# BCA-4-03P: Object Oriented Programming Lab

Total Marks: 50
External Marks: 35
Internal Marks:  15
Credits: 2
Pass Percentage: 40%

| Course: Object Oriented Programming Lab | |
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| **Course Code: BCA-4-03P** | |
| **Course Outcomes (COs)** | |
| After the completion of this course, the students will be able to: | |
| CO1 | Develop the ability to apply OOP fundamentals in creating well-structured and readable code. |
| CO2 | Develop Programs for file handling. |
| CO3 | Develop Programs for Operator Overloading. |
| CO4 | Gain practical experience in implementing OOP concepts such as classes, objects, inheritance, and polymorphism in programming assignments. |
| CO4 | Gain proficiency in using programming languages that support OOP to develop applications and solve real-world problems. |

## Detailed List of Programs:

| Programme No. | Name of Program |
|---|---|
| P1 | Create a class with attributes and methods, and then create objects of that class to demonstrate basic OOP principles. |
| P2 | Create a base class and one or more derived classes to demonstrate inheritance and the use of base class members in derived classes. |
| P3 | Create a base class with a virtual function, override the function in a derived class, and demonstrate runtime polymorphism by calling the function through base class pointers. |
| P4 | Create a class with private data members and public member functions to demonstrate encapsulation and data hiding. |
| P5 | Create a class with a constructor and destructor to demonstrate object initialization and cleanup. |
| P6 | Overload arithmetic or comparison operators for a class to demonstrate operator overloading. |

| P7 | Create a class with multiple functions of the same name but different parameters to demonstrate function overloading. |
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| P8 | Create an abstract class with one or more pure virtual functions to demonstrate abstract classes and interfaces. |
| P9 | Create a program that allows the user to add, delete, modify, and display student records. Use file handling to store and retrieve student data. |

*Students/Learners can implement Object Oriented Programming (OOP) concepts using any language like C++ or Java or Python*