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| USHA RAMA COLLEGE OF ENGINEERING & Technology  Telaprolu, Near Gannavaram, Krishna (Dist.) | |
| **LESSON PLAN** | |
| Academic Year: **2016-2017** | SEMESTER: **I** |
| Title of the course: **OBJECT ORIENTED PROGRAMMING THROUGH C++** | Class: **II B.Tech CSE A & B** |
| Date of commencement of Class work :**13/06/2016** | Date of end of Class work : **08/10/2016** |
| Prepared By: **M. Samba Siva Rao**, **Associate Professor** | Approved By**: HOD** |

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| **SL.NO** | **UNIT** | **TOPIC** | **MODE OF DELIVERY** | **DATE** |
| 1 | 1 | INTRODUCTION: Differences Between C and C++,The Object Oriented Technology | Lecture interspersed with discussion | 13/06/2016 |
| 2 | 1 | Disadvantage of Conventional Programming, Concepts of Object Oriented Programming | 14/06/2016 |
| 3 | 1 | Advantages of OOP, Structure of a C++ Program | 15/06/2016 |
| 4 | 1 | Header Files and Libraries. INPUTAND OUTPUTIN C++ | 16/06/2016 |
| 5 | 1 | Streams In C++ and Stream Classes, Pre-Defined Streams | 17/06/2016 to 18/06/2016 |
| 6 | 1 | Stream Classes, 'Formatted and Unformatted Data | 20/06/2016 |
| 7 | 1 | Unformatted Console I/O Operations, Member Functions of Istream Class | 21/06/2016 |
| 8 | 1 | Formatted Console I/O Operations, Bit Fields | 22/06/2016 |
| 9 | 1 | Flags without Bit Field, Manipulators, User Defined Manipulators | 23/06/2016 |
|  |  | Overview of Unit-1/ ASSIGNMENT TEST | 24/06/2016 |
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| 10 | 2 | Tokens In C++, Variable Declaration and Initialization | Lecture interspersed with discussion | 25/06/2016 |
| 11 | 2 | Data Types, Operators In C and C++ | 27/06/2016 |
| 12 | 2 | Scope Access Operator, Namespace | 28/06/2016 |
| 13 | 2 | Memory Management Operators | 29/06/2016 |
| 14 | 2 | Comma Operator, Revision of Decision Statements | 30/06/2016 |
| 15 | 2 | Control Loop Statements, FUNCTIONS IN C++ | 01/07/2016 |
| 16 | 2 | Structure of Function, Passing Arguments | 02/07/2016 |
| 17 | 2 | Lvalues and Rvalues, Return by Reference | 04/07/2016 to 07/07/2016 |
| 18 | 2 | Returning More Values by Reference, Default Arguments | 08/07/2016 |
| 19 | 2 | Const Arguments, Inputting Default Arguments | 09/07/2016 |
| 20 | 2 | Inline Functions, Function Overloading | 11/07/2016 to 15/07/2016 |
| 21 | 2 | Principles of Function Overloading, Recursion | 16/07/2016 |
|  |  | Overview of Unit-2/ ASSIGNMENT TEST | 18/07/2016 |
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| 24 | 3 | CLASSES AND OBJECTS Introduction, Classes in C++ | Lecture interspersed with discussion | 19/07/2016 |
| 25 | 3 | Declaring Objects, Access Specifiers and Their Scope | 20/07/2016 |
| 26 | 3 | Member Functions, Outside Member Function as Inline | 21/07/2016 |
| 27 | 3 | Data Hiding or Encapsulation, Classes | 22/07/2016 |
| 28 | 3 | Objects and Memory, Static Member Variables | 23/07/2016 |
| 29 | 3 | Static Member Functions Static Object, Array of Objects | 25/07/2016 |
| 30 | 3 | Objects as Function Arguments, Friend Functions | 26/07/2016 to 30/07/2016 |
| 31 | 3 | The Const Member Functions, The Volatile Member Function | 01/08/2016 |
| 32 | 3 | Recursive Member Function, Local Classes, Empty, Static and Const Classes | 02/08/2016 |
| 33 | 3 | Member Function and Non- Member Function, Overloading Member Functions, Nested Classes. | 03/08/2016 to 05/08/2016 |
|  |  | Overview of Unit-3/ ASSIGNMENT TEST |  |
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| 34 | 4 | CONSTRUCTORS AND DESTRUCTORS Introduction, Characteristic of Constructors & Destructors | Lecture interspersed with discussion | 16/08/2016 |
| 35 | 4 | Applications with Constructors, Parameterized Constructor | 16/08/2016 |
| 36 | 4 | Overloading Constructors (Multiple Constructors), Array of Objects Using Constructors | 17/08/2016 |
| 37 | 4 | Constructors With Default Arguments, Copy Constructors, The Const Objects, Destructors | 18/08/2016 |
| 38 | 4 | Calling Constructors and Destructors, Qualifier and Nested Classes, Anonymous Objects | 19/08/2016 |
| 39 | 4 | Private Constructors and Destructors, Dynamic Initialization \_Using Constructors | 20/08/2016 |
| 40 | 4 | Dynamic Operators and Constructors, Recursive Constructor, Constructor and Destructor with Static Members, Local Vs. Global Object | 22/08/2016 |
| 41 | 4 | Overloading Unary Operators, Constraint on Increment and Decrement Operators | 23/08/2016 |
| 42 | 4 | Overloading Binary Operators, Overloading with Friend Function | 24/08/2016 |
| 43 | 4 | Overloading Assignment Operator (=), Type Conversion, Rules for Overloading Operators | 26/08/2016 |
| 44 | 4 | One Argument Constructor and Operator Function, Overloading Stream Operators | 26/08/2016 |
|  |  | Overview of Unit-4/ ASSIGNMENT TEST |  |
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| 45 | 5 | INHERITAN CE Introduction, Reusability, Access Specifiers and Simple Inheritance | Lecture interspersed with discussion | 27/08/2016 |
| 46 | 5 | Protected Data with Private Inheritance | 29/08/2016 |
| 47 | 5 | Types of Inheritances(Single Inheritance, Multilevel Inheritance, Multiple Inheritance, Hierarchical Inheritance, Hybrid Inheritance, Multipath Inheritance) | 30/08/2016 |
| 48 | 5 | Virtual Base Classes, Constructors, Destructors, and Inheritance, Object as a Class Member, Abstract Classes | 31/08/2016 |
| 49 | 5 | Qualifier Classes and Inheritance, Constructor in Derived Class, Pointers and Inheritance | 01/09/2016 |
| 50 | 5 | Overloading Member Function, Advantages of Inheritance, Disadvantages of Inheritance | 02/09/2016 |
| 51 | 5 | Static (Early) Binding, Dynamic (Late) Binding, Pointer to Base and Derived Class Objects | 03/09/2016 |
| 52 | 5 | Virtual Functions, Rules for Virtual Functions, Array of Pointers, Pure Virtual Functions, Abstract Classes, Working of Virtual Functions | 06/09/2016 |
| 53 | 5 | Virtual Functions In Derived Classes, Object Slicing, Constructors and Virtual Functions, Virtual Destructors, Destructor and Virtual Functions | 06/09/2016 |
|  |  | Overview of Unit-5/ ASSIGNMENT TEST |  |  |
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| 54 | 6 | File Stream Classes, File Opening Modes | Lecture interspersed with discussion | 07/09/2016 |
| 55 | 6 | File Pointers and Manipulators, Manipulators with Arguments, Sequential ' Access Files, Binary and ASCII Files Random Access Operation | 08/09/2016 to 15/09/2016 |
| 56 | 6 | Definition of Class Template, Normal Function Template | 16/09/2016 |
| 57 | 6 | Working of Function Templates, Class Template with more Parameters, Functions Templates with More Arguments | 17/09/2016 |
| 58 | 6 | Overloading of Template’ Functions, Member Function Templates, Recursion with Template Function, | 19/09/2016 |
| 59 | 6 | EXCEPTION HANDLING Introduction, Principles of Exception Handling | 20/09/2016 |
| 60 | 6 | The key words Try, Throw and Catch , Exception Handling Mechanism, Multiple Catch Statements, Catching Multiple Exceptions | 21/09/2016 |
| 61 | 6 | Throwing Exception, Specifying Exception, Exceptions in Constructor and Destructors, Controlling Uncaught Exceptions, Class Template With Exception Handling | 22/09/2016 to 24/09/2016 |
| 25-Sep-2016 to 08-Oct-2016 **-Revision Classes (15)** | | | | |

**Total Classes: 64 (Lectures) + 26 (tutorial)**

**\*I-MID 8/8/2016 TO 13/08/2016 \*\* II-MID 10/10/2016 TO 15/10/2016**

**Text Books:**

1. Programming In C++, Ashok N Kamthane. Pearson 2nd Edition.

2. Object Oriented Programming C++ , Joyce Farrell, Cengage

3. Mastering C ++, Venugopal, Rajkumar, Ravi kumar TMH 4. Object Oriented Programming with C++, 2nd ed, Sourav Sahay, OXFORD.

**List Of Course Outcomes(Cos):**

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| **Sub code** | **Sub Name** | **COs** | **Expected level of attainment**  **On 5 scale** |
| **R13105** | **OBJECT ORIENTED PROGRAMMING THROUGH C++** | 1. Expertise in object oriented principles and  their implementation in C++  2. Implementing algorithms in C++ | **4**  **4** |

**Signature of the Faculty Signature of the HOD**