



B. P. Poddar Institute of Management & Technology

Department of Information Technology

Academic Year: 2023-24

Lesson Plan

Course Name: Software Engineering

Course Code: ESC 501

S. No.	Lecture/ Tutorial No.	Topics to be Covered	Text/ References	Teaching Pedagogy*
Module I				
1.	L1	Overview of System Analysis & Design Identify and describe a real-life system (e.g., ATM system)	T1, T2	C&T, PPT, CD
2.	L2	Business System Concept Draw components of a business system (input-process-output)	T1, R1	C&T, PPT, CD
3.	L3	System Development Life Cycle (SDLC) Create SDLC phases for a Library Management System	T1, T2, T3, R1, WR1	C&T, PPT, CD
4.	L4	Waterfall Model Case study: When Waterfall is suitable	R1	C&T, PPT, CD, PS
5.	L5	Spiral Model Compare Spiral vs Waterfall with example	R1	C&T, PPT, CD, Q, PS
6.	L6	Feasibility Analysis Overview Perform feasibility study for an Online Food Delivery system	T1, T2, R1, WR1	C&T, PPT, CD
7.	L7	Technical Feasibility Analyze technical needs for a mobile app	T1, T2, R1, WR1	TA: Chalk/ C&T, PPT, CD
8.	L8	Cost-Benefit Analysis Prepare cost vs benefit table for a project	T1, T2, T3, R1, WR1	C&T, PPT, CD
9.	L9	COCOMO Model Estimate effort using basic COCOMO (simple project)	R1	C&T, PPT, CD, Q, PS
10.	L10	Revision / Case Study on Module I Mini project discussion	T1, T2, R1	C&T, PPT, CD



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Module II				
S. No.	Lecture/ Tutorial No.	Topics to be Covered	Text/ References	Teaching Pedagogy*
11.	L11	System Design Overview	T1, T2, R1	C&T, PPT, CD
12.	L12	Context Diagram	T1, T2, T3, R1	C&T, PPT, CD
13.	L13	Data Flow Diagram (DFD)	T1, T2, R1	C&T, PPT, CD
14.	L14	Problem Partitioning	T1, T2, T3, R1	C&T, PPT, CD
15.	L15	Top-Down Design Approach	R1	C&T, PPT, CD, PS
16.	L16	Bottom-Up Design Approach	T1, T2, T3, R1, WR1	C&T, PPT, CD
17.	L17	Decision Tree	R1	C&T, PPT, CD, PS
18.	L18	Decision Table	T1, T2, R1, WR1	C&T, PPT, CD
19.	L19	Structured English	R1	C&T, PPT, CD, PS
20.	L20	Functional vs Object-Oriented Approach	T1, T3, R1	C&T, PPT, CD



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Module III				
S. No.	Lecture/ Tutorial No.	Topics to be Covered	Text/ References	Teaching Pedagogy*
21.	L21	Structured Programming	T1, R1	C&T, PPT, CD
22.	L22	Object-Oriented Programming Concepts	T1, T2, R1	C&T, PPT, CD
23.	L23	Information Hiding	T1, T2, R1	C&T, PPT, CD
24.	L24	Software Reuse	R1	C&T, CD
25.	L25	System Documentation	R1	C&T, CD, PS
26.	L26	Testing Overview & Levels of Testing	R1	C&T, PPT, CD
27.	L27	Integration Testing	T1, R1	C&T, PPT, CD
28.	L28	Test Case Specification	R1, R2, WR1	FC, C&T, PPT, CD
29.	L29	Reliability Assessment	R1, R2, WR1	FC, C&T, PPT, CD
30.	L30	Validation & Verification	R1, R2, WR1	C&T, PPT, CD
31.	L31	Metrics, Monitoring & Control	R1, R2	C&T, PPT, CD, PS
32.	L32	Module III Revision / Practice	R1, R2, WR1	C&T, PPT, CD



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Module IV				
S. No.	Lecture/ Tutorial No.	Topics to be Covered	Text/ References	Teaching Pedagogy*
33.	L33	Software Project Management Overview	R1	C&T, PPT, CD, PS
34.	L34	Project Scheduling	R1, WR1	C&T, PPT, CD, PS
35.	L35	Staffing	R1	C&T, PPT, CD, PS
36.	L36	Software Configuration Management	T1, T2, R1, WR1	C&T, Q, CD, PS
37.	L37	Quality Assurance	R1	C&T, Q, CD, PS
38.	L38	Project Monitoring	T1, T3, R1	C&T, Q, CD, PS
39.	L39	Static and Dynamic Models	T1, R1	C&T, Q, CD, PS



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Module V				
S. No.	Lecture/ Tutorial No.	Topics to be Covered	Text/ References	Teaching Pedagogy*
40.	L40	Why Modeling UML Class Diagram	T1, T2, R1	C&T, Q, CD, PS
41.	L41	Interaction Diagrams (Collaboration & Sequence)	T1, T2, R1	C&T, Q, CD, PS
42.	L42	State Chart & Activity Diagram	T1, T3, R1	C&T, Q, CD, PS
43.	L43	Implementation Diagram & Final Revision	T1, R1	C&T, Q, CD, PS
44.	L44	Discussions on model questions	T1, T2, R1	C&T, Q, CD, PS

Text Books (T):

1. R.G. Pressman: Software Engineering, TMH.
2. CC. Ghezzi, M. Jazayeri and D. Mandrioli : Fundamentals of Software Engineering, PHI.
3. Pressman, Software Engineering: A practitioner's approach– (TMH)
4. Pankaj Jalote, Software Engineering- (Wiley-India)
5. N.S. Gill, Software Engineering – (Khanna Publishing House)
6. Rajib Mall, Software Engineering- (PHI)
7. Agarwal and Agarwal, Software Engineering – (PHI)
8. Sommerville, Software Engineering – Pearson
9. Martin L. Shooman, Software Engineering – TMH

Reference Books (R):

1. http://webfuse.cqu.edu.au/Courses/aut2001/95169/Extra_Examples/DFD_Example_1/
2. <http://www.cs.unc.edu/~stotts/145/cocomo10.gif>
3. www.his.sunderland.ac.uk/~cs0mel/Alb_Example.doc
4. Sabnam Sengupta, Swapan Bhattacharya, “Formalization of Functional Requirements of Software Development Process”, In the Journal of Foundations of Computing and Decision Sciences (FCDS), Institute of Computing Science, Poznan University of Technology, pp 83-115, Poland Vol 33, Issue 1, 2008.

Web Resources (WR):

1. https://onlinecourses.nptel.ac.in/noc25_cs108/preview
2. <https://www.coursera.org/courses?query=software%20engineering>
3. <https://ocw.mit.edu/search/?q=software%20engineering>



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*Teaching Pedagogy:

S. No.	Abbreviation	Full Form
1.	C&T	Chalk & Talk
2.	PPT	Power Point Presentation
3.	CD	Classroom Discussions
4.	Q	Quiz
5.	PS	Problem Solving
6.	FC	Flipped Class

Assessment Methodology:

S. No.	Process	Assessment Type	CO Covered
1.	Direct	Presentation	CO1
2.		Report Writing	CO2
3.		Class Test1	CO1, CO2, CO3
4.		Class Test2	CO4, CO5
5.		Quiz	CO1, CO2, CO3, CO4, CO5
6.		Assignment	CO1, CO2, CO3, CO4, CO5
7.		End Semester University Exam	CO1, CO2, CO3, CO4, CO5
8.	Indirect	End Semester Students' Survey (CO Learning Assessment)	CO1, CO2, CO3, CO4, CO5

Innovations in Teaching/Learning/Assessment Processes:

- E-Learning material, demonstrations, field visits are extensively used.
- Incentive based class room interaction.
- Need based online sessions beyond class hours.
- Assessment process promotes self-learning, written and oral communication skills.

Dr. Gitosree Khan