



Department of Computer Science and Engineering

COURSE PLAN

Subject code: CS8494	Branch/Year/Sem: B.E- CSE / II / IV
Subject Name: SOFTWARE ENGINEERING	Batch:2018-2022
Staff Name: G.VIJAY BABU	Academic year:2019-2020(EVEN)

COURSE OBJECTIVE

1. To understand the phases in a software project
2. To understand fundamental concepts of requirements engineering and Analysis Modeling.
3. To understand the various software design methodologies
4. To learn various testing and maintenance measures

TEXT BOOK:

- T1.** Roger S. Pressman, “Software Engineering – A Practitioner’s Approach”, Seventh Edition, Mc Graw-Hill International Edition, 2010.
- T2.** Ian Sommerville, “Software Engineering”, 9th Edition, Pearson Education Asia, 2011.

REFERENCES:

- R1.** Rajib Mall, Fundamentals of Software Engineering”, Third Edition, PHI Learning Private Limited, 2009.
- R2.** Pankaj Jalote, —Software Engineering, A Precise Approachl, Wiley India, 2010.
- R3.** Kelkar S.A., —Software Engineeringl, Prentice Hall of India Pvt Ltd, 2007.
- R4.** Stephen R.Schach, —Software Engineeringl, Tata McGraw-Hill Publishing Company Limited, 2007.

WEB RESOURCES:

- W1:** <http://nptel.ac.in/>.
- W2:** https://www2.cs.siu.edu/~mengxia/Courses%20PPT/435/Chapter_03.pdf
- W3:** <http://www.cs.tau.ac.il/~nachumd/models/Nets.pdf>

TEACHING METHODOLOGIES:

- BB-** BLACK BOARD
- VIDEO** – VIDEO TUTORIAL
- PPT-**POWER POINT PRESENTATION

SYLLABUS

CS8494

SOFTWARE ENGINEERING

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UNIT I SOFTWARE PROCESS AND AGILE DEVELOPMENT

9

Introduction to Software Engineering, Software Process, Perspective and Specialized Process Models –Introduction to Agility-Agile process-Extreme programming-XP Process.

UNIT II REQUIREMENTS ANALYSIS AND SPECIFICATION

9

Software Requirements: Functional and Non-Functional, User requirements, System requirements, Software Requirements Document – Requirement Engineering Process: Feasibility Studies, Requirements elicitation and analysis, requirements validation, requirements management-Classical analysis: Structured system Analysis, Petri Nets- Data Dictionary.

UNIT III SOFTWARE DESIGN

9

Design process – Design Concepts-Design Model– Design Heuristic – Architectural Design - Architectural styles, Architectural Design, Architectural Mapping using Data Flow- User Interface Design: Interface analysis, Interface Design –Component level Design: Designing Class based components, traditional Components.

UNIT IV TESTING AND MAINTENANCE

9

Software testing fundamentals-Internal and external views of Testing-white box testing - basis path testing-control structure testing-black box testing- Regression Testing – Unit Testing – Integration Testing – Validation Testing – System Testing And Debugging –Software Implementation Techniques: Coding practices-Refactoring-Maintenance and Reengineering-BPR model-Reengineering process model-Reverse and Forward Engineering.

UNIT V PROJECT MANAGEMENT

9

Software Project Management: Estimation – LOC, FP Based Estimation, Make/Buy Decision COCOMO I & II Model – Project Scheduling – Scheduling, Earned Value Analysis Planning – Project Plan, Planning Process, RFP Risk Management – Identification, Projection - Risk Management-Risk Identification-RMMM Plan-CASE TOOLS

TOTAL: 45 PERIODS

Topic No	Topic Name	Books For reference	Page No	Teaching Methodology	No of periods required	Cumulative periods
UNIT I SOFTWARE PROCESS AND AGILE DEVELOPMENT						(9)
1.	Introduction to Software Engineering	T1	33-47	BB	1	1
2.	Software Process	T1	52-72	BB	1	2
3.	Perspective Process Models - The Waterfall Model, Incremental Process Models	T1	77-81	BB	1	3
4.	Evolutionary Process Models, Concurrent Models	T1	83,88	BB	1	4
5.	Specialized Process Models	T1	91	BB	1	5
6.	Introduction to Agility	W2	-	PPT	1	6
7.	Agile process	W2	-	PPT	1	7
8.	Extreme programming	W2	-	PPT	1	8
9.	XP Process	W2	-	PPT	1	9
UNIT II REQUIREMENTS ANALYSIS AND SPECIFICATION						(9)
10.	Software Requirements: Functional and Non-Functional	T1	272	BB	1	10
11.	User requirements, System requirements	T1	273	BB	1	11
12.	Software Requirements Document	T1	274	BB	1	12
13.	Requirement Engineering Process: Feasibility Studies	T1	256	BB	1	13
14.	Requirements elicitation and analysis	T1	258	BB	1	14
15.	requirements validation, requirements management	T1	260	BB	1	15
16.	Classical analysis: Structured system Analysis	T1	330	BB	1	16
17.	Petri Nets	W3	-	PPT	1	17
18.	Data Dictionary	T1	328	BB	1	18
UNIT – III SOFTWARE DESIGN						(9)
19.	Design process – Design Concepts	T1	261,265	BB	1	19
20.	Design Model– Design Heuristic	T1	274	BB	1	20
21.	Architectural Design	T1	287	BB	1	21
22.	Architectural styles	T1	291	BB	1	22
23.	Architectural Mapping using Data Flow	T1	307	BB	1	23
24.	User Interface Design: Interface analysis	T1	361	PPT	1	24
25.	Interface Design –Component level Design	T1	373,324	PPT	1	25
26.	Designing Class based components	T1	330	PPT	1	26
27.	traditional Components	T1	416	BB	1	27

Topic No	Topic Name	Books For reference	Page No	Teaching Methodology	No of periods required	Cumulative periods
UNIT IV TESTING AND MAINTENANCE						(9)
28.	Software testing fundamentals	T1	421	BB	1	28
29.	Internal and external views of Testing	T1	439	BB	1	29
30.	white box testing - basis path testing - control structure testing	T1	423	BB	1	30
31.	black box testing- Regression Testing – Unit Testing	T1	434	VIDEO	1	31
32.	Integration Testing – Validation Testing	T1	488	VIDEO	1	32
33.	System Testing And Debugging	T1	496	BB	1	33
34.	Software Implementation Techniques: Coding practices-Refactoring	T1	657	BB	1	34
35.	Maintenance and Reengineering-BPR model	T1	802	BB	1	35
36.	Reengineering process model Reverse and Forward Engineering	T1	809	BB	1	36
UNIT V PROJECT MANAGEMENT						(9)
37.	Software Project Management: Estimation	W2	-	BB	1	37
38.	LOC, FP Based Estimation, Make/Buy Decision	W2	-	PPT	1	38
39.	COCOMO I & II Model	T1	692	BB	1	39
40.	Project Scheduling – Scheduling	T1	708	BB	1	40
41.	Earned Value Analysis Planning – Project Plan, Planning Process	T1	676	BB	1	41
42.	RFP Risk Management – Identification, Projection	T1	726	BB	1	42
43.	Risk Management-Risk Identification	T1	729	BB	1	43
44.	RMMM Plan	T1	740	BB	1	44
45.	CASE TOOLS	T1	828	BB	1	45

COURSE OUTCOME

At the end of the course, the student should be able to:

- Identify the key activities in managing a software project
- Compare different process models.
- Concepts of requirements engineering and Analysis Modeling.
- Apply systematic procedure for software design and deployment.
- Compare and contrast the various testing and maintenance.
- Manage project schedule, estimate project cost and effort required.

CONTENT BEYOND THE SYLLABUS **SOFTWARE QUALITY FACTORS**

INTERNAL ASSESSMENT DETAILS

ASSESSMENT NUMBER	I	II	MODEL
TOPIC NO.	1-18	19-36	1-45
DATE			

ASSIGNMENT DETAILS

ASSIGNMENT NUMBER	I	II	III
TOPIC NUMBER FOR REFERENCE	1-15	16-30	31-45
DEADLINE			

ASSIGNMENT NUMBER	DESCRIPTIVE QUESTIONS/TOPIC (Minimum of 8 Pages)
I	1. Explain iterative waterfall and spiral model for software life cycle and discuss various activities in each phase.
II	1. Data Dictionary. 2. Architectural Styles.
IV	1. Black box testing- Regression Testing. 2. System Testing and Debugging.

PREPARED BY

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VERIFIED BY

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APPROVED BY

PRINCIPAL