

OBJECT ORIENTED SOFTWARE ENGINEERING

V SEMESTER: CSE (CS)								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
ACSC19	Core	3	1	0	4	30	70	100
Contact Classes: 45	Total Tutorials: 15	Total Practical Classes: Nil			Total Classes: 60			
Prerequisite: There is no prerequisite to take this course								
I. COURSE OVERVIEW:								
<p>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, modeling, 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</p>								
II. COURSE OBJECTIVES:								
The students will try to learn:								
<p>I The concepts of object-oriented programming in software design and development.</p> <p>II The different phases in software development life cycle.</p> <p>III The Design concepts in software development using unified modelling language.</p>								
III. COURSE OUTCOMES:								
After successful completion of the course, students should be able to:								
CO 1	Identify the appropriate process model approaches and techniques to manage a given software development process.						Understand	
CO 2	Summarize the software requirement specifications and the SRS documents.						Understand	
CO 3	Identify various modelling approaches for Object Oriented Analysis using UML.						Apply	
CO 4	Understand the importance and need of Design and explain the various approaches of Designs.						Analyze	
CO 5	Explain various Testing Approaches and automation tools.						Understand	
CO 6	Explain the importance of Software Maintenance and Reengineering process..						Understand	
III. COURSE SYLLABUS								
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 (09)								
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 (09)								
Analysis modeling, data modeling, functional modeling and information flow, behavioral 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 (09)

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. WEB REFERENCES:

1. https://onlinecourses.nptel.ac.in/noc19_cs52/preview
2. <https://ece.iisc.ac.in/~parimal/2019/ml.html>
3. <https://www.springer.com/gp/book/9780387848570>
4. <https://www.cse.iitb.ac.in/~sunita/cs725/calendar.html>
5. <https://www.analyticsvidhya.com/blog/2018/12/guide-convolutional-neural-network-cnn/>
6. <https://cs.nyu.edu/~mohri/mlu11/>