# **Course Outline for CSE-144**

### Part A

1. Course Code: CSE-144

2. Course Title: Object Oriented Programming (Sessional)

3. Course Type: Core Course

4.Level/ Term: Level: 1 Term: II

5. Academic Session: 2020-21

6. Course Teacher: Omar Sharif, Lecturer, Dept. of CSE, CUET Md. Billal Hossain, Lecturer, Dept. of CSE, CUET

### 7. Prerequisite(s): None

8. Credits: 1.5

**9. Contact Hours:** 3 hours of lab work per week

### **10. Total Marks:** 150

### **11. Rational of the Course:**

This course introduces advanced programming skills and focuses on the core concepts of object-oriented programming and design using a high-level language, C++. The course focuses on the understanding and practical mastery of object-oriented concepts such as classes, objects, data abstraction, methods, method overloading, inheritance and polymorphism. Detailed knowledge of class and object along with Standard Template Library will enable students to implement complex programs systematically and efficiently. This is a required course for all the students enrolling B. Sc. Engg. in CSE program. The catalogue description of the course is

### **Course Content:**

Sessional based on the following topics:

Concepts of object-oriented programming, Classes, Friend functions: Objects, isomorphism, polymorphism, inheritance, parameterized constructors, multiple inheritance, passing object to functions, arrays of objects, pointer to objects. Function and operator overloading, overloading constructor functions, references, virtual functions,

*Exception Handling, Template functions and classes, Streams, Dynamic allocation, Static class members, Multi-threaded programming.* 

### **12. Course Objectives:**

(a) Justify the philosophy of object-oriented design and the concepts of encapsulation, abstraction, inheritance, polymorphism, exception handling and generic programming.

- (b) Describe how the class mechanism supports encapsulation, inheritance and polymorphism.
- (c) Describe how the class mechanism supports encapsulation, inheritance and polymorphism.

# **13.** Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

a) CLOs

No.	Course Learning Outcomes (CLOs)	Bloom's Level (Optional)
CLO1	Develop programs to illustrate basic concept of OOP features and C++ concept	C5
CLO2	Apply major object-oriented concepts and its advanced features in C++	C3
CLO3	Apply all the programming concepts as and when required in the future application development of object-oriented solutions for small systems	C3, C5

### b) Mapping of CLOs with PLOs

No.	CLOs	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12
1	CLO1	Х		Х									
2	CLO2			Х									
3	CLO3	Х		Х									

### Part B

# 14. Course plan specifying content, CLOs, co-curricular activities (if any), teaching learning and assessment strategy mapped with CLOs Course Plan

	Торіс	Teaching-Learning Methodology	Assessment Method	Corresponding CLOs
Week-01	Introduction to Object-Oriented Programming and overview of C++ basics	<ul> <li>Lecture on theoretical background and design principle</li> <li>Hands on demonstration on the implementation</li> </ul>	Lab Performance	• CLO-1
Week -02	Overview of C++ basics	<ul> <li>Lecture on theoretical background and design principle</li> <li>Hands on demonstration on the implementation</li> </ul>	Lab Performance Report	• CLO-1
Week -03	Standard Template Library (STL)	<ul> <li>Lecture on theoretical background and design principle</li> <li>Hands on demonstration on the implementation</li> </ul>	Lab Performance Report	• CLO-1
Week -04	Class and Object	<ul> <li>Lecture on theoretical background and design principle</li> <li>Hands on demonstration on the implementation</li> </ul>	Lab Performance Report	• CLO-2
Week -05	Constructor and Destructor	<ul> <li>Lecture on theoretical background and design principle</li> <li>Hands on demonstration on the implementation</li> </ul>	Lab Performance Report	• CLO-2

Week -06	Constructor and Destructor	<ul> <li>Lecture on theoretical background and design principle</li> <li>Hands on demonstration on the implementation</li> </ul>	Lab Performance Report	• CLO-2
Week -07	Inheritance	<ul> <li>Lecture on theoretical background and design principle</li> <li>Hands on demonstration on the implementation</li> </ul>	Lab Performance Report	• CLO-2
Week -08	Polymorphism	<ul> <li>Lecture on theoretical background and design principle</li> <li>Hands on demonstration on the implementation</li> </ul>	Lab Performance Report	• CLO-2
Week -09	File Handling	<ul> <li>Lecture on theoretical background and design principle</li> <li>Hands on demonstration on the implementation</li> </ul>	Lab Performance Report	• CLO-3
Week -10	Exception Handling and Generic programming	<ul> <li>Lecture on theoretical background and design principle</li> <li>Hands on demonstration on the implementation</li> </ul>	Lab Performance Report	• CLO-3
Week -11	Graphical User Interface – layout Managers and Event Driven Programming	<ul> <li>Lecture on theoretical background and design principle</li> <li>Hands on demonstration on the implementation</li> </ul>	Lab Performance Report	• CLO-3
Week -12	Lab Test			
Week -13	Viva-voce and Quiz			

## Part C

### 15. Assessment and Evaluation

1) Assessment Strategy

Quizzes	15%
Viva-voce	15%
Class performance including reports	60%
Attendance	10%
Total	100%

- 2) Marks distribution:
  - a) Continuous Assessment: 70%
  - b) Summative: 30%
- 3) Make-up Procedures:
  - Course teacher may arrange for makeup lab schedule if necessary.

### Part D

16. Learning Materials

**Textbook(s):** E. Balagurusamy, -- Object Oriented Programming with C++ by Tata McGraw Hill Education Private Limited (June 16, 2011)

**Reference:** Herbert Schildt -- C++: The Complete Reference, Mcgraw-Hill Osborne Media; 3rd edition (August 1, 1998)