University of Mumbai			
Class: T.E.	**Branch:** Computer Engineering	**Semester:** VI	
Subject: OBJECT ORIENTED SOFTWARE ENGINEERING (Abbreviated as **OOSE**)			
Periods per Week (each 60 min)	Lecture	04	
	Practical	02	
	Tutorial	--	
		Hours	Marks
Evaluation System	Theory	03	100
	Practical and Oral	--	50
	Oral	---	--
	Term Work	---	25
	Total	03	175

Pre-requisites: Computer Network		
Module	**Contents**	**Hours**
1	1.1 Software life cycle models: Waterfall, RAD, Spiral, Open-source Agile process 1.2 Understanding software process 1.2.1 Process metric 1.2.2 CMM levels	4
2	2.1 Planning & Estimation 2.1.1 Product metrics 2..1.2 Estimation- LOC, FP, COCOMO models. 2.2 Project Management 2.2.1 Planning 2.2.2 Scheduling 2.2.3 Tracking.	8
3	3.0 Workflow of Software life cycle 3.1 Requirement Workflow 3.1.1 Functional , Nonfunctional 3.1.2 Characteristics of Requirements 3.1.3 Requirement Elicitation Techniques 3.1.4 Requirement Documentation –Use case specification, Activity Diagram 3.2 Analysis workflow 3.2.1 Static Analysis 3.2.1.1 Identifying Object – Methods of identifying objects and types - Boundary, Control, Entity 3.2.1 Dynamic Analysis 3.2.1.1 Identifying Interaction – Sequence and Collaboration diagrams, State chart diagram	22

	3.3.Design Workflow 3.3.1 System Design Concept – Coupling and Cohesion 3.3.2 Architectural Styles 3.3.3 Identifying Subsystems and Interfaces 3.3.4 Design Patterns	
4	4.1 Implementation Workflow 4.1.1 Mapping models to Code 4.1.2 Mapping Object Model to Database Schema 4.2 Testing 4.2.1 FTR – Walkthrough and Inspection 4.2.2 Unit Testing, Integration, System and Regression Testing 4.2.3 User Acceptance Testing 4.3 Software Quality – Quality Standards , Quality Matrices Testing & SQA: FTR, unit testing, integration testing, product testing, and acceptance testing	8
5	5.1 Software Configuration Management 5.1.1 Managing and controlling Changes 5.1.2 Managing and controlling versions	4
6	6.1 Maintenance 6.1.1 Types of maintenance 6.1.2 Maintenance Log and defect reports. 6.1.3 Reverse and re-engineering	4

BOOKS

Text Books:

1. Bernd Bruegge, “Object oriented software engineering”, Second Edition, Pearson Education.
2. Stephan R. Schach, “Object oriented software engineering”, Tata McGraw Hill.
3. Roger Pressman, “Software Engineering”, sixth edition, Tata McGraw Hill.

References:

1.Timothy C. Lethbridge, Robert Laganiere “ Object-Oriented Software Engineering – A practical software development using UML and Java”, Tata McGraw-Hill, New Delhi

TOPICS FOR EXPERIMENT

1. At least two review assignments covering object oriented concepts.
2. Coding Assignment on Mapping models to Code
3. A full-fledged mini project in which a student will design an application using OOAD

case tool covering all the workflows with UML Documentation

4. Assignments on Design Patterns.
5. Working assignments using Project Management tools
6. Study of Configuration Management tool

TERM-WORK

Term Work

Term work shall consist of at least 10 assignments/programming assignments and one written test.

Marks

1. Attendance (Theory and Practical)	05 Marks
2. Laboratory work (Experiments and Journal)	10 Marks
3. Test (at least one)	10 Marks

The final certification and acceptance of TW ensures the satisfactory performance of laboratory Work and Minimum Passing in the term work.

PRACTICAL/ORAL EXAMINATION

A Practical/Oral examination is to be conducted based on the above syllabus.