ST. JOSEPH'S
COLLEGE OF ENGINEERING
AND TECHNOLOGY,
- P A L A I -
A U T O N O M O U S

Choondacherry P.O., Pala, Kottayam - 686579
Kerala, India

MINOR
in
SOFTWARE ENGINEERING

Offered by CS, CA & CC Departments

Eligible Branches : CE, EC, EE, ME

2024 SCHEME

www.sjcetpalai.ac.in

Minor (Software Engineering)

Sl. No:	Semester	Course Code	Course Title (Course Name)	Credit Structure				Total Marks		Credits	Hrs./ Week
				L	T	P	SS	CIA	ESE		
1	3	24SJMNCST309	Software Engineering /MOOC#	3	1	0	5	40	60	4	4/5
2	4	24SJMNCST409	Object Oriented Software Engineering /MOOC#	3	1	0	5	40	60	4	4/5
3	5	24SJMNCST509	Software Testing /MOOC	3	1	0	5	40	60	4	4
4	6	24SJMNCST609	Software Project Management /MOOC	3	0	0	4	40	60	3	3
		Total								15	15/ 17

* Students from the CE, ECE, EEE, and ME branches are eligible for the Minor Programme.

* Students must register for theory courses listed in the 3rd and 4th semesters of the Minor curriculum.

#Students who fail a theory course listed in the Minor curriculum are permitted to register for an alternate MOOC course specified in the Minor curriculum.

SEMESTER 3

SOFTWARE ENGINEERING

Course Code	24SJMNCST309	CIE Marks	40
Teaching Hours/Week (L: T:P: R)	3:1:0:0	**ESE Marks**	60
Credits	4	**Exam Hours**	2 Hrs. 30 Min.
Prerequisites (if any)	Nil	**Course Type**	Theory

Course Objectives:

- Understand Software Engineering lifecycle, model and basics of project management.
- Learn and evaluate various software measurement techniques.
- Apply manual and automated software testing & debugging techniques.

SYLLABUS

Module No.	Syllabus Description	Contact Hours
1	**Software Engineering Fundamentals** Introduction, SDLC life cycle, SDLC Models, Project Management **Agile Development** Agility and Agile Process model, Extreme Programming, SCRUM development, other process models of Agile Development and Tools	12
2	**Software Requirement Analysis and Design** Understanding the Requirement, Requirement Modeling, Requirement Specification (SRS), Requirement Analysis and Requirement Elicitation, Requirement Engineering, Feasibility Studies, Structural design, behavior design, functional design, UML Diagrams, Design Pattern	12
3	**Software Architectural Design** Data centered architecture, data flow architecture, call and return architecture, object-oriented architecture and layered architecture, Wireframing, Software analysis for legacy systems.	12

| 4 | **Software Measurement Techniques**

Size and Cost Estimation: Function point analysis, LOC estimation, COCOMO. Software metrics, risk estimation, effort estimation | **12** |

Course Assessment Method (CIE:
40 marks, ESE: 60 marks)

Continuous Internal Evaluation Marks (CIE):

Attendance	Assignment/ Microproject	Internal Examination-1 (Written)	Internal Examination- 2 (Written)	Total
5	**15**	**10**	**10**	**40**

End Semester Examination Marks (ESE)

In Part A, all questions need to be answered and in Part B, each student can choose any one full question out of two questions

Part A	Part B	Total
• 2 Questions from each module. • Total of 8 Questions, each carrying 3 marks **(8x3 =24 marks)**	• Each question carries 9 marks. • Two questions will be given from each module, out of which 1 question should be answered. • Each question can have a maximum of 3 sub divisions. **(4x9 = 36 marks)**	**60**

Course Outcomes (COs)

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

	Course Outcome	Bloom's Knowledge Level (KL)
CO1	Illustrate the key components of the Software Engineering field	K3
CO2	Analyze and apply best SDLC models as per business need	K3
CO3	Design appropriate system requirement specifications	K3
CO4	Design and implement appropriate measurement Quality	K3

Note*: K1- Remember, K2- Understand, K3- Apply, K4- Analyse, K5- Evaluate, K6- Create*

CO-PO Mapping Table (Mapping of Course Outcomes to Program Outcomes)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	✓	✓	✓								✓
CO2	✓	✓	✓			✓					✓
CO3	✓	✓	✓			✓					✓
CO4	✓	✓	✓							✓	✓

Note: *1: Slight (Low), 2: Moderate (Medium), 3: Substantial (High), -: No Correlation*

Text Books				
Sl. No	Title of the Book	Name of the Author/s	Name of the Publisher	Edition and Year
1	Software Engineering	Sommrville	Pearson Education	1998
2	Software Engineering – A Practitioner's Approach	Roger S Pressman	McGraw-Hill	2023

Reference Books				
Sl. No	**Title of the Book**	**Name of the Author/s**	**Name of the Publisher**	**Edition and Year**
1	Pankaj Jalote,	Software Engineering	A Precise Approach Wiley	2010
2	Software Engineering Fundamentals	Ali Behhforoz & Frederick Hudson	Oxford	1996
3	Rajib Mall	Fundamentals of software Engineering	Prentice Hall of India	2014

Video Links (NPTEL, SWAYAM…)	
Module No.	**Link ID**
1	Link: https://onlinecourses.nptel.ac.in/noc20_cs68/preview