



**SYNERGY SCHOOL OF ENGINEERING, DHENKANAL**  
**LESSONPLAN**

Session:

(2025-26)

<b>Discipline: Computer Science &amp; Engineering</b>	<b>Semester: 5<sup>th</sup></b>	<b>Name of the Faculty:</b> Smruti Mayee Mishra <b>Email ID:</b> smrutisaina@gmail.com
<b>Subject: Software Engineering</b> <b>Subject Code: Th3</b>	<b>No. of Days/week: 04</b>	<b>Start Date:</b> 14/07/25 <b>End Date:</b> 15/11/25

Week	Class Day	Theory Topics
1st	1st	<b>Unit-1: Introduction to software engineering</b> Program vs. Software product
	2nd	Emergence of software engineering.
	3rd	Computer Systems Engineering.
	4th	Software lifecycle models.
2nd	1st	Classical waterfall.
	2nd	Iterative waterfall models.
	3rd	Prototyping model.
	4th	Evolutionary model, Spiral model.
3rd	1st	<b>Video content class using NPTEL Reference</b>
	2nd	<b>Unit-2: Software Project Management</b> Responsibility of Project Manager, Project Planning.
	3rd	Project size estimation metrics: line of control (LOC) and
	4th	Function point metric (FP).
4th	1st	Project estimation techniques
	2nd	Empirical estimation techniques
	3rd	Heuristic techniques

3th	4th	Analytical estimation techniques.
	1st	COCOMO models: Basic.
	2nd	COCOMO models: Intermediate and complete.
	3rd	Scheduling.
6th	4th	Organization structure, Team structure.
	1st	Risk Management.
	2nd	Configuration Management.
	3rd	Quiz Test-I
	4th	Assignment Evaluation and Discussion of Previous Year Questions.
7th	1st	<b>Unit-3: Requirement Analysis and Specification</b> Requirement gathering and analysis
	2nd	Software Requirements Specification: Contents of SRS
	3rd	Characteristics and organization of SRS document.
	4th	Techniques for representing complex logic
8th	1st	Smart Class using NPTEL Reference
	2nd	<b>Unit-4: Understanding the principles and methods of S/W design.</b> Importance of S/W design, Design principles and concepts.
	3rd	Concept of Cohesion and coupling, Classification of cohesiveness.
	4th	Classification of coupling, Neat arrangement
9th	1st	S/W design approaches
		Structured analysis methodology
	2nd	DF diagrams, List the symbols used in DFD.
		Construction developing of DFD, Limitations of DFD.
	3rd	Structured design, Principles of transformation of DFD to Structure chart.
	4th	Transform analysis and transaction analysis, Design Review.
10th	1st	<b>Unit-5: User interface design</b> Characteristics of Good Interface
	2nd	Basic concepts of UID
	3rd	Types of User interfaces
	4th	Components based GUI development
11th	1st	Graphical User Interface vs. Text-based User Interface
	2nd	Video content class using NPTEL Reference
	3rd	Practice Test.



	4th	Unit-6: S/W coding and Testing Coding standards and guidelines.
12th	1st	Code Review: Code walk through,
	2nd	Code inspections and software documentation.
	3rd	Testing, different types of testing, Unit testing.
	4th	Black box testing, Methods of black box testing: Equivalence Class partitioning and boundary value analysis.
13th	1st	White box testing, Methodologies for white box testing, Different white box methodologies: statement coverage, condition coverage, branch coverage.
	2nd	White box methodologies: path coverage, cyclomatic complexity, dataflow based testing and mutation testing
	3rd	Debugging approaches, Debugging guidelines.
	4th	Integration Testing, Compare phase and incremental Integration testing.
14th	1st	System testing, alpha & beta and acceptance testing
	2nd	Quiz Test-II
	3rd	Unit-7: S/W Reliability S/W reliability, Importance of S/W reliability.
	4th	Different reliability metrics
15th	1st	Reliability growth modeling.
	2nd	Software quality
	3rd	Software Quality Management System
	4th	Assignment Evaluation and Discussion of Previous Year Questions.

PREPARED BY:

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VERIFIED BY:

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**SSE, Dhenkanal**

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*11/07/25*

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