

B. Sc. 302

Object Oriented Systems in C++

Unit I:

Object Modeling: Object & classes, Links and Associations, Generalization and Inheritance, Aggregation, Abstract classes, A sample object model, Multiple Inheritance, Meta data, candidate keys, constraints.

Unit II:

Dynamic Modeling: Events and States, Operations and Methods, Nested state Diagrams, Concurrency, Relation of Object and Dynamic Models, a sample dynamic model.

Functional Modeling: Functional Models, Data flow Diagrams, Specifying Operations, Constraints, a sample functional model.

Unit III:

Object Oriented Programming: Procedural vs. Object oriented programming, C++ data types, operators, Loops and branching statements.

Classes and objects in C++, Functions, Constructors, Destructors.

Unit IV:

Inheritance, Base classes, derived classes, implementing and using derived classes, virtual base class, types of inheritance.

Polymorphism: Functions overloading, Operator Overloading, this pointer

Unit V:

Templates-Introduction to templates, Class templates, function templates and overloading of function templates.

Exception Handling in C++: try, catch and throw primitives

Working with files: File operations, File pointer and their manipulation, File updation with random access

References:

1. *E.Balagurusamy*: Object oriented programming with C++
2. *K.R.Venugopal*: Mastering C++
3. *Bjarne Stroustrup*: The C++ programming language.