

TCS2041 OBJECT ORIENTED MODELLING AND DESIGN

Module 1

Introduction and Modelling: What Is Object-Oriented ? What Is Object Oriented Development ? Object Oriented Themes, Evidence for Usefulness of Object Oriented Development, Modeling, The Object Modeling Technique, Objects and Classes, Links and Associations, Advanced Link and Association Concepts, Generalization and Inheritance, Grouping Constructs, A Sample Object Model.

Module 2

Advanced Object Modelling: Aggregation , Abstract Classes, Generalization as Extension and Restriction Multiple Inheritance, Metadata, Candidate Keys, Constraints.

Module 3

Dynamic Modelling: Events and States, Operations, Nested State Diagrams, Concurrency, Advanced Dynamic Modelling Concepts, A Sample Dynamic Model, Relation of Object and Dynamic Model.

Module 4

Functional Modelling: Functional Models, Data Flow Diagrams, Specifying Operations. Constraints A Sample Functional Model, Relation of Functional to Object and Dynamic Models.

Module 5

Methodology Preview and Analysis: OMT as a Software Engineering Methodology, The OMT Methodology, Impact of an Object-Oriented Approach, Overview of Analysis, Problem Statement, Automated Teller Machine Example, Object Modeling, Dynamic Modeling, Functional Modeling, Adding Operations, Iterating the Analysis.

Module 6

System Design: Overview of System Design, Breaking a System into Subsystems, Identifying Concurrency. Allocating Subsystems to Processor and Tasks Management of Data Stores, Handling Global Resources, Choosing Software Control Implementation, Handling Boundary conditions, Setting Trade-off Priorities, Common Architectural Frameworks, Architecture of the ATM System

Module 7

Object Design and Implementation: Overview of Object Design, Combining the Three Models, Designing, Algorithms, Design Optimization, Implementation of Control, Adjustment of Inheritance, Design of Associations, Object Representation, Physical Packaging, Documenting Design Decisions. Implementation Using a Programming Language, Implementation using a Database System, Implementation Outside a Computer. Object-Oriented Style, Reusability, Extensibility, Robustness, Programming – in-the-Large.

Text Book:

J.Rumbaugh et.al – Object Oriented Modeling and Design, PHI, New Delhi, 2003

Reference Book:

B. Bruegge and A. H. Dutoit. Object Oriented Software Engineering, 2nd Ed., Pearson Education, New Delhi, 2004.