

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

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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