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| **University of Technology (Yatanarpon Cyber City)** | | |
| **Faculty of Information and Communication Technology**  **Object-Oriented Programming** | | |
| **Program** | B.E(IST), B.E(CE) | |
| **Course Code** | ICSE-11021 | |
| **Course Title** | Object-Oriented Programming (C++) | |
| **Credit Hours** | 4.08 | |
| **Instructor** | Dr. Renu, Dr. Tin Win Maw | |
| **Contact Information** | Email:[renushi@gmail.com](mailto:renushi@gmail.com), [tinwinmawutycc@gmail.com](mailto:tinwinmawutycc@gmail.com)  Tel. +959256265029, +959402769371 | |
| **Bulletin Course Description** | The purpose of this course is to provide an introduction to some features of C++ used in the implementation of the models and to demonstrate their actual use in the implementation. It starts with universal basic, not relaying on object concepts and gradually extends to advance observed in the object approach. The course fully covers the basics concept of programming in the C++ programming language and presents the fundamental notions and techniques used in object-oriented structure. | |
| **Pre-requisites** | No specific pre-requisites for student | |
| **Course Objectives  (Learning Outcomes of the Course) Subject** | Students successfully completing this course will be able to :   * understand the basic programming constructs of C++ * **present use of C++ language as well as basic data types described by C++ language** * **discuss the basic principles of object-oriented model and its implementation in C++ language** * **introduce different techniques for problem solving skills with programming knowledge** * **understand how to create loops, decisions, arrays, object and classes in new concepts of their applications to real programming** | |
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| **Week** | **Course Topics and Contents** | |
| 1 | Revision of basic programming concept including usage of basic data types and principals | |
| 2 | Class & Object: Class and Object definition, using the class, C++ object as physical object and data types | |
| 3 | Class & Object: Constructors, Object as function argument, Class, Object and Memory, Static Class data, Class and Structure, const and Class, Summary & Exercise | |
| 4 | Arrays & String: Array fundamentals, Arrays as class member data, Arrays of object, C-String, C-String variables, String constant, Reading blank, multiple lines, copying string, Array of string | |
| 5 | Arrays & String: User-defined String Types, Standard C++ string class, Defining and Assigning string object | |
| 6 | Arrays & String: In/output with string class, Finding, Modifying, Comparing string object, other string function, Summary & Exercise | |
| 7 | Operator Overloading: Overloading unary operator, Overloading Binary operator, arithmetic operator, comparison operator, arithmetic assignment operator | |
| 8 | Operator Overloading: Data Conversion between basic types, Data Conversion between basic type and user defined type | |
| 9 | Operator Overloading: Data Conversion between object of different classes, Summary & Exercise | |
| 10 | Inheritance: Derived class and Base class, Derived class constructor, Class hierarchies | |
| 11 | Inheritance: Inheritance & Graphic Shape, Level of Inheritance, Multiple Inheritance, Association, Class within class | |
| 12 | Inheritance: Multiple Inheritance, Association, Class within class, Summary & Exercise | |
| 13 | Pointers: Address & Pointer, Pointers & Array, Pointer & Function, Pointer & C-Type string, | |
| 14 | Pointers: Memory management, Pointer to object, A Linked List Example, Pointer to Pointer | |
| 15 | Pointers: A parsing Example, UML State Diagram, Summary & Exercise | |
| 16 | Revision | |
| 17 | Revision | |
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| **Relationship of course objectives to program outcomes** | | |
| **Program Outcome 1** | | Analyze real applications with concept of programming point of view |
| **Program Outcome 2** | | Comprehend and apply programming knowledge in real world applications |
| **Program Outcome 3** | | Build and deploy knowledge to Object Oriented programs in C++ applications |
| **Program Outcome 4** | | Design and construct experiments, as well as to analyze the real world programs |
| **Program Outcome 5** | | Develop a working knowledge **for problem solving skills with programming knowledge** |
| **Program Outcome 6** | | Construct a basic application that acts as a working example of all the topics covered in the course. |
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| **Out-of-class assignments** | | |
| **Homework** | | Exercises and other related problems |
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| **Course Grading** | | |
| **A mid-term exam** | | 35% |
| **A final exam** | | 35% |
| **Tutorial** | | 5% |
| **Lab** | | 20% |
| **Roll Call** | | 5% |
| **Total** | | 100% |
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| **Assignment** | | **Handed** |
| 1 | | Week 3 |
| 2 | | Week 6 |
| 3 | | Week 9 |
| 4 | | Week 12 |
| 5 | | Week 15 |
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| **Class/Laboratory schedule and Methodology** | | |
| **Class** | | The class meets 17 weeks, 2 lectures per week,  90 minutes. |
| **Laboratory** | | 1 lab per week, 180 minutes. |
| **Teaching and learning  methodologies** | | A combination of white board use, Power-point slide   presentation, and interactive class discussions to encourage student participation and enhance the learning. |
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| **Course Materials** | | |
| **Textbooks** | | Object Oriented Programming in C++ by Robert Lafore |
| **Instructional Material and**  **Resources** | | White board, Projector, Laptop, Reference Book,  Reference Power Points |