

DATA PROCESSING AND COMPUTER APPLICATIONS

Subject Code	BSC104CS	IA Marks	20
No. of Lecture Hrs./Week	04	Exam Hours	03
Total No. of Lecture Hours	50	Exam Marks	80

UNIT - I: Computer Basics, Data Representation & Input/Output units :

Algorithms, of simple model of computers, characteristics of computers, problem solving using computers, data representation, representation of characters in computers, representation of integers, representation of fraction, hexadecimal representation of number, decimal binary conversion, error detecting code, input output units, description of computer input units, other input methods, computer output inputs.

8 hrs

UNIT – II: Computer Memory, Processors, Computer languages:

Memory cell, memory organization, read only memory, serial access memory, physical devices used to construct memory, magnetic hard disk, floppy disk drives, Compaq disk read only memory (CD ROM), magnetic tape drive, structures of instruction, description of processors, machine language program, an algorithm to simulate the hypothetical computer, why programming language?, assembly language, high level programming language, compiling high level language, some high language.

8 hrs

UNIT - III: Operating Systems– Windows and DOS:

Overview of DOS & Windows, Types of Operating Systems and examples, Desktop & Icons, Taskbar, Control Panel, Paint, Calculator, Note Pad.

4 hrs

UNIT - IV: MS-Word:

Overview of MS-Office-2003, Launching Office-2003 applications, switching between applications, Help system, closing applications.

Overview of Word Processing software, Examples, Opening, creating, saving document, Print & Print Preview, Find & Replace, Header & Footer, Save & Save As, Views, Borders & Shading, Change Case, Bullets and Numbering, Background, Spelling and Grammar, Word Count, Macros, Mail Merge, Table handling and important shortcut keys.

8 hrs.

UNIT - V: MS-Excel:

Overview of Spreadsheet software, Examples, Opening, creating, saving worksheet and workbook, Print & Print Preview, Rows & Columns, Formatting worksheet, Find & Replace, Types of Functions, Types of charts/graphs Macros and important shortcut keys.

6 hrs.

UNIT - VI: MS-PowerPoint:

Overview of Presentation software-MS-PowerPoint, Slides, PowerPoint views, Auto content wizard, Transition and build effects, Printing Slides and important shortcut keys.

6 hrs.

UNIT - VII: MS-Access:

Overview of MS-Access, Main elements of Access, Tables, Queries, Forms, Reports, Modules. Opening and creating database and tables.

6 hrs

UNIT - VIII: Introduction to Internet:

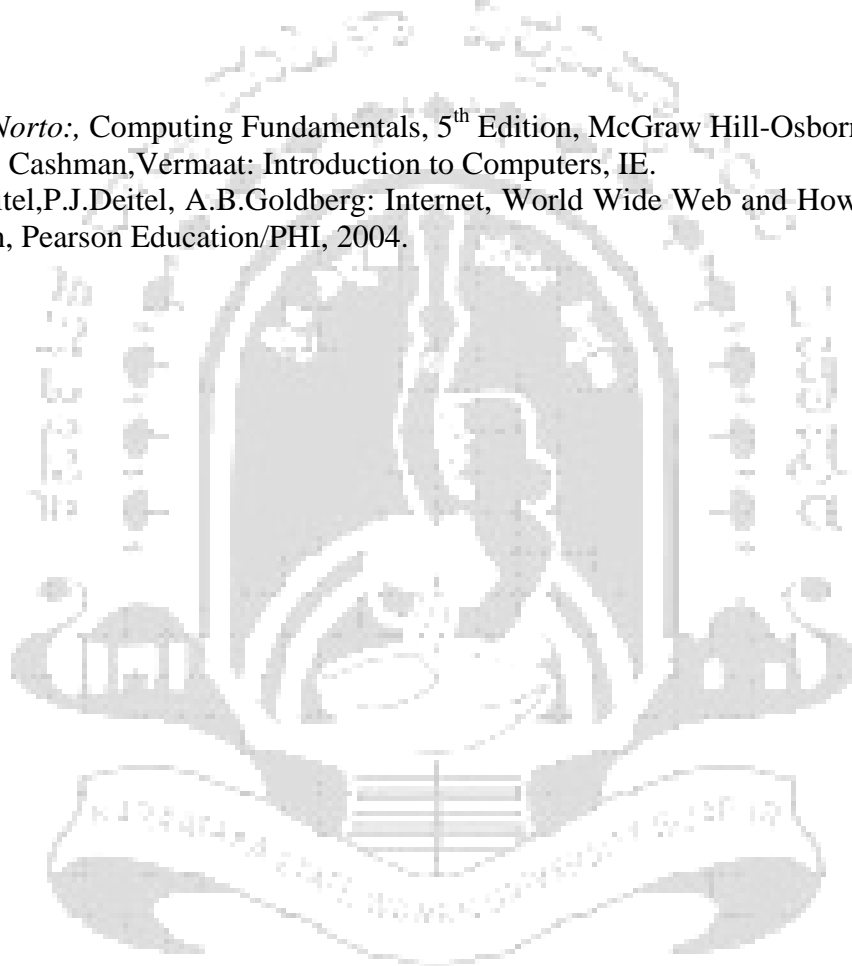
The need and use of Computer Networks, Working of Internet, Protocols- TCP/IP, HTTP, FTP, Browsers, Searching for information-Search engines, E-Mail, Chatting. **4 hrs.**

Text books:

1. *Alexis Leon and Mathews Leon:* Introduction to Computers, Leon Vikas, 1999
2. *V. Rajaraman:* Fundamentals of Computers, PHI, 4th Edition,1989.

References:

1. *Peter Norto:*, Computing Fundamentals, 5th Edition, McGraw Hill-Osborne,2003
2. Shelly, Cashman,Vermaat: Introduction to Computers, IE.
3. M. Deitel,P.J.Deitel, A.B.Goldberg: Internet, World Wide Web and How to program, 3^d Edition, Pearson Education/PHI, 2004.



COMPUTER LAB-I (BASED ON BSC104CS)

Subject Code		IA Marks	10
No. of Practical Hrs./Week	01	Exam Hours	03
Total No. of Practical Hours	03	Exam Marks	40

Practical Hours: 3 Hours (Once) / Week

The students shall gain hands-on experience of using:

- Windows OS and DOS
- MS-Word
- MS-Excel
- MS-PowerPoint
- MS-Access
- Basics of Internet

Note:

1. A maximum of 20 practical assignments (minimum – 15) shall be done by each student
2. The Internal Assessment marks (Max 10) shall be awarded by the concerned course teacher based on a practical test conducted by him/her during the semester.

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PROGRAMMING IN 'C'

Subject Code	BSC204CS	IA Marks	20
No. of Lecture Hrs./Week	04	Exam Hours	03
Total No. of Lecture Hours	50	Exam Marks	80

UNIT - I: Introduction to Programming:

The need, Types of Languages, Problem solving using computers, Concept of flowcharts and algorithms. 7 hrs.

UNIT - II: Introduction to Programming in 'C':

Introduction, Importance of 'C', Basic structure of 'C' Program, Simple 'C' Program, Executing a 'C' program, printf(), scanf(), 'C' tokens, Keywords, Identifiers, Constants, Variables, data types, declaration of variables, symbolic constants. 4 hrs.

UNIT - III: Operators and Expressions:

Arithmetic operators, Relational operators, Logical operators, Assignment operators, Increment and Decrement operators, Conditional operators, Bitwise operators, Special operators, Type conversions in expressions, operator precedence and associativity

Input and Output Statements, Reading a character, Writing characters, Formatted Input and Output Statements. 8 hrs.

UNIT-IV: Decision making, branching and looping:

Decision making with IF statement, simple IF statement, The IF..ELSE Statement, Nesting IF..ELSE Statement, The ELSE..IF Ladder, The Switch Statement, The ? : Operator, the GOTO statement, The WHILE Statement, The DO Statement, The FOR Statement. 8 hrs.

UNIT - V : Arrays & Strings:

One-dimensional and Two-dimensional arrays, Initializing One and Two-Dimensional Arrays, Examples.

Declaring and initializing string variables, reading string from terminal, writing string to screen, string functions, programming examples. 9 hrs.

UNIT - VI : User defined functions

Need, multi-function programs, The form of C Functions, Return values and their types, Calling a function, Category of functions, Nesting of functions, Recursion, Function with Arrays. 5 hrs.

UNIT - VII Structures and Unions:

Structure definition, giving values to members, structure initialization, comparison of structure variables, array as structure, array within structure, Structures within Structures. 5 hrs.

UNIT - VIII: Pointers:

Understanding Pointers, accessing the address of variables, declaring and initializing pointers, accessing a variable through its pointer. 4 hrs.

Text books:

1. *E Balagurusamy*: Programming ANSI C, TMH, 1998
2. *Kamthane*: Programming with ANSI and Turbo C, Pearson Education, 2003.

References:

1. Behrouz A . Forouzan & Richard F. Gilberg : Computer Science A Structured Programming Approach Using C, CENGAGE Learning Publication ,3/e, 2012
2. *S. Byron Gottfried*: Programming with C, TMH, 2000
3. *Kerninghan*: C-Programming Language ANSI C Version, Pearson Education.

COMPUTER LAB-II (BASED ON BSC204CS)

Subject Code		IA Marks	10
No. of Practical Hrs./Week	01	Exam Hours	03
Total No. of Practical Hours	03	Exam Marks	40

Practical Hours: 3 Hours (Once) / Week

Assignments on Programming in 'C'

The students shall gain experience on writing 'C' programs using

- if statement
- switch statement
- Loops: while, do while, for
- Arrays
- Strings
- Functions
- Structures and Unions
- Pointers

Write algorithm, draw flowcharts and then write 'C' programs for the following:

1. Find area and perimeter of a circle. $\text{Area}=\text{PI}*\text{r}*\text{r}$; $\text{Per}=2*\text{PI}*\text{r}$
2. Find the roots of a given quadratic equation using switch case statement.
3. Check whether the given number is palindrome or not.
4. Check whether the given number is prime or not.
5. Calculate sum of the digits of the given number.
6. Display fibonacci series up to N terms.
7. Find mean, variance and standard deviation of N numbers.
8. Find the factorial of a given positive number using function.
9. Calculate x raised to y using function.
10. Find GCD and LCM of two given integer numbers using function.
11. Search a given number in an array of N elements using linear search method.
12. Sort a given array of N integers in ascending order.
13. Determine the order of a given array of N elements.
14. Check whether a given character is alphabetic, numeric or special character.
15. Count vowels and consonants in a given string.
16. Count words in a given line of text.
17. Convert all characters in a string to uppercase and vice-versa.
18. Find transpose of a given matrix.

19. Find product of two compatible matrices.
20. Find row sum, column sum and sum of all elements in a matrix.

Note:

1. A maximum of 20 practical assignments (minimum – 15) shall be done by each student
2. The Internal Assessment marks (Max 10) shall be awarded by the concerned course teacher based on a practical test conducted by him/her during the semester.

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COBOL AND SYSTEM ANALYSIS AND DESIGN

Subject Code	BSC304CS	IA Marks	20
No. of Lecture Hrs./Week	04	Exam Hours	03
Total No. of Lecture Hours	50	Exam Marks	80

UNIT - I: COBOL:

Overview of COBOL, Structure of COBOL program. 4 hrs

UNIT - II: COBOL Tokens:

Character sets, Constants and Literals, coding rules, reserved words, COBOL verbs and types, operators. 4 hrs

UNIT - III: INPUT, OUTPUT Statements:

I/O statements- ACCEPT Statements, DISPLAY Statements. 2 hrs

UNIT - IV: Conditional Statements:

IF, IF-ELSE, Nested IF Statements, GOTO Statement, GOTO-DEPENDENT ON Statement, Perform Statement, PERFORM With TIMES, UNTIL options. 8 hrs

UNIT - V: TABLE HANDLING:

One-Dimensional table handling and Multi dimensional Table Handling. 5 hrs

UNIT – VI: FILE HANDLING:

Sequential file and Data Division Entry Concern, Sorting of files. 7 hrs

UNIT - VII: System Analysis

System: Definition, Types of Systems and examples, Examples of Information System, Need for Automation, System Development Life Cycle, Role and attributes of System Analyst, System Designers and Programmers, Members of system development team, Feasibility analysis, Information gathering.

Tools used by System Analyst: Structured English, Data Flow Diagram, Decision Tree, Decision Table. 12 hrs

UNIT VIII : System Design

Process specification, Database design, input/output design, Testing, Implementation, Maintenance, Structured walkthrough 8 hrs

Text books:

1. Roy M K and Dastidar D G: COBOL Programming, 2nd edition, TMH, 2008.
2. Elias M Awad: Systems Analysis and Design, 2nd Edition, Galgotia, 2011.

Refernces:

1. Shelly Cashman Series: Complete Structured COBOL Programming, 2E, IE.
2. Rajaraman V and Sahasrabudde H V: Computer Programming in COBOL

COMPUTER LAB-III (BASED ON BSC304CS)

Subject Code		IA Marks	10
No. of Practical Hrs./Week	01	Exam Hours	03
Total No. of Practical Hours	03	Exam Marks	40

Practical Hours: 3 Hours (Once) / Week

Assignments on Programming in COBOL

The students shall gain experience on writing COBOL programs

Write COBOL programs for the following:

1. Check whether the given number is even or odd.
2. Check whether the given number is positive or negative.
3. Check whether the given number is palindrome or not. Also display the reversed number.
4. Display Fibonacci series up to N terms.
5. Find sum and average of N numbers.
6. Find factorial of a given positive number.
7. Check whether the given number is prime or not.
8. Display all prime numbers between any two given numbers.
9. Find nCr and nPr for given n and r values.
10. Search a given number in a 1-d table.
11. Sort a given 1-d table in ascending order.
12. Determine the order of a 1-d table.
13. Find sum of the digits of a given number.
14. Convert given temperature from Celsius to Fahrenheit.
15. Convert given temperature from Fahrenheit to Celsius.

16. Find GCD and LCM of two given numbers.
17. Create sequential access file.
18. Read an existing sequential access file.
19. Sort an existing sequential access file.
20. Merge contents of two existing sequential access file.

Note:

1. A maximum of 20 practical assignments (minimum – 15) shall be done by each student
2. The Internal Assessment marks (Max 10) shall be awarded by the concerned course teacher based on a practical test conducted by him/her during the semester.

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DATA STRUCTURES USING ‘C’

Subject Code	BSC404CS	IA Marks	20
No. of Lecture Hrs./Week	04	Exam Hours	03
Total No. of Lecture Hours	50	Exam Marks	80

UNIT - I: Introduction to data structures:

Definition, Classification of data structures: primitive and non- primitive. Operations on Data structures. **2 hrs.**

UNIT - II: Dynamic Memory Allocation and Pointers:

Definition Accessing the address of a variable, Declaring and initializing pointers. Accessing a variable through its pointer. Meaning of Static and Dynamic Memory Allocation. Memory Allocation Functions: malloc(),calloc(),free() and realloc(). **4 hrs.**

UNIT - III: Stacks:

Definition, Array representation of stack, Operations on stack: Infix, Prefix and Postfix notations, Conversion of an arithmetic expression from infix to postfix. Applications of stack. **7 hrs.**

UNIT - IV: Queues:

Definition, Array representation of queue, types of queue: simple queue, circular queue, double ended queue(deque) priority queue, operations on all types of queue. **7 hrs.**

UNIT - V: Linked Lists:

Definition, Components of linked list, Representation of linked list, Advantages and disadvantages of linked list. Types of linked list: Singly Linked Lists and Doubly Linked List, Operations on Singly Linked List: Creation, Insertion, Deletion, Search and Display. **12 hrs.**

UNIT - VI: Trees:

Definition, Binary Tree: Array Representation of Tree, Creation of Binary Tree. Complete Binary Tree, Binary Search Tree, Traversal of Binary Tree: In-order, Pre-order, Post-order. **8 hrs.**

UNIT - VII: Searching :

Basic Search Techniques: Search Algorithm searching techniques: Sequential Search, Binary Search- Iterative and Recursive methods. Comparison between Sequential and Binary Search. **5 hrs.**

UNIT VIII Sorting : Definition of sort, Different types of sort: Bubble sort, Selection sort, Merge sort, Insertion sort and Quick sort. **5 hrs**

Text books:

1. *Kamthane*: Introduction to Data Structures in C, Pearson Education, 2005.
2. *Langsam, Ausenstein Maoshe & M. Tanenbaum Aaron*: Data Structures using C and C++, Pearson Education.

Reference:

1. Behrouz A . Forouzan & Richard F. Gilberg : Data Structures A Pseudocode Approach Using C, CENGAGE Learning Publication ,3/e, 2012
2. *Weiss*: Data Structures and Algorithm Analysis in C, 2nd Edition, Pearson Education.
3. *Tenenbaum*: Data Structures using C, Pearson Education.

COMPUTER LAB-IV (BASED ON BSC404CS)

Subject Code		IA Marks	10
No. of Practical Hrs./Week	01	Exam Hours	03
Total No. of Practical Hours	03	Exam Marks	40

Practical Hours: 3 Hours (Once) / Week

Assignments on Programming in Data Structures using ‘C’

The students shall be able to make effective use of data structures using ‘C’

Write ‘C’ programs for the following:

1. Reverse a given array of N elements.
2. Find multiplication of two 2-d matrices.
3. Find transpose of a given matrix.
4. Implement stack operations using array.
5. Compute factorial of a given number using recursion.
6. Display n Fibonacci numbers using recursion.
7. Compute GCD of two numbers using recursion.
8. Implement queue operations using array.
9. Create a single linked list of N nodes and display the contents.
10. Implement stack using single linked list.
11. Implement queue using single linked list.
12. Create a double linked list of N nodes and delete a specific node.
13. Create a binary tree and then display the contents using in-order, pre-order and post-order traversal methods.
14. Create a binary tree and then search for an item in the tree.
15. Create a binary tree and then delete a specific item from the tree.

16. Implement Bubble Sort.
17. Implement Selection Sort.
18. Implement Quick Sort.
19. Implement Insertion Sort.
20. Implement Merge Sort.

Note:

1. A maximum of 20 practical assignments (minimum – 15) shall be done by each student
2. The Internal Assessment marks (Max 10) shall be awarded by the concerned course teacher based on a practical test conducted by him/her during the semester.

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DATABASE MANAGEMENT SYSTEM

Subject Code	BSC503CS	IA Marks	20
No. of Lecture Hrs./Week	04	Exam Hours	03
Total No. of Lecture Hours	50	Exam Marks	80

UNIT - I: Introduction:

Data, Database, Database Users, Characteristics of Database Approach, Different people behind DBMS, Implication of Database Approach, Advantages of using DBMS, When not to use a DBMS. **5 hrs**

UNIT - II: Database System Concepts and Architecture:

Data Models, Schemas and Instances, DBMS Architecture and Data Independence, Database Languages and Interfaces, Database System Environment, Classification of DBMS. **5 hrs**

UNIT-III: Data Modeling using E-R Model:

High level conceptual Data Models for Database Design with an example, Entity, Entity Types, Entity Sets, Attributes and Keys, E-R Model Concepts, Notation of E-R Diagrams, proper naming of Schema constructs, Relationship Types of Degree Higher than two. **5 hrs**

UNIT – IV SQL -1: Data Definition and Data Type s; Specifying basic constants in SQL; Schema change statements in SQL; Basic queries in SQL; **6 hrs**

UNIT- V SQL -2: Insert, Delete and Update statements in SQL; Specifying constraints as Assertion and techniques; Embedded SQL, Dynamic SQL; Databases stored Procedures and SQL/PSM. **6 hrs**

UNIT - VI: Relational Data Model:

Relational model concepts, relational model constraints and relational database schema, defining relations, update operations on relations, basic relational algebra operations, tuple relational calculus, domain relational calculus. **8 hrs.**

UNIT – VII: Database Design:

Functional Dependencies, Normal Forms Based On Primary Keys, General Definitions of Second and Third Normal Form. **7 hrs.**

UNIT - VIII: Transaction Processing:

Introduction, Transaction and System Concepts, Desirable properties of transaction, Schedules and Recoverability, Concurrency control techniques, database security and authorization. **8 hrs.**

Text books:

1. *Rameez Elmasri and Shamkant B Navathe*, Fundamentals of Database Systems, 5th Edition, Pearson Education, 2009.
2. *Raghu Ram Krishnan*: Database Management Systems, 2nd Edition, McGraw Hill, 2004.
3. *Sundarraman*: Oracle 9i Programming a Primer, Lie Pearson Education.

References:

1. *C J Date*, An Introduction to Database Systems, 6th Edition, Addison Wesley, 1995.
2. *Henry . F. Korth*: Database System Concepts, McGraw Hill.

COMPUTER LAB-V (BASED ON BSC503CS)

Subject Code		IA Marks	10
No. of Practical Hrs./Week	01	Exam Hours	03
Total No. of Practical Hours	03	Exam Marks	40

Practical Hours: 3 Hours (Once) / Week

Assignments on Programming in Oracle

The students shall gain experience on DBMS-Oracle

Write SQL queries (1-10) and PL/SQL blocks (11-20) for the following:

1. Create a table.
2. Insert records into table.
3. Create table using the existing table.
4. Insert single and multiple records into the table using existing table.
5. Update single and multiple records using UPDATE command.
6. Delete single and multiple records using DELETE command.
7. Demonstrate creation and deletion of views.
8. Demonstrate creation of new users and granting privileges.

9. Demonstrate the usage of WHERE, HAVING, ORDER BY, GROUP BY.
10. Demonstrate the usage of BETWEEN, IN, LIKE, AND, OR, NOT.
11. Add two numbers.
12. Find the largest of two numbers.
13. Check whether the given number is even or not.
14. Check whether the given number is positive or negative
15. Find factorial of a given positive number.
16. Check whether the given number is prime or not.
17. Display Fibonacci series up to N terms.
18. Find sum and average of N numbers.
19. Find x raised to y for given values of x and y.
20. Demonstrate user-defined functions

Note:

1. A maximum of 20 practical assignments (minimum – 15) shall be done by each student
2. The Internal Assessment marks (Max 10) shall be awarded by the concerned course teacher based on a practical test conducted by him/her during the semester.

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OOPS WITH C++

Subject Code	BSC 504CS	IA Marks	20
No. of Lecture Hrs./Week	04	Exam Hours	03
Total No. of Lecture Hours	50	Exam Marks	80

UNIT - I: Overview of OOP:

Object Oriented Paradigm, Structured V/S Object Oriented Paradigm, Elements of OOP- Objects, Classes, Data Abstraction, Encapsulation, Inheritance, Polymorphism etc.

Introduction, Different Datatypes, Operators, Expressions, Qualifiers, Arrays and Strings. **8 hrs**

UNIT – II : Modular Programming with Functions:

Function components, argument passing, Inline functions, function overriding, function overloading, function templates, recursive functions. **7 hrs**

UNIT - III: Classes and Objects:

Introduction, Class specification, Class Objects, Access Members, Defining Member Functions, Constructors and Destructors, Static and Dynamic Data Members, Scope resolution Operator, Operator overloading using friend functions such as ++, --, [] etc. **10 hrs.**

UNIT - IV: Operator Overloading:

Overloading unary operator, limitations of Increment operator, Overloading binary operator, Data conversion: Conversion between basic types, conversion between objects, and basic types. **4 hrs**

UNIT – V : Inheritance:

Derived Class and Base Class, Overriding Member functions, Public and Private Inheritance, Access Specifiers, Level of Inheritance: Single Inheritance, Multi-level Inheritance, Multiple Inheritance, Hierarchical Inheritance, Hybrid Inheritance. **6 hrs**

UNIT – VI : Virtual Functions and Polymorphism:

Calling a virtual function through a base class reference, Pure Virtual functions, Abstract Classes, Early and Late Binding. **4 hrs**

UNIT – VII : Templates and Exceptional Handling:

Introduction, Templates, Class Templates, Function Templates, Template Arguments, Exception Handling. **4 hrs**

UNIT - VIII: Streams:

The Stream class hierarchy, Stream classes Header file, String I/O: Writing Strings, reading strings, character I/O, Detecting End-of-file. Object I/O: Writing an object to disk, reading a object from disk, I/O With multiple objects, the F-stream class, The Open function, File Pointers, Specifying the Position, Specifying the Offset, the tellg function, Disk I/O with Memory Functions, Closing Files, Error Handling, Command Line Arguments. **7 hrs**

Text books:

1. *K. R. Venugopal, Rajkumar, T. Ravi Shankar: Mastering C++, TMH, 1997.*
2. *H. Schild: C++ The Complete Reference, 4E, TMH, 2003.*
3. *E Balagurusamy, Object Oriented Programming with C++, 4E, TMH, 2009.*

References:

1. *Stanley B. Lippmann, Josee Lajore: C++ Primer, 4E, Addison Wesley, 2005.*
2. *Strousstrup: The C++ Programming Language, 3E, Pearson Education.*
3. *M.T Someshekara Object Oriented Programming with C++, PHI, 2/e,2012*

COMPUTER LAB-VI(BASED ON BSC 504CS)

Subject Code		IA Marks	10
No. of Practical Hrs./Week	01	Exam Hours	03
Total No. of Practical Hours	03	Exam Marks	40

Practical Hours: 3 Hours (Once) / Week

Assignments on Programming in OOPS with C++

The students shall gain experience on Object Oriented Programming with C++

Write 'C++' programs for the following:

1. Write a program to implement digital clock.
2. Write a program to swap two numbers using friend function.
3. Write a program to calculate area and circumference of circle using inline function.
4. Write a program to create electricity bill
5. Write a program to prepare a shopping lists

6. Write a program to perform bank transaction
7. Write a program to perform addition of two matrices using operator overloading.
8. Write a program to perform multiplication of two matrices using operator overloading.
9. Write a program to find sum of complex number using friend function.
10. Write a program to implement operation on stack.
11. Write a program to add two distances variable.
12. Write a program to implement operation on queue.
13. Write a program to sort elements using templates.
14. Write a program to find the maximum of two numbers using template.
15. Write a program to compare two strings using equal to operator.
16. Write a program to concatenate two strings.
17. Write a program to find maximum of 2 numbers using equal friend function.
18. Write a program to create a student report using inheritance technique.
19. Write a program to add two time variable
20. Write a program to implement area of geographical figures.

Note:

1. A maximum of 20 practical assignments (minimum – 15) shall be done by each student
2. The Internal Assessment marks (Max 10) shall be awarded by the concerned course teacher based on a practical test conducted by him/her during the semester.

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PROGRAMMING IN VISUAL BASIC 6.0

Subject Code	BSC603CS	IA Marks	20
No. of Lecture Hrs./Week	04	Exam Hours	03
Total No. of Lecture Hours	50	Exam Marks	80

UNIT - I: Introduction to VB:

Integrated Development Environment- Menu Bar, Tool Bar, Form Designer, Project Explorer, Properties Window, Form Layout Window, The VB Editor. **2 hrs.**

UNIT - II: The Form Object:

Properties, events and methods of Forms; Properties- Name, Caption, Backcolor, Borderstyle, ControlBox, MaxButton, Minbutton, Moveable, Startup position, height, width, left, top, Scalemode, Windows State. **4 hrs.**

UNIT - III: Events, Methods :

Events- Load, Unload, Click, Activate, Deactivate, Resize,
 Methods- Show, Hide, Cls, Unload, Print. **8 hrs.**

UNIT IV Controls :

Controls- Properties and events of different controls such as Command buttons, Label, Textboxes, Image Controls, Timer, Horizontal and Vertical Scrollbars, Option Button, Checkbox, Frames, Lists and Comboboxes. Pre-Defined Dialog Boxes- MsgBox and InputBox.

10 hrs

UNIT - V: Programming in VB:

Data Types, variables, declaration and Scope, Arithmetic operations, Study of form and code modules, private and public procedures. Main() procedure, Subs and Functions, Mathematical and String functions.

6 hrs

UNIT - VI: Branching and Looping statements

If-Then, If-Then-Else, and Nested If statements, Select-case different forms, For-Next, While-Wend and Do-Looping Statements;

6 hrs.

UNIT - VII: Arrays:

Array declaration, static and dynamic Arrays, Array() Function; Menus, and Toolbars- creating menus and toolbars, working with the menu editor, Designing Multiple Document Interfaces Forms, Microsoft Common Controls.

4 hrs.

UNIT - VIII: OOP:

Methods and Properties of an Object, Class Modules, Encapsulation and Inheritance characteristics; Dynamic Link Libraries(DLLs), Windows API, Designing Help Files; File Handling- Sequential, Random Access and Binary files; Database Connectivity- DAO and ADO Tables and Queries. ActiveX Data Objects.

10 hrs

Text books:

1. *Deitel: Visual Basic 6 How to Program*, Pearson Education.
2. *Neol Jerke: The Complete Reference Visual Basic 6*, TMH, 1999.

References:

1. *Evangelas and Petroutsos: Mastering VB 6*, 1E, BPB Publications, 2001.
2. *Gottfried: Programming with Visual Basic*, Schaum's Series, TMH.

COMPUTER LAB-VII(BASED ON BSC603CS)

Subject Code		IA Marks	10
No. of Practical Hrs./Week	01	Exam Hours	03
Total No. of Practical Hours	03	Exam Marks	40

Practical Hours: 3 Hours (Once) / Week

Assignments on Programming in Visual Basic 6.0

The students shall gain experience on Visual Basic Programming

Design Visual Basic applications for the following:

1. Validate username and password.
2. Demonstrate font, size and style.
3. Implement a simple calculator.

4. Check whether the given number is prime or not.
5. Check whether the given number is palindrome or not.
6. Change the color of the form using scroll bar.
7. Find factorial of a given positive number.
8. Design a screen saver.
9. Create an editor using Rich Text Box control.
10. Move an image using a timer and command button control.
11. Find sum of the digits of a given number.
12. Demonstrate MDI form.
13. Display Fibonacci series up to N.
14. Display Fibonacci series up to N terms.
15. Display multiplication table of a given number up to 10.
16. Find maximum and minimum of N numbers.
17. Find sum and average of N numbers.
18. Find GCD and LCM of two numbers.
19. Count vowels and consonants in a given string.
20. Count number of words in a given sentence.

Note:

1. A maximum of 20 practical assignments (minimum – 15) shall be done by each student
2. The Internal Assessment marks (Max 10) shall be awarded by the concerned course teacher based on a practical test conducted by him/her during the semester.

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JAVA AND INTERNET PROGRAMMING

Subject Code	BSC604CS	IA Marks	20
No. of Lecture Hrs./Week	04	Exam Hours	03
Total No. of Lecture Hours	50	Exam Marks	80

UNIT - I: Introduction:

Java and Java applications: Java Development Kit (JDK); Java is interpreted, Byte Code, JVM; Object-oriented programming; Simple Java programs. **5 hrs**

UNIT - II: Data Types and Java Tokens:

Boolean variables, int, long, char, operators, arrays, white spaces, literals, assigning values; Creating and destroying objects; Access Specifiers. **5 hrs.**

UNIT - III: operators, Expressions and Control Statements:

Arithmetic Operators, Bitwise operators, Relational operators, The Assignment Operator, The ? Operator, Operator Precedence; Logical Expression; Type Casting, Strings. Selection statements, iteration statements, Jump Statements. **7 hrs.**

UNIT - IV: Classes, Inheritance and Exceptions:

Classes: Classes in Java; Declaring a class; Class name, Super classes; Constructors; Creating instances of class; Inner classes.
 Inheritance: Simple, multiple, and multilevel inheritance; Overriding, Overloading.
 Exception handling: Exception handling in Java. **10 hrs.**

UNIT - V: Applets:

The Applet Class: Two types of Applets; Applet basics; Applet Architecture; An Applet skeleton; Simple Applet display methods; Requesting repainting; The HTML APPLET tag; Passing parameters to Applets; Output to the console. **10 hrs.**

UNIT - VI: Multi Threaded Programming:

Multi Threaded Programming; What are Threads? How to make the classes threadable; Extending threads; Implementing runnable; Synchronization. **5 hrs.**

UNIT - VII: Graphics Programming:

Introduction, The Graphics Class, Lines And Rectangles, Circles, Drawing Arcs, Drawing Polygons, Drawing Bar Charts. **4 hrs.**

UNIT - VIII: Event Handling:

Two event handling mechanisms; The delegation event model; Event classes; Sources of events. Simple programs. **4 hrs.**

Text books:

1. *Herbert Schildt: Java The Complete Reference, 7th Edition, TMH,2007.*
2. *Y. Daniel Liang: Introduction to Java Programming, 6th Edition, Pearson Education, 2007.*

References:

1. E. Balaguruswamy: Programming with Java, A Primer, 2nd Edition, TMH, 1996.
2. Darrel Ince & Adam Freeman: Programming the Internet with Java, Addison-Wesley, 1997.

COMPUTER LAB-VIII(BASED ON BSC604CS)

Subject Code		IA Marks	10
No. of Practical Hrs./Week	01	Exam Hours	03
Total No. of Practical Hours	03	Exam Marks	40

Practical Hours: 3 Hours (Once) / Week

Assignments on Java and Internet Programming

The students shall gain experience on Programming with Java and Internet

1. Write A Program To Generate KEB Bill.
2. Write a Program to Perform All Arithmetic Operation using switch statements.
3. Write A Program To Generate Fibonacci Series.
4. Write A Program To Illustrate Polymorphism.
5. Write A Program To Illustrate Operator and method Overloading
6. Write a program to find factorial of list of number reading input as command line argument.
7. Write a program to find prime series reading N as command line argument.
8. Write a program to sort list of elements in ascending and descending order and show the exception handling.
9. Write a program to implement Rhombus pattern reading the limit form user.
10. Write a program to implement all bitwise operations read the input from user and display input, output errors.
11. Write a program to implement all string operations.
12. Write a program to find area of geometrical figures using method.
13. Write a program to implement constructor overloading by passing different number of parameter of different types.
14. Write a program to create student report using applet, read the input using text boxes and display the op using buttons.
15. Write a program to calculate bonus for different departments using method overriding.
16. Write a program to implement an applet by passing parameter to HTML.
17. Write a program to implement thread priorities.
18. Write a program to implement thread, applets and graphics by implementing animation of ball moving.
19. Write a program to implement mouse events.
20. Write a program to implement keyboard events.

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QUESTION PAPER PATTERN FOR ALL SEMESTERS:

1. **Theory:** The question paper has three parts. Part I contains 12 questions out of which 10 questions have to be answered. Each question carries 2 marks. Part II contains 8 questions out of which 6 questions have to be answered. Each question carries 5 marks. Part III contains 5 questions out of which 3 questions have to be answered. Each question carries 10 marks. **(Total: 80 Marks)**
2. **Practical:** The practical marks of 40 is distributed as follows:
 - a. Writing two programs 14 marks (7 each)
(including algorithm/flowchart)

- b. Execution of two programs 20 marks (10 each)
c. Journal and Viva-voce 06 marks

Total: 40 Marks

Committee Board Of Studies (UG)

- 1) **Aziz Makandar** **Chairman**
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