



SANATAN DHARMA COLLEGE, AMBALA CANTT

College with Potential for Excellence, UGC, New Delhi
NAAC Accredited Grade "A+" with CGPA 3.51 in 3rd cycle
ISO 9001:2015 & ISO 14001:2015 Certified



Department of Computer Science Lesson Plan (Session 2022-2023)

Class: BVOC Sem: III Course Code: BVSD-33 Nomenclature: Software Engineering
Duration: 16 Weeks Dates: 5 Sep, 2022- 25 Dec, 2022

BVSD-33 Software Engineering

Maximum marks: 100
Time: 3 hours

External: 80
Internal: 20

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of objective type/short-answer type questions covering the entire syllabus. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus.

Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit. All questions will carry equal marks.

Unit I

Software Crisis – Problem and Causes, Software Life Cycle Models: Waterfall, Prototype, Evolutionary and Spiral Models. Software Project Planning: Cost Estimation: COCOMO Model, Putnam Resource Allocation Model, Risk Management, Project Scheduling, Personnel Planning, Team Structure, Software Configuration Management, Quality Assurance, Project Monitoring.

Unit II

Software Requirement, Analysis and Specifications: Structured Analysis, Data Flow Diagrams, Data Dictionaries, Entity-Relationship Diagrams, Software Requirement and Specifications, Behavioral and non-behavioral Requirements.

Software Design: Design Fundamentals, Problem Partitioning and Abstraction, Design Methodology, Cohesion & Coupling, Classification of Cohesiveness & Coupling.

Unit III

Coding: Programming Style, Structured Programming. Software Testing: Testing Fundamentals, Functional Testing: Boundary Value Analysis.

Equivalence Class Testing, Decision Table Testing, Cause Effect Graphing, Structural Testing: Control Flow Based and Data Flow Based Testing, Loop Testing.

Unit IV

Software Testing Strategies: Unit Testing, Integration Testing, Validation Testing, System Testing, Alpha and Beta Testing.

Software Maintenance: Type of Maintenance, Management of Maintenance, Maintenance Process, Maintenance Characteristics

TEXT BOOKS:

- Pressman Roger S., Software Engineering – A Practitioner's Approach, Mc-Graw Hill International Edition, 2001
- Sommerville Ian, Software Engineering, Pearson Education Asia, 2000

REFERENCE BOOKS:

- Jalote Pankaj. An Integrated Approach to Software Engineering. Springer Verlag. 1997

Course Outcomes

After the completion of this course, prospective Computer professionals will have the ability to

Course Title	Software Engineering
COno.	Course Outcomes
CO-1	Define software, explain the nature of software, software process and software engineering practice, explain and compare the various models.
CO-2	Discuss the requirements, analyze and design the various requirement models.
CO-3	Explain the design concepts, analyze and apply the concepts to design architectural, component level & User interface models, list the golden rules.
CO-4	Explain the quality concepts, Software Quality Assurance tasks, discuss the strategies of testing, explain the types of testing.
CO-5	Explain the Product, process & project metrics, discuss the estimation modeling, understand the emerging trends, Prepare a Product
CO-6	Become efficient software developer

S.No	Instructional Technique	Assessment Methods (AM)
1	Chalk & Talk	Assignments
2	ICT tools	Quiz
3	Group discussions	Group Discussions
4	Industrial visit	Oral Tests
5	Case studies	Sessional
6	Small Projects	Presentations
7	Workshop	Seminar
8	Spoken Tutorials	University Exams
9	Flipped Class	
10.	E-Resources	

Detailed Lesson Plan

Week	Date	Topic to be Covered	Instructional Technique	Assessment Method
1	5- Sep-22	Software Engineering - Introduction	2-(PPT/Projector)	----
	6-Sep-22	Software Crisis- Problems and Causes	2(PPT/Projector)	1
	7- Sep-22	Software Life Cycle Models: Waterfall	1	1
2	12-Sep-22	Waterfall	1	1,2,3,4
	13-Sep-22	Prototype	2-(PPT/Projector)	1,2,3,4
	14-Sep-22	Evolutionary	2-(PPT/Projector)	1,2,3,4
3	19-Sep-22	Spiral	2-(PPT/Projector)	1,2,3,4
	20-Sep-22	Revision	1	1,2,3,4
	21-Sep-22	Software Project Planning	2-(PPT/Projector)	1,2,3,4
4	26-Sept-22	Holiday	--	---
	27-Sept-22	Cost Estimation: COCOMO Model	2-(PPT/Projector)	1,2,3,4
	28-Sept-22	Putnam Resource Allocation Model	2-(PPT/Projector)	1,2,3,4
5	3-Oct-22	Risk Management, Project Scheduling	9	1,2,3,4
	4-Oct-22	Personnel Planning, Team Structure, Project Monitoring	2-(PPT/Projector)	1,2,3,4
	5-Oct-22	Software Configuration Management, Quality Assurance	2-(PPT/Projector)	1,2,3,4
6	10-Oct-22	Software Requirement, Analysis and Specification: Structured Analysis	---	6
	11-Oct-22	Data Flow Diagrams, Data Dictionaries	9	1,2,3,4,6
	12-Oct-22	E-R Diagrams, Software Requirement and Specifications,	8,10,2	1,2,3,4,
7	17-Oct-22	Software Design: Fundamentals and Methodology	8,10,2	1,2,3,4,
	18-Oct-22	Cohesion and Coupling	6	1,2,3,4
	19-Oct-22	Coding: Programming Style, Structured Programming	6	1,2,3,4
	22-Oct-22 to 26-Oct-22	Diwali Vaccation	--	--
8	31-Oct-22	Software Testing: Testing Fundamentals	2-(PPT/Projector)	1,2,3,4
	1-Nov-22	Holiday		
	2-Nov-22	Functional Testing: BVA , Equivalence Class Testing	2-(PPT/Projector)	1,2,3,4
9	7-Nov-22	Decision Table Testing, Structural Testing: Control Flow based	2-(PPT/Projector)	1,2,3,4

	8-Nov-22	Holiday		
	9-Nov-22	Data Flow based Testing	2-(PPT/Projector)	1,2,3,4
10	14-Nov-22	Software Testing Strategies: Unit Testing, Integration Testing	2-(PPT/Projector)	1,2,3,4
	15-Nov-22	Assignment 1	6	1,2,3,4
	16-Nov-22	System Testing, Alpha and Beta Testing	6	1,2,3,4
11	21-Nov-22	Paging and Segmentation	--	5
	22-Nov-22	Virtual Memory	2-(PPT/Projector)	1,2,3,4
	23-Nov-22	Page Replacement Algorithms	2-(PPT/Projector)	1,2,3,4
12	28-Nov-22	Management of Maintenance	6	1,2,3,4
	29-Nov-22	Maintenance Process	2-(PPT/Projector)	1,2,3,4
	30-Nov-22	Maintenance Characteristics	6	1,2,3,4
13	5-Dec-22	Revision	2-(PPT/Projector)	1,2,3,4
	6-Dec-22	Assignment 2	9,10	1,2,3,4
	7-Dec-22	Doubt Session	9,10	1,2,3,4
14	12-Dec-22	Doubt Session	2-(PPT/Projector)	1,2,3,4
	13-Dec-22	Discussion over Previous Year papers	2-(PPT/Projector)	1,2,3,4
	14-Dec-22	Discussion over Previous Year papers	6	1,2,3,4
15	19-Dec-22	Revision	6	1,2,3,4
	20-Dec-22	Revision	2-(PPT/Projector)	1,2,3,4
	21-Dec-22	Revision	6	1,2,3,4
16	22-Dec-22	Revision	--	--
	23-Dec-22	Problem Solving Session	--	--

	Teacher Incharge	Head of the Department
Name	Tanvi Dua	Dr. Girdhar Gopal
Sign with Date		

