

SUBJECT: UNDERGRADUATE COURSE
CURRICULUM 2023-24

PART-A: Introduction

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|--------------------------------|--------------------------------|---|-------------------|------------------------------|
| Program: Diploma Course | | Class: B. Sc. Semester-IV | Year: 2023 | Session: 2023-2024 |
| 1 | Course Code | CSSC-4T | | |
| 2 | Course Title | Object Oriented Programming | | |
| 3 | Course Type | Discipline Specific Course (DSC) | | |
| 4 | Pre-requisite (if, any) | As per Government norms / Institutional scheme | | |
| 5 | Course Learning Outcomes (CLO) | <i>After completion of this course, the students will be able to:</i> <ul style="list-style-type: none"> ➤ Understand concept of OOP ➤ Develop concept of classes and objects. ➤ Will help to understand basics of program flow. ➤ Learn Array processing coupled with iterative methods. ➤ Learn concept of inheritance and polymorphism. | | |
| 6 | Credit Value | 04 (03 Theory & 01 Practical) | | |
| 7 | Total Marks | Max. Marks: 100 | | Min Passing Marks: 40 |

PART -B: Content of the Course

Total No. of Teaching-learning - Hours- 45

| Unit | Topics (Course contents) | No. of Hours |
|---|---|--------------|
| I | Basic concepts of Object-Oriented Programming: Procedure Oriented Programming Paradigm, Object Oriented Programming Paradigm, Objects, Classes, Data abstraction and Encapsulation, Polymorphism, Dynamic Binding, Message Passing, Benefits and applications of OOP. Introduction to C++: What is C++, Applications of C++, Program features and Structure of C++ program, Comments, C++ Tokens: Keywords, Identifiers, Constants, Strings, Operators, C++ data types: Basic (Built-in) data types, User defined data types, Operators and operator precedence. | 12 |
| II | Control Structures: Control Structures (Sequence, Selection, Loop), switch case, break, continue, arrays, pointers. Functions in C++: Function prototyping, call by reference, return by reference, Inline functions, Default arguments, function overloading, string handling functions. | 11 |
| III | Classes & objects in C++: Structure, specifying class, creating objects, accessing class members, Defining member functions, constructors, types of constructors, destructors, Operator overloading. | 11 |
| IV | Inheritance in C++: Forms of inheritance: Single inheritance, Multiple Inheritance, Hierarchical Inheritance, Multilevel Inheritance, Hybrid Inheritance, virtual base class, Polymorphism, static and dynamic binding, Virtual functions, abstract class, void pointer, friend class, friend function, operator overloading. | 11 |
| keywords <i>Control structures, Loops, Arrays, Strings, Structure.</i> | | |

PART-C (CSSC -4T)**Learning Resources: Text Books, Reference Books and Others****Text Books:**

- Object-Oriented Programming with C++, E. Balaguruswamy, TMH.
- C++ The Complete Reference, Herbert Schildt, Osborne, TMH.
- C & C++ Complete reference, Herbert Shieldt, Osborne, TMH

Reference Books:

- C++ Primer Plus, Stephen Prata, Galgotia Publications, 1996
- Object-Oriented analysis and Design with applications, Grady Booch

Online Resources / e-learning resources:

- <https://diksha.gov.in/>
- <https://ndl.iitkgp.ac.in/>
- <https://swayam.gov.in/explorer?category=SCHOOL>

PART - D: Assessment and Evaluation**Suggested Continuous Evaluation Methods:****Maximum Marks:** 100 Marks**Continuous Comprehensive Evaluation (CCE):** 20 Marks**Semester End Exam (SEE):** 80 Marks

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| Internal Assessment: | Class Test : 02 of 10 Marks each | Average of the marks obtained in both test (out of 10) and marks obtained in assignment (out of 10) shall be considered against 20 Marks of Internal assessment |
| Continuous | Assignment : 01 of 10 Marks | |
| Comprehensive Evaluation (CCE) | | |

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|---------------------------------|---|
| Semester End Exam (SEE): | Paper (Two section – A & B) |
| | Section A: Objective and Short answer type questions : 10 + 10 = 20 Marks |
| | Section B: Descriptive answer type questions unit wise : 15 x 04 = 60 Marks |

[Handwritten signatures and marks]