 

# Basic Information

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Faculty |  | | | | | | | | | |
| Office Hour |  | | | | | | | | | |
| Contact Details |  | | | | | | | | | |
| Course Pre-requisites |  | | | | | | | | | |
| Department offering the course |  | | | | | | | | | |
| Course Title |  | | | | | | | | | |
| Course Code |  | |  | |  | |  |  | | |
| Number of Lectures |  |  | |  | |  | |  |  |  |

**Course Details**

## Course Description

This course will familiar the students with the concepts of Object Oriented Programming C++ and they learn how to use this concept in application level. At the end of the class, we expect students be able to write and read basic C++ code.

1. **Course Objective**
   1. To **emphasize** on designing and solving practical problems through object-oriented programming techniques.
   2. To **expose** the students to a variety of object-oriented programming techniques that have practical applications.

## Intended learning outcomes of the course (ILOs)

|  |  |
| --- | --- |
| SKILLS | Apply object-oriented programming skills to design, develop and implement solutions to real-life problems. |

* 1. **Mapping of Course LO and PLO:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Learning Outcome (LO) of the Course** | **Program Learning Outcome (PLO)** | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| **ILO 1** | MJ |  | MJ | MN |  |  |  |  | MJ | MJ | MN |  |

* 1. **Contents**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ILO** | **Topic** | **Teaching Strategy** | **Assessment Strategy** | **Number of Sessions** |
| 1-2 | Class, Object, Access Modifiers, Member function, Inline  function, Static Members of a Class, User defined data type, Scope resolution operator | Lecture Exercise | Q/A Test | 4 |
| 1-3 | Constructor and Destructor, Friend function and Friend class | Lecture Exercise | Q/A Test | 2 |
| 1-5 | Inheritance | Lecture Exercise | Q/A Test  Assignment | 4 |
| 1-5 | Static and Dynamic Memory Allocation | Lecture | Q/A Test  Assignment | 1 |
| 1-5 | Pointer in class, Copy Constructor | Lecture Exercise | Q/A Test  Assignment | 2 |
| 1-5 | Polymorphism, Virtual Function, Pure virtual function, Abstract class | Lecture Exercise | Q/A Test  Assignment | 3 |
| 1-5 | Overloading | Lecture Exercise | Q/A Test  Assignment | 3 |
| 1-5 | Preprocessors | Lecture Exercise | Q/A Test  Assignment | 2 |
| 1-5 | Files I/O | Lecture Exercise | Q/A Test  Assignment | 2 |
|  |  |  | **Total** | 24 |
|  | |  |  |  |

* 1. **A. Assessment Schedule**

|  |  |  |  |
| --- | --- | --- | --- |
| Assessment 1 | Class Work | Session | Announced |
| Assessment 2 | Assignment | Session | Week 3, 5, 9, 11, 12 |
| Assessment 3 | Mid Term | Session | Week 7 |
| Assessment 4 | Project | Session | Week 12 |
| Assessment 5 | Final | Session | Week 15 |

1. **Weights of Assessments**

|  |  |
| --- | --- |
| Assessments | **%** |
| Mid-term Quiz + Labtest |  |
| Final Quiz + Lab test |  |
| Class Work |  |
| Viva |  |
| Project |  |
| Total |  |

1. **Grading Policy**

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| --- | --- | --- | --- |
| **Policy** | **Letter Grade** | **Grade Point** | **Assessments** |
| 95% and above | A+ | 4.00 | Outstanding |
| 85% to below 95% | A | 4.00 | Superlative |
| 80% to below 85% | A- | 3.80 | Excellent |
| 75% to below 80% | B+ | 3.30 | Very Good |
| 70% to below 75% | B | 3.00 | Good |
| 65% to below 70% | B- | 2.80 | Average |
| 60% to below 65% | C+ | 2.50 | Below Average |
| 55% to below 60% | C | 2.20 | Passing |
| 50% to below 55% | D | 1.50 | Probationary |

|  |  |  |  |
| --- | --- | --- | --- |
| below 50% | F | 0.00 | Fail |
| -- | I | 0.00 | Incomplete |
| -- | W | 0.00 | Withdrawn |
| -- | AW | 0.00 | Administrative Withdrawal |

* 1. **List of References**

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| --- | --- |
| Course Notes | Please check the moodle and the facebook group page to access course notes. |
| Essential Books (Text Books) | A Complete Reference of C++ - Herbert Schildt |
| Recommended Reference Books | ourself C++, by Herbert Schildt  ming with C++, John R. Hubbard, (Schaum's outlines) |
| Online Resources | Will be suggested during lecture |

**Facilities Required for Teaching and Learning**

Multimedia projector, white board and marker, internet connection, a computer with MS office suites

## Course Policies and Procedures

* + Failing to attend more than 5 classes will result in an automatic fail
  + Students are advised to keep the cell phones into silent mode
* Cheating and plagiarism are strictly prohibited
* There will be No makeup exam/quiz
* ULAB regulations will be followed in conducting exams and evaluating answer scripts and grading

**Appendix-1: Program Learning Outcome (PLO)**

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| --- | --- |
| **No.** | **PLO** |
| 1. | **Engineering Knowledge** |
| 2. | **Problem Analysis** |
| 3. | **Design/Development of Solutions** |
| 4. | **Investigation** |
| 5. | **Modern Tool Usage** |
| 6. | **The Engineer and Society** |
| 7. | **Environment and Sustainability** |
| 8. | **Ethics** |
| 9. | **Communication** |
| 10. | **Individual and Team Work** |
| 11. | **Life Long Learning** |
| 12. | **Project Management and Finance** |

|  |  |
| --- | --- |
| **Generic Skills (Detailed):**   1. **Engineering Knowledge (T)** -Apply knowledge of mathematics, sciences, engineering fundamentals and manufacturing engineering to the solution of complex engineering problems; 2. **Problem Analysis (T)** – Identify, formulate, research relevant literature and analyze complex engineering problems, and reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences; 3. **Design/Development of Solutions (A)** –Design solutions, exhibiting innovativeness, for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, economical, ethical, environmental and sustainability issues. 4. **Investigation (D)** Conduct investigation into complex problems, displaying creativeness, using research-based knowledge, and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions; 5. **Modern Tool Usage (A & D)** -Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering activities, with an understanding of the limitations; 6. **The Engineer and Society (ESSE)** -Apply reasoning based on contextual knowledge to assess societal, health, safety, legal, cultural, contemporary issues, and the consequent responsibilities relevant to professional engineering practices. 7. **Environment and Sustainability (ESSE)** -Understand the impact of professional engineering solutions in societal, global, and environmental contexts and demonstrate knowledge of and need for sustainable development; 8. **Ethics (ESSE)** –Apply professional ethics with Islamic values and commit to responsibilities and norms of professional engineering code of practices. 9. **Communication (S)** -Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions; 10. **Individual and Team Work (S)** -Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings. 11. **Life Long Learning (S)** -Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. 12. **Project Management and Finance (S)** -Demonstrate knowledge and understanding of engineering management and financial principles and apply these to one’s own work, as a member and/or leader in a team, to manage projects in multidisciplinary settings, and identify opportunities of entrepreneurship. | |
| .................................................................................................  *Course Coordinator/ Teacher*  Date: | .................................................................................................  *Head of the Department*  Date: |