MC5201 OBJECT ORIENTED PROGRAMMING

DETAILED SYLLABUS

OBJECTIVES:

- To learn how C++ supports Object Oriented principles such as abstraction, polymorphism etc
- To understand and apply the principles hiding, localization and modularity in software development.
- Use the generic programming features of C++ including the STL.
- Design and implement reliable and maintainable object-oriented applications of moderate complexity composed of several classes.

UNIT I FUNDAMENTALS OF OBJECT-ORIENTED PROGRAMMING

Object–Oriented Programming concepts – Encapsulation – Programming Elements – Program Structure – Enumeration Types –– Functions and Pointers – Function Invocation – Overloading Functions – Scope and Storage Class – Pointer Types – Arrays and Pointers – Call–by–Reference – Assertions.

UNIT II IMPLEMENTING ADTS AND ENCAPSULATION

Aggregate Type struct – Structure Pointer Operators – Unions – Bit Fields – Data Handling and Member Functions – Classes – Constructors and Destructors – Static Member – this Pointer – reference semantics – implementation of simple ADTs.

UNIT III POLYMORPHISM

ADT Conversions – Overloading – Overloading Operators – Unary Operator Overloading – Binary Operator Overloading – Function Selection – Pointer Operators – Visitation – Iterators – containers – Sequence Containers - List – List Iterators – Associative Containers

UNIT IV TEMPLATES AND FILE HANDLING

Template Class – Function Templates – RTTI Templates - Class Templates – Parameterizing – STL– Algorithms – Function Adaptors – Streams and Formatted I/O – I/O Manipulations - File handling – Random Access.

UNIT V INHERITANCE

Derived Class – Typing Conversions and Visibility – Code Reuse – Virtual Functions – Templates and Inheritance – Run–Time Type Identifications – Exceptions – Handlers – Standard Exceptions.

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5. Ira Pohl, "Object–Oriented Programming Using C++", Pearson Education, 2 Edition, 2003

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7. Ray Lischner, "Exploring C++: The programmer"s introduction to C++", apress, 2010

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9. S.B Lippman, Josee, JoseeLajoie, Barbara, "C++ Premier" 4 Edition, Pearson, 2012