



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal - 500 043, Hyderabad, Telangana

COURSE CONTENT

OBJECT ORIENTED SOFTWARE ENGINEERING								
IV Semester: CSE / IT / CSE (CS)								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
ACSD15	Core	L	T	P	C	CIA	SEE	Total
		3	0	0	3	40	60	100
Contact Classes: 48	Tutorial Classes: Nil	Practical Classes: Nil			Total Classes: 48			
Prerequisite: There is no prerequisite to take this course								

I. COURSE OVERVIEW:

This course concentrates on developing basic understanding about various activities that are involved in a software development. This course enables the student to develop necessary skills for developing a product or applications. The course focuses on all activities involved in software development (communication, planning, modelling, construction, deployment). In this course; students will gain a broad understanding of the discipline of software engineering and its application to the development and management of software systems. Student can implement and get knowledge about development of the software and gains knowledge of basic engineering methods and practices, and their appropriate application

II. COURSES OBJECTIVES:

The students will try to learn

- I. The concepts of object-oriented programming in software design and development.
- II. The different phases in software development life cycle.
- III. The Design concepts in software development using unified modelling language.

III. COURSE OUTCOMES:

At the end of the course students should be able to:

- CO1 Identify the appropriate process model approaches and techniques to manage a given software development process.
- CO2 Summarize the software requirement specifications and the SRS documents.
- CO3 Identify various modelling approaches for Object Oriented Analysis using UML.
- CO4 Understand the importance and need of Design and explain the various approaches of Designs.
- CO5 Explain various Testing Approaches and automation tools
- CO6 Explain the importance of Software Maintenance and Reengineering process

IV. COURSE CONTENT:

MODULE –I: INTRODUCTION TO SOFTWARE ENGINEERING (09)

Introduction to software engineering, software development process models, agile development, project and process, project management, process and project metrics, object-oriented concepts, principles and methodologies.

MODULE –II: PLANNING AND SCHEDULING (10)

Software requirements specification, software prototyping, software project planning, scope, resources, software estimation, empirical estimation models, planning, risk management, software project scheduling, object-oriented estimation and scheduling.

MODULE –III: ANALYSIS (10)

Analysis modeling, data modeling, functional modeling and information flow, behavioural modeling, structured analysis, object-oriented analysis, domain analysis.

Object-oriented analysis process, object relationship model, object behaviour model, design modeling with UML.

MODULE –IV: DESIGN (09)

Design concepts and principles, design process, design concepts, modular design, design effective modularity, introduction to software architecture, data design, transform mapping, transaction mapping, object-oriented design, system design process, object design process.

MODULE –V: IMPLEMENTATION, TESTING AND MAINTENANCE (10)

Top-down, bottom-up, object-oriented product implementation and integration. Software testing methods, white box, basis path, control structure, black box, unit testing, integration testing, validation and system testing, testing tools, software maintenance and reengineering.

V. TEXT BOOKS:

1. Ivar Jacobson, “Object Oriented Software Engineering: A Use Case Driven Approach”, Pearson India, 1st edition, 2002.
2. Bernd Bruegge, Allen H. Dutoit, “Object-Oriented Software Engineering: Using UML, Patterns and Java”, Pearson New International Edition, 3rd edition, 2013.

VI. REFERENCE BOOKS:

1. Roger. S. Pressman and Bruce R. Maxim, “Software Engineering – A Practitioner’s Approach”, McGraw Hill, 7th edition, 2015.
2. Ian Sommerville, “Software Engineering”, Pearson Education, New Delhi, 8th edition, 2011.
3. Bill Brykczynski, Richard D. Stutz, “Software Engineering- Project Management”, Wiley-IEEE Computer Society, 2nd edition, 2000.
4. Craig Larman, “Applying UML and Patterns: An Introduction to Object-Oriented Analysis and Design and Iterative Development”, Pearson Education, 3rd edition, 2008.
5. Jalote P, “An Integrated Approach to Software Engineering”, Narosa Publishers, New Delhi, 3rd edition 2013.

VII. ELECTRONICS RESOURCES:

1. https://onlinecourses.nptel.ac.in/noc19_cs52/preview
2. <https://ece.iisc.ac.in/~parimal/2019/ml.html>
3. <http://www.springer.com/gp/book/9780387848570> www.springer.com/gp/book/9780387848570
4. <http://www.cse.iitb.ac.in/~sunita/cs725/calendar.html> www.cse.iitb.ac.in/~sunita/cs725/calendar.html
5. <https://cs.nyu.edu/~mohri/mlu11/>

VIII. MATERIALS ONLINE

1. Course template
2. Tutorial question bank
3. Tech-talk topics
4. Open-ended experiments
5. Definitions and terminology
6. Assignments
7. Model question paper – I
8. Model question paper – II
9. Lecture notes
10. PowerPoint presentation
11. E-Learning Readiness Videos (ELRV)