

Course Code	Course Title	L	T	P	C
OLMCA508	Software Engineering	3	1	0	4
Pre-requisite	NIL	Syllabus version			
		1.0			
Course Objectives:					
1. To introduce the fundamental concepts of Software Engineering with respect to People, Process, Product and Project. 2. To explain different methods and models for deriving system requirements and design. 3. To learn the strategies related to software testing and configuration management. 4. To explore the various software metrics and the process related to project planning, scheduling and monitoring for efficient project management.					
Course Outcomes:					
1. Apply systematic strategies for software development. 2. Identify, formulate and analyze computing requirements to provide solution for real world problems. 3. Ability to design, implement and evaluate software systems to assure software quality 4. Measure software metrics and manage versions of software. 5. Ability to manage software projects in terms of scheduling and effort estimation.					
Module:1	The Software Process				
Introduction to Software Process and Software Engineering, Process Models, Agile Development					
Module:2	Requirements Modeling				
Requirements Engineering Process, Functional and Non-Functional Requirements, Requirements Modeling.					
Module :3	Design Modeling				
Multiple Access – Random Access, ALOHA, CSMA, CSMA/CD, CSMA/CA, Controlled Access, Channelization- Frequency-Division Multiple Access (FDMA), Time-Division Multiple Access (TDMA) Code-Division Multiple Access (CDMA).					
Module :4	Quality Management				
Quality Concepts, Review Techniques, Software Quality Assurance, Software Reliability, ISO 9000 Quality Standards					
Module:5	Software Testing				
Software Implementation- Coding practices. Testing Fundamentals, Testing Conventional Applications, Testing Object Oriented Applications, Testing Web Applications, Reviews, Inspection, Auditing.					
Module:6	Software Configuration Management and Metrics				
Software Configuration Management: Elements of a Configuration Management System, SCM Process, Change control, Version Control. Software metrics: Function based metrics, Architectural design metrics, Class oriented metrics, Halstead metrics for source code, Metrics for Object oriented testing, Software Maturity Index for Maintenance, Goal oriented software measurement.					
Module:7	Managing Software Projects				

Software Project Management- Project Scheduling, Estimation for software projects, Risk Management.			
	Total Lecture hours:		120 Hours
Text Book(s)			
1.	Roger, S. P., & Bruce, R. M. (2015). Software engineering: a practitioner's approach. 8 th Edition, McGraw-Hill Education.		
Reference Books			
1.	Sommerville, I. (2016). Software engineering 10th Edition, Pearson, ISBN-13: 9780137503148		
2.	J. Craig Larman (2015). Applying UML and Patterns: An Introduction to Object Oriented Analysis and Design and Iterative Development: 3rd Edition, Pearson Publishers.		
Mode of evaluation: Quiz/Assignment/ Mid- Term/FAT			
Recommended by Board of Studies		29-07-2022	
Approved by Academic Council		No. 67	Date 08-08-2022