|  |  |
| --- | --- |
| sdfsdfsdfsdfsdfs-01.png | sdfsdfsdfsdfsdfs-02.png |



Basic Information

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Faculty | Satyaki Das, (Room PC-315) | | | | | | | | | | |
| Office Hour | **Sunday:** 1:00 pm - 2:30 pm (Permanent Campus: Room: PC-315)  **Tuesday:** 1:00 pm - 2:30 pm (Permanent Campus: Room: PC-315)  **Monday:** 11:30 am - 12:50 pm & 2:30 pm - 4:00 pm (Permanent Campus: Room: PC-315)  **Wednesday:** 11:30 am - 12:50 pm & 2:30 pm - 4:00 pm (Permanent Campus: Room: PC-315)  **Thursday:** 9:30 am – 12:30 pm (Permanent Campus: Room: PC-315)  Note: Also available by Email Appointment at other times  satyaki.das@ulab.edu.bd | | | | | | | | | | |
| Contact Details | **Room:** PC315  satyaki.das@ulab.edu.bd | | | | | | | | | | |
| Course Pre-requisites | CSE 103 and CSE 104 | | | | | | | | | | |
| Department offering the course | Computer Science and Engineering | | | | | | Google classroom | | | | |
| Course Title | Object Oriented Programming C++ | | | | | | Core course | | | | |
| Course Code | CSE 201 (section-1) | | Credit | | 3 | | | Term | Spring 2021 | | |
| Number of Lectures | 24 | Number of Tutorials | | 0 | | Number of Practical | | | 24 | Total | 24 |

Course Details

**1.** **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. |

**2. Course Objective**

1. To **provide** a thorough understanding of object-oriented programming concepts and the resource requirements.
2. To **introduce** several important features of object-oriented programming that are interesting both from a theoretical and also practical point of view.
3. To **enable** students to design and write programs using C++ programming language.
4. To **emphasize** on solving practical problems using C++ programming language.

**3. Intended learning outcomes of the course (ILOs)**

|  |  |
| --- | --- |
| KNOWLEDGE | 1. **Describe** the principles and concept of OOP |
| 1. **Explain** important features of object-oriented programming that are important to design and develop OOP |
| SKILLS | 1. **Solve** a wide range of practical problems using C++ computer programming language. |
| 1. **Understand** a real-life problem and **be able** to design and code a small system using C++ language |

**4. 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 | MN |  |  |  |  |  |  |  |  |  |  |
| **ILO 2** | MJ |  |  | MN | MN |  |  |  |  |  |  |  |
| **ILO 3** | MJ | MJ | MJ | MN | MN |  |  |  |  |  |  |  |
| **ILO 4** |  | MJ |  | MJ | MN |  |  |  |  |  |  |  |

**5. Contents**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ILO** | **Topic** | **Teaching Strategy** | **Assessment Strategy** | **Number of Sessions** |
| 1-2 | Review of Structured programming and Introduction to of OOP | Lecture  Exercise | Assignment | 2 |
| 1-3 | Decision Making and Coding Conventions of OOP | Lecture  Exercise | Assignment | 1 |
| 1-3 | Class, Object, Access Modifiers | Lecture  Exercise | Quiz Assignment  Examination | 3 |
| 1-4 | Methods/functions and function overloading | Lecture  Exercise | Assignment Quiz  Examination | 4 |
| 1-4 | Constructor and Destructor | Lecture  Exercise | Assignment  Quiz Examination | 2 |
| 1-4 | Friend function and Friend class | Lecture  Exercise | Assignment  Quiz  Examination | 4 |
| 1-4 | Inheritance and inheritance hierarchies in C++ | Lecture  Exercise | Quiz Assignment  Examination | 3 |
| 1-4 | Polymorphism and Encapsulation | Lecture  Exercise | Q/A Test Assignment | 2 |
| 1-4 | Virtual function, Pure virtual Function, Abstract class and file operations | Lecture  Exercise | Assignment Quiz  Examination | 3 |
|  |  |  | **Total** | 24 |

**5. A. Assessment Schedule**

|  |  |  |  |
| --- | --- | --- | --- |
| Assessment 1 | Class Test | Session | Week 4, 8, 12 |
| Assessment 2 | Assignment | Session | Week 3, 5, 9, 11, 12 |
| Assessment 3 | Mid Term Final | Session | Week 7 |
| Assessment 5 | Final | Session | Week 14 &15 |

**B. Weights of Assessments**

|  |  |
| --- | --- |
| Assessments | **%** |
| Mid-term Examination | 25 |
| Final Term Examination | 25 |
| Attendance and Class Participation | 15 |
| Assignments | 15 |
| Class Test | 20 |
| Total | 100 |

**C. Grading Policy**

|  |  |  |  |
| --- | --- | --- | --- |
| **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 |

**6. List of References**

|  |  |
| --- | --- |
| 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 | Teach Yourself C++, by Herbert Schildt  Programming 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 * ULAB regulations will be followed in conducting makeup mid exam and final exam.   **Appendix-1: Program Learning Outcome (PLO)**   |  |  | | --- | --- | | **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: 27.10.2020 |  | .................................................................................................  *Head of the Department*  Date: |