The Islamia University of Bahawalpur

**University College of Engineering & Technology**

Department of Telecommunication Engineering

Course Outline: Object Oriented Programming

General Information:

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| --- | --- | --- | --- | --- |
| **Course:** | Object Oriented Programming |  | **Instructor** | Dr. Muhammad Ali Qureshi |
| **Course Code** | COMP-01209 | **Office** | Old Building UCET |
| **Credit Hours** | 2+1 | **Email** | [ali.qureshi@iub.edu.pk](mailto:ali.qureshi@iub.edu.pk) |
| **Contact Hours** | 2 | **Contact No.** | +92-301-8675677 |
| **Pre-Requisite(s)** | Introduction to Computing | **Office Hours** | 12:00 Pm to 2:00 Pm, 5 days in week |

Course Description:

**Pointers**, **Structures**: (Structure declaration, accessing structure members, arrays of structures, passing structures as function arguments, return structure from a function, structure with structured elements)., **Functions:** Function declarations, function definitions, calling functions, scope and lifetime of variables, function parameters (default parameters, multiple parameters, return values), parameter pass (call by copy and call by reference), **Function Overloading and Overriding**, **Enumeration**, **Classes:** data members and member functions. Member access, constructors and destructors, static data members, scope resolution operator. Memory allocated for objects., **Inheritance:** (advantages of using inheritance, types of inheritance, base and derived classes, casting base class to derived class, public, protected, friendly and private inheritance, overriding member functions.), **Polymorphism:** Compile-time polymorphism, Run-time polymorphism, **Encapsulation, Abstraction, File handling, Exception Handling**.

Course Learning Outcomes (CLOs):

|  |  |  |  |
| --- | --- | --- | --- |
| **CLOs** | **Description** | **Domain** | **PLOs** |
| CLO1 |  | C4 | PLO2 |
| CLO2 |  | C6 | PLO3 |
| CLO3 |  | C5 | PLO4 |
| CLO4 |  | P5 |  |
| CLO5 |  | A3 |  |
| CLO6 |  | P5 |  |
|  |  | A4 |  |

Relation of CLOs to the Program Learning Outcomes (PLOs):

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
|  | **Engineering Knowledge** | **Problem Analysis** | **Design & Development of Solutions** | **Investigation** | **Modern Tool Usage** | **The Engineer and Society** | **Environment and Sustainability** | **Ethics** | **Individual and Team Work** | **Communication** | **Project Management** | **Life Long Learning** |
| **CLO1** |  |  |  |  |  |  |  |  |  |  |  |  |
| **CLO2** |  |  |  |  |  |  |  |  |  |  |  |  |
| **CLO3** |  |  |  |  |  |  |  |  |  |  |  |  |
| **CLO4** |  |  |  |  |  |  |  |  |  |  |  |  |
| **CLO5** |  |  |  |  |  |  |  |  |  |  |  |  |
| **CLO6** |  |  |  |  |  |  |  |  |  |  |  |  |
| **CLO7** |  |  |  |  |  |  |  |  |  |  |  |  |
| **Total** |  |  |  |  |  |  |  |  |  |  |  |  |
| **Impact** | High | High | High |  |  |  |  |  |  |  |  |  |

**Justification of Program Learning Outcomes (PLO’s) Coverage:**

**PLO1 - Engineering Knowledge:**

The assignments, exams, and laboratory experiments require engineering knowledge to successfully complete the course. Students learn how to use computer and other programming tools.  (High relevance to course).

**PLO2 - Problem Analysis**

This objective is directly addressed to analyze and trace the output and flowcharts of problems related to control

statements.

**PLO3 - Design & Development of Solutions**

  Students are able to learn about program logic, designing of flow charts, and different techniques to develop the solution

of problems.

**PLO4 – Investigation**

This objective is not directly addressed in this course.

**PLO5 - Modern Tool Usage**

This objective is achieved in lab work

**PLO6 - The Engineer and Society**

This objective is not directly addressed in this course

**PLO7 - Environment and Sustainability**

This objective is not directly addressed in this course.

**PLO8 - Ethics**

The student will understand his/her ethical responsibilities for the use of different application of internet.

**PLO9 - Individual and Team Work**

This objective is not directly addressed in this course.

**PLO10 – Communication**

This objective is not directly addressed in this course.

**PLO11- Project Management**

This objective is not directly addressed in this course.

**PLO12 - Life Long Learning**

This objective is not directly addressed in this course.

Assessment of CLOs:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | CLO1 | CLO2 | CLO3 | CLO4 | CLO5 | CLO6 |  |
| Assignments |  |  |  |  |  |  |  |
| Quizes |  |  |  |  |  |  |  |
| Midterm Exam |  |  |  |  |  |  |  |
| Final term Exam |  |  |  |  |  |  |  |
| Others (Projects/presentations) |  |  |  |  |  |  |  |

Textbook(s)/Reference Books:

1. Brian Williams and Stacey Sawyer, “Using Information Technology”, Eleventh Edition, 2014, McGraw-Hill, ISBN-13: 978-0077470678.

2 John Zelle, Python Programming, “An Introduction to Computer Science’’, Franklin, Beedle &

Associates, Second Edition, 2010, ISBN-13: 978-1590282410.

**Lecture Plan:**

|  |  |  |
| --- | --- | --- |
| Topics | **Hours** | **CLOs** |
| **Pointers** | **Week 1** |  |
| **Functions:** Function declarations, function definitions, calling functions, scope and lifetime of variables, function parameters (default parameters, multiple parameters, return values), parameter pass (call by copy and call by reference) | **Week 1-Week 2** |  |
| **Structures**: (Structure declaration, accessing structure members, arrays of structures, passing structures as function arguments, return structure from a function, structure with structured elements). | **Week 3-Week 4** |  |
| **Enumeration** | **Week 4** |  |
| **Classes:** data members and member functions. Member access, constructors and destructors, static data members, scope resolution operator. Memory allocated for objects. | **Week 5-Week 6** |  |
| **Inheritance:** (advantages of using inheritance, types of inheritance, base and derived classes, casting base class to derived class, public, protected, friendly and private inheritance, overriding member functions.) | **Week 7-** |  |
| **Polymorphism:** Compile-time polymorphism, Run-time polymorphism | **Week 8** |  |
| **Function overloading and overriding** | **Week 9-Week 10** |  |
| **Encapsulation** | **Week 11** |  |
| **Abstraction** | **Week 12** |  |
| **File Handling** | **Week 13-Week 14** |  |
| **Exception handling** | **Week 15** |  |

**Grading Policy vis-à-vis CLO Mapping**

|  |  |
| --- | --- |
| Assignments, Quizzes (3 to 8), Projects/presentations etc | 10 |
| Midterm | 15 |
| Final | 25 |

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