**FACULTY OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF INFORMATION TECHNOLOGY**

**COURSE PLAN – ODD SEMESTER (2015 -2016)**

**SUBJECT**: IT1012 OBJECT ORIENTED PROGRAMMING IN C++

**DEGREE/BRANCH/YEAR / SEMESTER :**B.Tech /IT / II/ III

**STAFF NAME:** Prof.R.Subbaraj/ Ms.Kayalvizhi Jayavel / Mr.Anand /

Mr. Selvaraj / Mr. Geogen/ Mr.Savaridasan

**PURPOSE**

Object Oriented Programming (OOP) has become one of the preferred programming languages by the software industries, as it offers solutions to cope with the complexity of the real world problems. This course provides the students with the concepts of OOP based on the language ISO/IEC standard C++ language.

**INSTRUCTIONAL OBJECTIVES**

The students who completes this course would have attained the ability

O1. To learn basic concepts of Object Oriented programming – classes, objects and encapsulation, inheritance and polymorphism.

O2. To develop generic programs that support data types at runtime and handle exceptions.

O3. To learn Standard Template Library in C++ and file handling mechanism

### PREREQUISITE

NIL

**OUTCOME:**

This course presents the following outcomes as required by ABET

**Outcome c**: An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs

**Outcome i:** An ability to use current techniques, skills, and tools necessary for computing practice

**TEXT BOOK**

**TB1.** BjarneStroustrup, “*The C++ Programming Language* “, Pearson Education , 3rd Edition 2010

**REFERENCES**

**RB1.** Harvey M. Deitel and Paul J. Deitel, “*C++ How to Program*”, Deitel& Associates, Inc. 2008

**RB2.** E.Balagurusamy, “*Object-Oriented Programming with C++*”, TMH, 5th Edition, 2008.

**RB3.** R.Subburaj ,“*Object Oriented Programming with C++*”, Vikas Publishers, New Delhi, 2003

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| **IT1012 OBJECT ORIENTED PROGRAMMING IN C++** | | | | | | | | | | | | | | | | | | | | |
| **Course designed by** | | **Department of Information Technology** | | | | | | | | | | | | | | | | | | |
| 1 | Student outcome | a | B | c | d | | e | f | | g | | h | | i | j | k | l | | m | n |
|  |  | X |  | |  |  | |  | |  | | X |  |  |  | |  |  |
| 2 | Mapping of instructional objectives with student outcome |  |  | 1  2 |  | |  |  | |  | |  | | 3 |  |  |  | |  |  |
| 3 | Category | General  (G) | | | | Basic  Sciences  (B) | | | | | Engineering  Sciences and Technical Arts (E) | | | | Professional  Subjects (P) | | | | | |
|  | | | |  | | | | |  | | | | X | | | | | |
| 4 | Broad area (for ‘P’category) | Programming | | | Networking | | | | Database | | | | Web System | | Human Computer Interaction | | | Platform Technologies | | |
| X | | |  | | | |  | | | |  | |  | | |  | | |
| 5 | Approval | 23rd meeting of Academic Council, May 2013 | | | | | | | | | | | | | | | | | | |

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| **S.N** | **Topics / Sub-Topics** | **Date** | **Day order** | **Hour** | **References (TextBook, Journal )** |
| 1 | P**rogramming paradigms** –  Procedure Oriented Programming and Object Oriented Programming systems (OOPS) | 7-7-15 | D1 | 6 | TB1:P21-41 |
| 2 | History of C++  Characteristics of OOPS  ANSI/ISO standard | 9-7-15 | D3 | 2 | TB1:P10-15 |
| 3 | C++ Tokens , Data Types, keywords and Operators | 13-7-15 | D5 | 1 | TB1 P793-794, Ch4 |
| 4 | Arrays and Structures | 14-7-15 | D1 | 6 | TB1 Ch5: P88-91, Ch6:P119-121 |
| 5 | Branching and iterations | 17-7-15 | D3 | 2 | TB1 Ch6:P133-139 |
| 6 | Introduction to Standard Library, namespaces, Pointers | 20-7-15 | D5 | 1 | TB1 Ch3, Ch5 |
| 7 | Strings | 21-7-15 | D1 | 6 | TB1 Ch20 |
| 8 | Classes, Objects, Data Members, Member Functions and Functions (CV,CR,CP) and overloading | 23-7-15 | D3 | 2 | TB1 Ch7 Ch10 |
| 9 | Constructors and Destructors and Copy constructors, Parameterized constructors and overloading | 27-7-15 | D5 | 1 | TB1 Ch10 RB4 |
| 10 | Objects, structures, array and pointers as function arguments | 28-7-15 &29-7-15 | D1 | 6 | TB1 Ch10 RB4 |
| 11 | Polymorphism-Types-Operator Overloading, | 3-8-15  4-8-15 (CT) | D1 | 6 | TB1 Ch10 P228 |
| 12 | Derived classes – Types of Inheritance and Type Conversion | 6-8-15 | D3 | 2 | TB1 Ch11:P278-282 |
| 13 | Virtual Base Classes, Abstract classes and Virtual Functions (pure) | 10-8-15 | D5 | 1 | TB1 Ch7 P149-153 Ch10: P241 |
| **14** | Static binding (compile) and Dynamic binding (Run) and “this” | 11-8-15 | D1 | 6 |  |
| 15 | Static data, function and block | 13-8-15 | D3 | 2 | RB4 |
| 16 | **Surprise Test 1 and and Informal discussion** | 17-8-15 | D5 | 1 | TB1 Ch12 TB1 Ch6 P130 |
| 17 | Friend Function, Friend Class | 18-8-15 | D1 | 6 | TB1 Ch12 Ch15 P390-402 |
| 18 | Need for Template - Function Template-Class Template | 20-8-15 | D3 | 2 | TB1 Ch13 |
| 19 | Principles of Exception handling – try, throw, catch and multiple catch | 24-8-15 | D5 | 1 | TB1 Ch14 |
| 20 | Rethrow and Exception Specification | 25-8-15 | D1 | 6 | TB1 Ch14 |
| 21 | Terminate and Unexpected Functions ,Uncaught exceptions | 27-8-15 | D3 | 2 | TB1 Ch14 |
| 22 | Introduction to STL , Standard containers, Vectors | 31(CT2) 1-9-15 | D1 | 6 | TB1 , Ch16: Pg442-458 |
| 23 | Algorithms with 2 or 3 examples | 3-9-15 | D3 | 2 | RB4 |
| 24 | Function objects with 2 or 3 examples | 7-9-15 | D5 | 1 | RB4 |
| 25 | Iterator with 2 or 3 examples | 8 & 10(Aarussh) 14-9-15 | D5 | 1 | RB4 |
| 26 | Maps with 2 or 3 examples | 15-9-15 | D1 | 6 | RB4 |
| 27 | Multimap with 2 or 3 examples | 18-9-15 | D3 | 2 | RB4 |
| 28 | Lists with 2 or 3 examples | 22-9-15 | D5 | 1 | RB4 |
| **29** | **Surprise Test 2 and Informal discussion** | 23-9-15 | D1 | 6 |  |
| 30 | File Stream Classes | 28-9-15 | D3 | 2 | RB4 |
| 31 | File operations | 30-9-15 | D5 | 1 | RB4 |
| 32 | File pointers and manipulators | 1-10-15 | D1 | 6 | RB4 |
| 33 | Error handling in Files | 6-10-15 | D3 | 2 | RB4 |
| **34** | **Revision and project Questions** | 8-10-15 | D5 | 1 |  |

**TOTAL 34 hours**