder, BCD adder, Half subtractor, Full subtractor, Parallel binary subtractor - Digital Logic: the Basic Gates – NOR, NAND, XOR Gates.

Unit II:

Combinational Logic Circuits: Boolean algebra –Karnaugh map – Canonical form 1 – Construction and properties – Implicants – Don't care combinations - Product of sum, Sum of products, simplifications. Sequential circuits: Flip-Flops : RS, D, JK, T - Multiplexers – Demultiplexers – Decoder – Encoder - Counters.

Unit III:

MICROPROCESSOR: Architecture – Bus Organization – Functional diagram and pin out diagram of 8085 - Addressing modes of 8085 – Instruction set of 8085 – I/O Schemes – Peripherals and Interfaces.

Unit IV:

Input – Output Organization: Input – output interface – I/O Bus and Interface – I/O Bus Versus Memory Bus – Isolated Versus Memory – Mapped I/O – Example of I/O Interface. Asynchronous data transfer: Strobe Control and Handshaking – Priority Interrupt: Daisy-Chaining Priority, Parallel Priority Interrupt. Direct Memory Access: DMA Controller, DMA Transfer. Input – Output Processor: CPU-IOP Communication.

Unit V

Memory Organization: Memory Hierarchy – Main Memory- Associative memory: Hardware Organization, Match Logic, Read Operation, Write Operation. Cache Memory: Associative, Direct, Set-associative Mapping – Writing Into Cache Initialization. Virtual Memory: Address Space and Memory Space, Address Mapping Using Pages, Associative Memory Page Table, Page Replacement.

Text Books:

1. Digital Electronics Circuits and Systems, V.K. PURI, TMH.
2. Computer System Architecture, M. MORRIS MANO, Pearson Education Pub,3rd Edition.

Reference Books:

1. Digital principles & applications, Albert paul malvino, Donald P Leach,TMH 1996.
2. Computer Architecture, Carter, Schaums outline series, TMH.

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Course	**B. Sc. (Information Technology) - SDE**
Effective from	**2007-2008 and Onwards**
Year	**I**
Subject	**CORE 2 : DATA STRUCTURES AND C PROGRAMMING**

Subject Description: This subject deals with the methods of data structures using C programming language.
Goal: To learn about C programming language using data structural concepts.
Objective: On successful completion of this subject the students should have :

- Writing programming ability on data structures dealing with Stacks, Queues, List, Searching and Sorting algorithms etc.,

UNIT I:

Programming development methodologies – Programming style – Problem solving techniques: Algorithm, Flowchart, Pseudocode - Structure of a C program – C character set – Delimiters – Keywords – Identifiers – Constants – Variables – Rules for defining variables – Data types – Declaring and initializing variables – Type conversion.

Operators and Expressions – Formatted and Unformatted I/O functions – Decision statements – Loop control statements.

UNIT II:

Arrays – String and its standard functions.Pointers – Functions – Preprocessor directives: #define, #include, #ifndef, Predefined macros.

UNIT III:

Structure and Union: Features of structure, Declaration and initialization of structure, Structure within structure, Array of structure, Pointer to structure, Bit fields, Enumerated data types, Union.Files: Streams and file types, Steps for file operation, File I/O, Structures read and write, other file functions, Command line arguments, I/O redirection.

UNIT IV:

Linear data structures: Introduction to data structures – List: Implementations, Traversal, Searching and retrieving an element, Predecessor and Successor, Insertion, Deletion, Sorting, Merging lists – Stack: Representation, Terms, Operations on stack, Implementation. Single linked list, Linked list with and without header, Insertion, Deletion, Double linked list – Queues: Various positions of queue, Representation

UNIT V:

Searching and Sorting – Searching: Linear, Binary.

Sorting – Insertion, Selection, Bubble, Quick, Tree, Heap.

TEXT BOOK:

Ashok N Kamthane, "PROGRAMMING & DATA STRUCTURES" – Pearson Education, First Indian Print 2004, ISBN 81-297-0327-0.

REFERENCE BOOK:

1. E Balagurusamy: Programming in ANSI C, Tata McGraw-Hill, 1998.
2. Ellis Horowitz & Sartaj Sahni: Fundamentals of Data Structure, Galgotia Book Source, 1999.
3. Data structure using C – Aaron M Tanenbaum, Yedidyeh langsam, Moshe J Augenstein, PHI Pub

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Course	**B.Sc. (Information Technology) (SDE)**
Effective from	**2007-2008 and Onwards**
Year	**II**
Subject	**CORE 3 : OBJECT ORIENTED PROGRAMMING WITH C++**

UNIT – I	Introduction to C++ - Key Concepts of OOP – Advantages – OO Languages – I/O in C++ - C++ Declarations - Control Structures – Decision Making Statements – If…Else – Jump – GOTO – Break – Continue – Switch Case Statements – Loops in C++ - For – While – Do…While loops – Functions in C++, In line Functions – Function Overloading.
UNIT – II	Class and Objects: Declaring objects – Defining member functions – Static member variables and functions – Array of objects – Friend functions – Overloading member functions – Bit fields and Class – Constructor and Destructors – Characteristics – Calling constructor and Destructors – Constructor and Destructor with static member.
UNIT – III	Operator Overloading: Overloading unary, Binary operators – Overloading friend functions – Type conversion - Inheritance: Types of inheritance: Single, Multilevel, Multiple, Hierarchical, Hybrid and Multi path inheritance – Virtual Base classes – Abstract Classes.
UNIT – IV	Pointers: Declaration – Pointer to class, object – THIS pointer – Pointer to derived classes and base classes – Arrays – Characteristics – Arrays of classes – Memory models – New and delete operators – Dynamic objects – Binding, Polymorphisms and Virtual functions.
UNIT – V	Files: File stream classes – File Modes – Sequential read/write operations – Binary and ASCII files – Random access operation – Templates – Exception handling – Strings – Declaring and initializing string objects – String attributes – Miscellaneous functions.
Text Book(s)	Ashok N Kamthane: Object Oriented Programming with ANSI and Turbo C++, Pearson Education Publ., 2003.
Ref. Book(s)	1. E. Balagurusamy: Object Oriented Programming with C++, TMH Pub., 1998. 2. Maria Litvin and Gary Litvin: C++ for you++, Vikas Publ, 2002. 3. John R Hubbard: Programming with C++, TMH Publ. II Edition, 2002.

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Course	**B.Sc. (Information Technology) (SDE)**
Effective from	**2007-2008 and Onwards**
Year	**II**
Subject	**CORE 4: SYSTEM SOFTWARE & OPERATING SYSTEM**

UNIT – I	Introduction –System Software and machine architecture-Assemblers-Basic assembler functions - Machine dependent features-program relocation-Machine independent features – literals - symbol defining statements-expressions-program blocks-control sections and program linking - Assembler design options-one pass assemblers-multi pass assemblers. Loader and Linkers: Basic Loader Functions - Machine dependent loader features – relocation – program – linking - Machine independent loader features - Automatic Library search - Loader options - Loader design options - linkage editor - dynamic linking - Bootstrap loader.
UNIT – II	Macroprocessor: Basic macroprocessor functions - Machine independent macroprocessor features - concatenation of macro parameter macro processor design options-recursive macro expansion - general purpose macro processor - macro processing within language translators. Text Editors: Overview of editing process - user interface - editor structure.
UNIT – III	Machine dependent compiler features - Intermediate form of the program-Machine dependent code optimization-machine independent compiler features-Compiler design options-division into passes-interpreters-p –code compilers-compiler-compilers.
UNIT – IV	Introduction: Definition of DOS – History of DOS – Definition Of Process - Process states - process states transition – Interrupt processing – interrupt classes - Storage Management Real Storage: Real storage management strategies – Contiguous versus Non-contiguous storage allocation – Single User Contiguous Storage allocation- Fixed partition multiprogramming – Variable partition multiprogramming. Virtual Storage: Virtual storage management strategies – Page replacement strategies – Working sets – Demand paging – page size.
UNIT – V	Processor Management Job and Processor Scheduling: Preemptive Vs Non-preemptive scheduling – Priorities – Deadline scheduling - Device and Information Management Disk Performance Optimization: Operation of moving head disk storage – Need for disk scheduling – Seek Optimization – File and Database Systems: File System – Functions – Organization – Allocating and freeing space – File descriptor – Access control matrix.
Text Book(s)	1. Leland –L-Beck, “System Software-An Introduction to Systems Programming”, Pearson Education Publishers, Third Edition-2003. 2. H. M Deitel , “ Operating Systems “ , 2nd Edition, Perason Education Publication,2003.
Ref. Book(s)	1. Achyut s Godbole , “ Operating Systems” , TMH Publications , 2002 2. John J. Donovan , “Systems Programming ” , TMH Publications , 1991 3. D.M. Dhamdhrer, “Systems Programming and Operating Systems “, 2nd Revised Edition.

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Course	**B.Sc. (Information Technology) (SDE)**
Effective from	**2007-2008 and Onwards**
Year	**II**
Subject	**Core 5:** SOFTWARE ENGINEERING

UNIT – I	Introduction to Software Engineering: Some Definition – Size Factors – Quality and Productivity Factors – Planning a Software Project – Defining the Problem – Developing a Solution Strategy – Planning the Development Process
UNIT – II	Software Cost Estimation: Software Cost Factors – Software Cost Estimation Technique – Estimating Software Maintenance Costs – Software Requirements Definition – Formal Specification Techniques
UNIT – III	Implementation Issues: Structured Coding Techniques: Single Entry, Single Exit Constructs – Efficiency Considerations – Violations of Single Entry, Single Exit – Data Encapsulation – The Goto Statements – Recursion – Coding Style – Standard and Guidelines – Documentation Guidelines. Verification and Validation Techniques: Quality Assurance – Walkthroughs and Inspections
UNIT – IV	Testing for Quality – Functional Testing – System Testing – User Satisfaction Testing – Test Cases and Test Plans. Advanced Topics in Software Engineering: Development of Critical Systems – The Future of Software Engineering
UNIT – V	Special Topics in Software Engineering: Web Applications Development Engineering – Component-based software engineering – Class room software engineering – Software system maintenance – Software verification for QA – Software engineering support tools – Overiview of PERT /CPM – Reengineering and software reengineering
Text Book(s)	1. Richard Fairley, "Software Engineering Concepts", Tata McGraw-Hill Publishing Company Limited,25th reprint, 2007 2. S. Jawadekar, "Software Engineering-Principles and Practice" Tata McGraw-Hill Publishing Company Limited, Fifth reprint, 2007

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Course	**B.Sc. (Information Technology) (SDE)**
Effective from	**2007-2008 and Onwards**
Year	**II**
Subject	**Core 6: INTERNET AND JAVA PROGRAMMING**

UNIT – I	Internet – An Introduction – The World Wide Web – Internet / Web Browsing – Internet addressing – Internet Protocols – Electronic Mail – Basic concepts of HTML
UNIT – II	Java Programming: Constants, Variables and Data Types – Operators and Expressions – Decision Making and Branching – Decision Making and Looping
UNIT – III	Classes, Objects and Methods – Arrays, Strings and Vectors – Interfaces : Multiple Inheritance
UNIT – IV	Multi threaded Programming: Creating Threads, Extending the Thread class – Stopping and Blocking a Thread – Life cycle of a thread – Using Thread Methods – Thread Priority. Managing Errors and Exceptions – Types of errors – Syntax – Multiple Catch statements
UNIT – V	Applet Programming: Building Applet code – Applet Life cycle – Creating an executable applet – Designing a web page – Running the applet – Passing parameters to applets – Program examples. Graphics programming: Graphics class – Lines and Rectangles – Circles and Ellipses – Drawing Arcs and Polygons
Text Book(s)	E.Balagursamy, " Programming with Java – A Primer", Tata McGraw-Hill Publishing Company Limited, Third Edition, 2007

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Course	**B.Sc. (Information Technology) (SDE)**
Effective from	**2007-2008 and Onwards**
Year	**II**
Subject	**Core Lab 1: C++ and JAVA**

C++	
1	Create a Class to implement the data structure STACK. Write a Constructor to initialize the TOP of the Stack to 0. Write a member function PUSH() to insert an element and a member function POP() to delete an element. Check for overflow and underflow conditions.
2	Create a class ARITH which consists of a FLOAT and an INTEGER variable. Write member functions ADD(), SUB(), MUL(), DIV(), MOD() to perform addition, subtraction, multiplication, division and modulus respectively. Write member functions to get and display values.
3	Create a class MAT has a 2-D matrix and R & C represents the rows and columns of the matrix. Overload the operators +, -, *, to add, subtract and multiply two matrices. Write member functions to get and display MAT object values.
4	Create a class STRING. Write member functions to initialize, get and display strings. Overload the operator + to concatenate two strings, == to compare 2 strings and a member function to find the length of the string.
5	Create a class which consist of EMPLOYEE detail like eno, ename, dept, basic salary, grade. Write member functions to get and display them. Derive a class PAY from the above class and write a member function to calculate da, hra, pf depending on the grade and display the Payslip in a neat format using console I/O.
6	Create a class SHAPE which consist of two VIRTUAL FUNCTIONS Cal_Area() and Cal_Peri to calculate Area and Perimeter of various figures. Derive three classes SQUARE, RECTANGLE AND TRIANGLE from the class SHAPE and calculate Area and Perimeter of each class separately and display the result.

JAVA	
7	Define a class with the following attributes 1) Xname 2) Date of birth 3) Date on which leg injection has to be given (60 days from date of birth) 4) xdate on which polio drops is to be given (45 days from date of birth) Write a constructor too construct the baby object. The constructor must find out the leg and polio drops dates from the date of birth. In the main program define a baby and display its details.
8	Write a program which creates and displays a message on the window.
9	Write a program to draw several shapes in the created window.
10	Write a program to create an applet and draw grid lines.
11	Write a Java program to create a frame with two buttons called father and mother. When we click the father button the name of the father, his age and designation must appear. When we click mother similar details of mother appear.
12	Write a Java Program to create four ***TEXT*** fields for the name, street, city and pincode with suitable labels. Also add a button called my details. When you click the button your name, street, city and pincode must appear in the ***TEXT*** fields.

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Course	**B.Sc. Information Technology (SDE)**
Effective from	**2007-2008 and Onwards**
Year	**III**
Subject	**Core 7: PRINCIPLES OF DATA COMMUNICATIONS AND NETWORKS**

UNIT – I	Introduction to Data Communications and Networking – Information Encoding – Analog and Digital Transmission Methods – Modes of Data Transmission and Multiplexing – Transmission Errors: Detection and Correction
UNIT – II	Transmission Media : Guided Media, Unguided Media – Network Topologies: Mesh, Star, Tree, Ring, Bus – Switching: Circuit switching, Message switching, Packet switching – Routing Algorithms: Routers and Routing – Factors affecting Routing Algorithms – Routing Algorithms – Approaches to Routing – Network Protocols and OSI Model
UNIT – III	Local Area Networks (LAN), Metropolitan Area Networks (MAN) and Wide Area Networks (WAN) – Integrated Services Digital Network (ISDN) – X.25 Protocol – Frame Relay – Asynchronous Transfer Mode (ATM)
UNIT – IV	Internetworking Concepts, Devices, Internet Basics, History and Architecture – Ways of Accessing the Internet – An Introduction to TCP / IP, IP, ARP, RARP, ICMP
UNIT – V	TCP: Features of TCP, Relationship between TCP and IP, Ports and Sockets, TCP connections, What makes TCP Reliable, TCP Packet Format – User Datagram Protocol (UDP): UDP Packet, Difference between UDP and TCP – Domain Name System (DNS) – Electronic Mail (Email) – File Transfer Protocol (FTP) – Web Browser Architecture
Text Book(s)	Achyut S.Godbole, " Data Communications and Networks", Tata McGraw-Hill Publishing Company Limited, Ninth reprint, 2007
Ref. Book(s)	1. Behrouz A. Forouzan, " Data Communications and Networking – Second Edition Update " Tata McGraw-Hill Publishing Company Limited, Nineteenth reprint, 2007 2. Andrew S. Tanenbaum, "Computer Networks", III Edition, Prentice Hall of India, 2000

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Course	**B.Sc. Information Technology (SDE)**
Effective from	**2007-2008 and Onwards**
Year	**III**
Subject	**CORE 8: RELATIONAL DATABASE MANAGEMENT SYSTEM AND ORACLE**

UNIT – I	**Database Concepts: A Relational approach:** Database – Relationships – DBMS – Relational Data Model – Integrity Rules – Theoretical Relational Languages. **Database Design: Data Modeling and Normalization**: Data Modeling – Dependency – Database Design – Normal forms – Dependency Diagrams - Denormalization – Another Example of Normalization
UNIT – II	**Oracle9*i*: Overview:** Personal Databases – Client/Server Databases – Oracle9i an introduction – SQL *Plus Environment – SQL – Logging into SQL *Plus - SQL *Plus Commands – Errors & Help – Alternate Text Editors - SQL *Plus Worksheet - *i*SQL *Plus. Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.
UNIT – III	**Working with Table: Data Management and Retrieval:** DML – adding a new Row/Record – Customized Prompts – Updating and Deleting an Existing Rows/Records – retrieving Data from Table – Arithmetic Operations – restricting Data with WHERE clause – Sorting – Revisiting Substitution Variables – DEFINE command – CASE structure. **Functions and Grouping**: Built-in functions –Grouping Data. **Multiple Tables: Joins and Set operations**: Join – Set operations.
UNIT – IV	**PL/SQL: A Programming Language:** History – Fundamentals – Block Structure – Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables – Substitution Variables – Printing – Arithmetic Operators. **Control Structures and Embedded SQL**: Control Structures – Nested Blocks – SQ L in PL/SQL – Data Manipulation – Transaction Control statements. **PL/SQL Cursors and Exceptions:** Cursors – Implicit & Explicit Cursors and Attributes – Cursor FOR loops – SELECT…FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions.
UNIT – V	**PL/SQL Composite Data Types:** Records – Tables – Varrays. **Named Blocks**: Procedures – Functions – Packages –Triggers –Data Dictionary Views.
Text Book (s)	**DATABASE SYSTEMS USING ORCLE – Nilesh Shah,** 2nd edition, PHI.
Ref. Book (s)	**1. DATABASE MANAGEMNET SYSTEMS – Arun Majumdar & Pritimoy Bhattacharya**, 2007, TMH. **2. DATABASE MANAGEMETN SYSTEMS – Gerald V. Post,** 3rd edition, TMH.

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Course	**B.Sc. Information Technology (SDE)**
Effective from	**2007-2008 and Onwards**
Year	**III**
Subject	**Core 9: VISUAL PROGRAMMING**

UNIT – I	Visual Basic: Getting started – Visual Basic environment: Tool bars – The Tool box and Custom controls and components – using file menu, edit menu, view menu, project menu, format menu, debug menu, adding menu and window menu – customizing a form and writing simple programs
UNIT – II	Building the user interface: the tool box – creating controls – properties setting – First steps in programming: Code window – Visual Basic's editing tools – Statements in VB – Data types – Working with variables – Input boxes and Message boxes – displaying information
UNIT – III	Controlling program flow – Built-in functions – User defined functions and procedures – Control arrays – List and Combo boxes – the Flex grid control
UNIT – IV	Finishing the interface: Frames – Option buttons – Check boxes – Scroll bars – Timers – Common Dialog boxes – The Microsoft windows common controls 6.0 – Menus – MDI forms
UNIT – V	Communicating with other window applications – Database development with Visual Basic (DAO, RDO) – Building ActiveX controls
Text Book(s)	1. Gary Cornell, "Visual Basic 6.0 from the Ground Up", Tata McGraw Hill Company, 1999 2. Content Development Group, " Visual Basic 6.0 Programming" Tata McGraw-Hill Company, Ninth reprint, 2007 3. Noel Jerke, "The Complete Reference : Visual Basic 6.0", Tata Mc Graw-Hill Company, 24th reprint, 2006

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Course	**B.Sc. Information Technology (SDE)**
Effective from	**2007-2008 and Onwards**
Year	**III**
Subject	**Core 10 : WEB TECHNOLOGY**

UNIT – I	**Networking protocols and OSI model** : protocols in computer communications - the OSI models – OSI layer functions. **Internet working concepts, devices, basics, history and architecture :** Why internetworking – problesms in internetworking – dealing with incompatibility issues – a virtual network – internetworking devices- rpeaters - bridges – routers – gateways - a brief history of the internets -growth of the internets – internet toplogy – internal architecture of an ISP
UNIT – II	**TCP/IP Part I** : introduction to TCP /IP , IP , ARP, RARP, ICMP : TCP/IP basics – Why IP address ? – logical address – TCP / IP example – the concepts of IP addresses – Address resolution protocol – Reverse Address Resolution Protocol – Internet Control Message Protocol – Datagram Fragmentation and reassebly. **TCP/IP Part II** : (TCP, UDP) Basics of TCP – Features of TCP – Relationship between TCP and IP – ports and sockets – connections- passive open and active open – TCP connections – What makes TCP reliable ? – TCP packets format – persistent TCP connections – used datagram protocol – UDP packets – difference between UDP and TCP
UNIT – III	**TCP/IP part III** – (DNS, E-mail, FTP, TFTP) – domain name system (DNS) – Electronic mail (E-mail) – File Transfer Protocol (FTP) – Trivial File Transfer Protocol (TFTP). **TCP/IP Part IV** – (WWW, HTTP, TELNET) : A brief history of WWW – the basics of WWW and Browsing – locating information on the internet – Hyber Text Markup Language (HTML) – Web – Browser Architecture – Web pages and Multimedia – Remote login – TELNET
UNIT – IV	**Introduction to web technology** – features required for enabling e-commerce – web-pages – types and issues - Tiers – the concept of a Tier – a comparison of microsoft and java technologies – web pages – static web pages – plug-ins – introduction to frames and forms – frames - forms . **Dynamic Web pages** : the need for dynamic web pages – the magic of dynamic web pages – an overview of dynamic of web page technologies – an overview of dynamic HTML (DHTML) – common gateway interface (GCI) – Microsoft's Active Server Pages (ASP) – Basics of ASP technologies ASP example – modern trends in ASP. Java and the Concepts of a Virtual Machine – Java servlets and jave server pages (JSP) – Jave servlets – Java server pages (JSP)
UNIT – V	**Active web pages** – Active web pages is a better solution java applets – Why are active web pages powerful ? when not to use active web pages – lifecycle of Java applets – Active X controls – Java beans . **Extensible Markup Languages(XML**) – Standard generalised Markup language (SGML) - Basics of XML – XML parsers – the need for Standard
Text Book(s)	Achyut S. Godbole, Atul Kahate , Web technologies , Tata McGraw Hill, Sixth reprint, 2007.

BHARATHIAR UNIVERSITY, COIMBATORE -46

Course	**B.Sc. Information Technology (SDE)**
Effective from	**2007-2008 and Onwards**
Year	**III**
Subject	**CORE LAB-2: VISUAL BASIC & ORACLE**

	Visual Basic
1	Write a simple VB program to accept a number as input and convert them into a. Binary b. Octal c. Hexa-decimal
2	Write a simple VB program to add the items to list box with user input and move the selected item to combo box one by one.
3	Write a simple VB program to develop a calculator with basic operation.
4	Design an form using common dialog control to display the font, save and open dialog box without using the action control property.
5	Write a simple program to prepare a Questionnaire.
6	2. Write a VB Program to develop a menu driven program Add a MDI window in the form and arrange them in the cascading/horizontal style using menus (Create a menu to add form, arrange) (Menu Item 1). Also change the form color using the menu in another menu item (Menu Item 2).
	Oracle
7	Create the following table *(PK - Primary Key, FK – Foreign Key)* **cat_head, route_head, place_head, route_detail, ticket_detail, ticket_head** with the mapping given below: cat_head *(cat_code PK)* route_head *(cat_code FK)* route_head *(route_id PK)* route_detail *(route_id FK)* ticket_head *(tick_no PK)* ticket_detail *(tick_no FK)* place_head *(place_id PK)* route_detail *(place_id FK)* (i) Alter the table ticket_header to add a check constraint on ticket_no to accept values between 1 and 500 (ii) Alter table route_header to add a column with data type as long.

8	(a) Insert values to above tables (b) Display only those routes that originate in madras and terminate at cochin c) Display only distinct category code from the table route_header in descending manner. Update the table route_header to set the distance between madras and coimbatore as 500
9	a. Select rows from ticket_details such that ticket number greater than any ticket_number in Ticket_header. b. Select rows from route_header such that the route_id are greater than all route_id in route_detail where place id is "100". c. Create view tick from ticket_header with Ticket_no, Origin, Destination, route_id
10	Generate a report from the table ticket_detail for the particular ticket_no
11	a. Write a PL/SQL block to update the bus_station to be "ERODE" where place_id is '01' or '05' [place_header] b. Write a PL/SQL block to satisfy the following condition by accepting the route_id as user input. If the distance is less than 500 than update the fare to be 200 c. Write a Database trigter before insert for each row on the table route_detail not allowing transaction on Saturday / Sunday Write a Database trigger before delete for each row not allowing deletion and give the appropriate message on the table route_details
12	Develop a Simple Project for Student Database Management System using VB as front end and ORACLE as back end.