Course No.: MCA-4T2

Course Title: Object Oriented Modeling, Analysis & Design

Unit 1

OOAD – Introduction , Applying UML and Patterns in OOAD , Assigning Responsibilities , What is analysis and Design , An Example , The UML , Iterative Development –an Unified Process idea , Additional UP Best Practices and Concepts , The UP Phases and Schedule oriented Terms , The UP disciplines. Process Customization and the development case. The Agile UP.The Sequential Waterfall Lifecycle.Inception. Artifacts that may start in inception, Understanding requirements , types of requirements.

Unit 2

Use –case Model , Writing requirements in context , goals and stories , background , use cases and adding value , use cases and functional requirements , use case types and formats . Goal and scope of a use case , Finding primary actors , goals and use cases , writing use cases in an essential UI-free style , Actors , Use Case Diagrams , Use Cases witin the UP , Case Study. Identifying other requirements.From inception to elaboration.

Unit 3

Use Case Model : Drawing System Sequence Diagrams. Example of an SSD. Inter System SSDs , SSDs and Use Cases , System Events and the System Boundary , Name System Events and Operations , Showing Use Case Text , SSDs within the UP. Domain Model : Visualizing Concepts , Domain Models , Conceptual Class Identification , Candidate Conceptual classes , Adding Associations , The UML association notation , NextGen POS Domain Model Associations , NextGen POS Domain Model , Adding Attributes , Non Primitive Data Type Classes , Adding Detail with Operation Contracts , Contract Sections , Post Conditions , Contracts , Operations and the UML. Operation Contracts within the UP.

Unit 4

From Requirements to Design , Interaction Diagram Notation , Sequence and Collaboration Diagrams , GRASP , Responsibilities and methods , interactions diagrams , Patterns , GRASP : Pattern of General Principles in Assigning Responsibilities , Information Expert , creator , Low Coupling , High Cohesion , Controller , Object Design and CRC Cards , Design Model : Use Case Realization with GRASP Patterns , Determining Visibility , Creating Design Class Diagrams , Mapping Design to Code. GRASP : More Patterns , Polymorphism , Pure Fabrication , Indirection , Protected Variations , GoF Design Patterns : Adapter , Factory , Singleton , Strategy , Façade , Observer / Publish-Subscribe / Delegation Event Model ,Relating Use Cases , Modeling Generalization , Refining the Domain Model , Adding New SSDs and Contracts , Modeling Behaviour in Statechart Diagrams , Designing Architecture with Patterns , Organizing the Design and Implementation Model Packages , Introduction to Architecture Analysis and the SAD.

Reference Books:

1. James Rumbaugh, “Object Oriented Models and Design” Pearson Education 2/e Harrington.”C& Object Oriented Paradigm” John Viley& sons Publication
2. Ali Bahrani “Object Oriented Systems Development” McGraw -Hill 1999
3. Lafore Robert, “Object Oriented Programming in C++”, Galgotia Publications.
4. Balagurusami, E, “Object Oriented with C++”, Tata McGraw-Hill.

D. Ravichandran, “Programming with C++”, McGraw-Hill Publications