

IT 305: Object Oriented Database Management System

(Elective)

Credits: 3

Lecture Hours: 48

Course Objective

This module aims to provide the students the knowledge of Object Oriented Database Management System.

Course Description

Introduction, Object Orientated DBMS, Semantic Database Models & Systems, Object Oriented Database Systems, OODBMS Architecture – An Introduction, Introducing object oriented programming, Objects in the Database, Large Objects

Course Details

Unit 1: Introduction	LH 4
➤ A major Change: The relational Data Model ➤ Object Roles in Databases ➤ Sample uses of Object-oriented Databases ➤ Benefits of Object Orientation	
Unit 2: Object Orientated DBMS	LH 8
➤ The Object-oriented Data Model - Object-Oriented Data Relationships - Object Identifiers - One-to-Many relationships - Many-to-Many relationships - The IS-A relationship - The Extends relationship - The Whole-Part relationship	
Relationship Integrity	
ER Diagramming Models for Object-Oriented Relationships	
- Booch Notation - Unified Modeling Language	
Integrating Objects into a Relational Database	
➤ The Extended Relational Model Approach ➤ The Semantic Database Approach ➤ The Proposed Object Database Standard - Basic OODBMS Terminology - Understanding Types - External specifiers - Implementations - Primitive Types - Inheritance - Interfaces and Inheritance - Classes and Extensions	
Objects	
- Collection Objects - Structured Objects - Creating and Destroying Objects	
Representing Logical Relationships	
Unit 3: Semantic Database Models & Systems	LH 3
➤ The Entity relationship Model ➤ Relational Model – Tasmania (RMT)	

Unit 4: Object Oriented Database Systems **LH 3**

- Performance Issues in OODBMS
- Application Selection for OODBMS
- The Object Oriented Database Paradigm Manifesto
- The Mandatory Features
- The Optional Features

Unit 5: OODBMS Architecture – An Introduction **LH 2**

- An overview

Unit 6: Introducing object oriented programming **LH 10**

Data and Procedural Abstraction

Object Type Overview

Creating Object Types

Object type specification: attributes, methods

Declaring and initializing objects

SELF parameter

MAP and ORDER Methods

Object type inheritance

Unit 7: Objects in the Database **LH 10**

Introduction to objects in the database

Object Tables: creating Object tables, Inheritance and attribute chaining

Object views

Creating Basic Object views

Accessing Column Objects

DEREF

IS DANDLING

TREAT

VALUE

SYS_TYPEID

UTL_REF

Unit 8: Large Objects **LH 8**

Introduction to Large Objects

Features Comparison

Types of LOBS, LOB Locators

Internal LOBs: BLOB, CLOB, NCLOB

External LOBS: BFILE

VARRAY

Text Books

- Harrington J.L, (2000) “Object-Oriented Database Design, Clearly Explained”, Morgan Kaufmann.
- Scott Urman, Ron Hardman, Micheal McLaughlin, Oracle Database 10g PL/SQL Programming, Tata McGraw Hill
- Prabhu C.S.R, (2003), “Object-Oriented Database Systems”, Prentice Hall India

References:

- Feuerstein S., Pribyl B., Oracle PL/SQL Programming, O'Reilly
- McLaughlin M., (2008), Oracle Database 11g PL/SQL Programming, Oracle Press