B.A/B.Sc. (COMPUTER SCIENCE) Part III Semester V
2024-25 and 2025-26 Sessions
(This Scheme is for Regular students of Affiliated Colleges, Constituent Colleges and Centre for Distance & Online Education)

BCSB3101T: OBJECT ORIENTED PROGRAMMING USING C++

Total Marks: 70
University Examination: 50
Internal Assessment: 20

Maximum Time: 3 Hrs.
Minimum Pass Marks: 35%
Lectures to be delivered: 45-55 Hrs.

A) Instructions for paper-setter

The question paper will consist of three sections A, B & C. Sections A & B will have four questions from the respective sections of the syllabus and will carry 30% marks each. Section C will have 6-12 short answer type questions which will cover the entire syllabus uniformly and will carry 40% marks in all.

B) Instructions for candidates

1. Candidates are required to attempt two questions each from sections A & B of the question paper and the entire section C .
2. Use of non-programmable scientific calculator is allowed.

Section A

Evolution of OOP: Procedure Oriented Programming, OOP Paradigm, Advantages and disadvantages of OOP over Functional Programming Approach.
Characteristics of Object Oriented Language: Classes, Objects, Inheritance, Reusability, User defined Data Types, Polymorphism and Exception Handling.
Introduction to C++: Structure of C++ Program, Identifier and keywords, Constants, Data Types, C++ Operators, Type Compatibility, Variable Declaration, Reference Variable, Statements, Expressions, Manipulators. Input and Output Statements.
Control Statements: Conditional Expression, Loop Statements,
Storage Class Specifiers: Automatic, Static, Register, Extern. Array, Pointer Arithmetic, Structures, Pointers and Structures, Unions, Bit Field Typed Enumerations.
Function in C++: Function Prototyping, Defining a function, Types of functions.
Methods of Parameter passing: by value, by address, by reference, Recursion,
Function Overloading: Virtual functions, pure virtual functions, operator overloading.

Section B

Classes: Data members and member functions, objects, arrays of class objects, Objects as function arguments, nested classes, inline member functions, static data members and static member functions, friend functions, dynamic memory allocation.
Constructors and Destructors: Default parameterized and copy constructors, multiple constructors in classes dynamic constructors. Rules for constructors and destructors, Const. objects.
Inheritance: single inheritance, inheriting private members, types of derivation, multiple inheritance, multi-level inheritance, hierarchical inheritance, hybrid inheritance, container classes and member access control. Abstract class.
Polymorphism: Methods of achieving polymorphic behaviour.
Pointers: Pointers and classes, pointer to object, this pointer.

References:

1 Herbert Schildt, The Complete Reference C++, Tata McGraw-Hill, 2001
2 Deitel and Deital, C++ How to program, Pearson Education 2001.
3 Robert Lafore, *Object Oriented Programming in Turbo C++*, Galgotia Publications, 1994.
4 Bajane Stautrup, *The C++ Programming Language*, Addition,-Wesley Publication Co., 2001.
5 Stanley B. Lippman, Losee Lajoie, C++. Primer; Pearson Education, 2002
6 E. Balagurusamy, *Object-Oriented Programming with C++*, Tata McGraw-Hill, 2001
7 D. Ravichandran, Programming with C++ - 2nd edition, Tata McGraw-Hill Publishing Company Ltd.

BCSB3101P: OBJECT ORIENTED PROGRAMMING USING C++ Lab

Max. Marks : 30
Min. Pass Marks: 35%

Practical units to be conducted: 75
Time allowed: 3 Hours

The laboratory course will comprise of exercises to supplement what is learnt under Paper BCSB3101T: **OBJECT ORIENTED PROGRAMMING USING C++**

The break-up of marks for the practical will be as under:

Lab Record	:	05 marks
Viva Voce	:	10 marks
Program Development and Execution	:	15 marks

BCSB3201T: INTRODUCTION TO COMPUTER NETWORK AND INTERNET PROGRAMMING

Total Marks: 70
University Examination: 50
Internal Assessment: 20

Maximum Time: 3 Hrs.
Minimum Pass Marks: 35%
Lectures to be delivered: 45-55 Hrs.

A) Instructions for paper-setter

The question paper will consist of three sections A, B & C. Sections A & B will have four questions from the respective sections of the syllabus and will carry 30% marks each. Section C will have 6-12 short answer type questions which will cover the entire syllabus uniformly and will carry 40% marks in all.

B) Instructions for candidates

1. Candidates are required to attempt two questions each from sections A & B of the question paper and the entire section C .
2. Use of non-programmable scientific calculator is allowed.

Section A

Computer networks- Hardware, Software, users, goals and applications of computer networks.
Types of Network: Local area networks, wide area networks, metropolitan area networks and value added networks - their features.
Transmission media: Magnetic media, twisted pair, coaxial cables, fibre optics, radio transmission, microwave transmission, infrared waves and Line of sight transmission, Cellular radio and communication Satellites.
Internet: What is Internet, its advantages, disadvantages, internet facilities through WWW and HTML, Internet Protocols, TCP/IP, FTP, newsgroups, remote logins, chat groups etc.
WWW: the client side, the server side, web browsers, web pages, locating information on the web.
E-Mail: architecture, various aspects, user agent, message format, message transfer, e-mail privacy.
Network Security: Various threats, prevention and solutions.

Section B

HTML: Introduction to HTML, SGML, Internet and Web structure of HTML document.
Starting an HTML document: Head element, body element, style element, Script element, Text formatting, using lists to organise information.
Organising Data with Table: Basic table Structures, individual cells and headings, vertical controls, database considerations, displaying real data with a table.
Table Layout and Presentation: Table Syntax, two column layout, staggered body with an index, traditional newspaper layout.
Uniform Resource Locators (URLs): Absolute URLs, Relative URLs, fragment URLs, Types of URL Schemes-HTTP, mailto, news, FTP, Telnet, File etc.
Using Hyper Links and Anchors: Uses to Hyper Links, Structure of Hyper Links, Links to specialised contents.
Images: Adding Images to web page, using images as links, creating menus with image maps, image formats-GIF, JPEG etc.
HTML Forms: Understanding forms, creating simple GO button, fill-in-form page, form security, INPUT element, BUTTON element, SELECT element, TEXT AREA element, LABEL element, FIELDSET and LEGEND elements.

REFERENCES :

1. Andrew S. Tanenbaum, "Computer Networks", Third Edition, PHI Publications, 1997.
2. Corner, Internetworking with TCP-IP: Principles, Protocols and Architecture, Prentice Hall
3. Bertsellas and R. Gallager, "Data Networks", 2nd Edition, Prentice Hall, 1992.
4. Stephan Mack, Janan Platt, HTML 4.0 No Experience Required, BPB Publication.
5. Rick Darnell et al, HTML 4 Unleashed, Tech media Publications.

BCSB3201P: INTRODUCTION TO COMPUTER NETWORK & INTERNET PROGRAMMING Lab

Max. Marks : 30
Min. Pass Marks: 35%

Practical units to be conducted: 75
Time allowed: 3 Hours

The laboratory course will comprise of exercises to supplement what is learnt under Paper **BCSB3201T: INTRODUCTION TO COMPUTER NETWORK & INTERNET PROGRAMMING** Lab exercises should cover at least following topics:

HTML, Tables and Forms, Applying Style Sheets to HTML, General Commands of Java Script.

The break-up of marks for the practical will be as under:

Lab Record	:	05 marks
Viva Voce	:	10 marks
Program Development and Execution	:	15 marks