

Branch Name:	Computer Engineering / Information Technology
Program Code:	ET404 / ET407
Course Title:	Software Engineering
Course Code:	2ET4040403
Pre-requisite Course:	--

Course Objectives:

Helps students to develop skills that will enable them to construct software of high quality – software that is reliable, and that is reasonably easy to understand, modify and maintain.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	0	2	4	60	40	20	30	150

Course Contents:

Unit No	Topic	Total Hours	Weightage (%)
Unit – I	Software Development Process: 1.1 Introduction to Software and Software Engineering 1.2 Characteristics of Good Software 1.3 Program Vs. Software 1.4 Software Engineering - A layered technology 1.5 SDLC 1.6 Software Development Models– Waterfall model, Incremental Model, Prototype Model, Spiral model	10	20
Unit – II	Requirement Analysis and Specification: 2.1 Requirement Analysis and gathering 2.2 Software Requirement Specification (SRS) 2.3 Characteristics of SRS document 2.4 Functional and Nonfunctional Requirements 2.5 Feasibility Study	08	20
Unit – III	Software Designing and Modelling: 3.1 Modularization 3.2 Entity Relationship Model 3.3 Data Flow Diagram (DFD) 3.4 Use Case Model 3.5 Activity Diagram 3.6 Sequence Diagram	08	20
Unit- IV	Software Project Management: 4.1 Responsibility and skills Software Project Manager 4.2 Metrics for Project Size Estimation 4.3 Empirical Estimation Techniques 4.4 COCOMO-A Heuristic Estimation Technique 4.5 Scheduling 4.6 Risk Management	08	20
Unit-V	Software Coding and Testing: 5.1 Code Review - Code walk through & Code Inspection 5.2 Software Documentation – Internal & External Documentation 5.3 Testing – Unit Testing 5.4 System Testing 5.5 Black box Testing and White box Testing	08	20

Text Books:

- Software Engineering: A Practitioner's Approach by Roger S. Pressman (Tata McGraw Hill) –
- Fundamentals of Software Engineering by Rajib Mall (PHI) –
- Structured System analysis and Design by Madhulika Jain (Bpb Publication)

Reference Books:

Software Engineering by Ian Somerville (Pearson Education PHI)

List of Open-Source Software/learning website:

https://mrcet.com/downloads/digital_notes/CSE/III%20Year/Software%20Engineering.pdf

<https://www.geeksforgeeks.org/software-engineering/>

<https://www.javatpoint.com/software-engineering>

https://www.tutorialspoint.com/software_engineering/index.html

Course Learning Outcomes (CLO):

After Completion of this course the students will be able to:

1. Explain Software and Software Engineering
2. Distinguish various Software Process Models (Approach of Software Development).
3. Analyze gather and prepare Software Requirement Specification for given project.
4. Draw use case diagrams, Activity diagrams, DFD for given modules and design user interface.
5. Apply code standard and Identify Software Testing Techniques.

SUGGESTED LIST OF EXERCISES/PRACTICAL/EXPERIMENTS:

1. Identify the development model for software with proper explanation
2. Gather requirement for software
3. Prepare Feasibility study
4. Prepare SRS Document for Software
5. Design Activity Diagram for system
6. Design Use-case Diagram for system
7. Design Data Dictionary of system
8. Prepare E-R Diagram of System
9. Design Data Flow Diagram of system
10. Prepare suitable test case for system testing

Mapping of CLO with PO and PSO

Course	Program Outcomes (POs)													Program Specific Outcomes (PSOs)			
Learning Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	
	CLO1	H	M										M				
	CLO2	M	M										L				
	CLO3	M	L										M				
	CLO4	L	M										L				
	CLO5	M	L										M				
	CLO6																

H: High, M: Medium, L: Low