Mangalmay Institute of Management Technology
Greater Noida (U.P.)

Lesson Plan

Program: BCA **Semester:** IV **Course Code**: BCA-403 **Course Name:** Software Engineering

Course Objectives

CO 1. To introduce students with the concept of Software Engineering and software process models.
CO 2. To be able to know about the different types of requirements analysis and able to create software specification document.
CO 3. To introduce students with the basic concepts of Procedural, Architectural and Object Oriented Design.
CO 4. To be able to know about the different types of Software Implementation and should be aware of Coding Standards and guidelines.
CO 5. To be able to know about the Software Maintenance and its types. Also should be able to know about the techniques for maintenance.
CO 6. To familiarize the student about case tools.

Session Duration: 60 minutes

Participants: BCA Fourth Semester Students

Entry level knowledge and skills of students

i. Computer Fundamentals
ii. ……

Equipment required in Classroom/ Laboratory/ Workshop

i. Projector
ii. White Board & Marker

Assessment Schemes

S. No.	Criteria	Marks (100)
1	CCSU End Term Examination	75
2	Internal Evaluation Scheme	25
2(a)	Teacher Assessment (Continuous Evaluation) (Assignment & attendance)	25
2(a)(i)	Assignment -1	10
2(a)(ii)	Assignment -2	10
2(a)(iii)	Attendance (compulsory)	5

Course Outcomes

(CO1): Able to understand the concept of Software Engineering and software process models for developing software. ***Understanding (K2)***

(CO2): Able to understand the various types of requirements analysis, able to implement software specification document and also able to know about the software cost estimation.

Understanding (K2), Applying (K3)

(CO3): Able to understand the basic concepts of Procedural, Architectural and Object Oriented Design.

Understanding (K2) , Applying (K3)

(CO4): Able to understand the different types of Software Implementation and Coding Standards and guidelines. ***Understanding (K2)***

(CO5): Able to understand the Software Maintenance and its types and able to understand the techniques for maintenance. ***Understanding (K2)***

(CO6): To understand the student about case tools. ***Understanding (K2)***

L. No.	Topics	Sub Topics	Date of implementation	Pedagogy	CO-Covered	Faculty Sign	HoD's Remark with Date
Unit - 1							
1.	Discussion about the Subject Syllabus and Learning outcomes	Course Objective & Course Outcome			**CO-1 TO CO-6**		
2.	Definition and Paradigm, Software Engineering:	Software Crisis		• Lecture	**CO-1**		
3.		Software Engineering		• Lecture • Brainstorming	**CO-1**		
4.		Documentation in system process		• Lecture • Buzz Grouping	**CO-1**		
5.		Software characteristics		• Lecture • Brainstorming	**CO-1**		
6.	Generic View of SE	Generic View of SE		• Lecture	**CO-1**		
7.		Generic View of SE contd		• Lecture	**CO-1**		
8.		Waterfall & Prototype Model		• Lecture • Brainstorming	**CO-1**		
9.		RAID and Spiral Model		• Lecture • Brainstorming	**CO-1**		
10.		Revision of Unit-1		• Discussion • Brainstorming	**CO-1**		

				• Buzz Grouping			
11.		Discussed University questions		• Brainstorming • Buzz Grouping			
Unit - 2							
12.	**Requirement Analysis:**	Introduction and Statement of system scope		• Lecture	**CO-2**		
13.	**SRS**	Analyzing a problem,		• Lecture • Brainstorming	**CO-2**		
14.		creating a software specification document		• Lecture	**CO-2**		
15.		Feasibility Study		• Lecture • Brainstorming	**CO-2**		
16.		Requirement Engineering Process		• Lecture • Buzz Grouping	**CO-2**		
17.		Data Flow Diagram		• Lecture • Brainstorming • Buzz Grouping	**CO-2**		
18.		ER-Diagram		• Lecture • Buzz Grouping Brainstorming	**CO-2**		
19.	**Software Cost Estimation**	Introduction		• Lecture	**CO-2**		
20.		Model, uses		• Lecture	**CO-2**		
21.		COCOMO Model		• Lecture • Discussion Brainstorming	**CO-2**		
22.		Revision of COCOMO Model		• Brainstorming • Buzz Grouping			
23.		Discussed University Questions		• Brainstorming • Buzz Grouping			
Unit - 3							
24.	**Designing Software Solutions : Refining the software specification;**	Design Guidelines		• Lecture • Brainstorming	**CO-3**		
25.		Design Principles		• Lecture	**CO-3**		

				• Brainstorming			
26.		Class Test-2			**CO-3**		

27.		Design Concepts		• Lecture • Brainstorming	**CO-3**		
28.		Revision		• Brainstorming • Buzz Grouping			
29.	**Architectural Design**	Introduction		• Lecture • Brainstorming	**CO-3**		
30.		Intro contd		• Lecture • Brainstorming	**CO-3**		
31.	**Procedural Design**	Modularization		• Lecture • Brainstorming • Buzz Grouping	**CO-3**		
32.		Modularization cont		• Lecture • Brainstorming • Buzz Grouping	**CO-3**		
33.		Cohesion		• Lecture • Brainstorming	**CO-3**		
34.		Coupling		• Lecture • Brainstorming	**CO-3**		
35.		OOD Methodology		• Lecture • Buzz Grouping	**CO-3**		
36.		Discussed Univ questions		• Buzz Grouping • Brainstorming			
Unit – 4							
37.	**Software Implementation**	Introduction		• Lecture • Buzz Grouping	**CO-4**		
38.		Relationship between design & implementation and Implementation issues		• Lecture • Brainstorming	**CO-4**		
39.		Type of Software Implementation		• Lecture • Brainstorming	**CO-4**		
40.		Types Cont		• Lecture • Brainstorming	**CO-4**		
41.		Strategy & Coding		• Lecture	**CO-4**		
42.		Coding Standards and guidelines		• Lecture • Brainstorming	**CO-4**		
43.		Discussed university questions		• Buzz Grouping • Brainstorming			

Unit – 5							
44.	**Software Maintenance**	Maintenance as part of software evaluation		• Lecture • Brainstorming	**CO-5**		
45.		Cost & reasons for maintenance,		• Lecture • Brainstorming	**CO-5**		
46.		types of maintenance (Perceptive, adoptive, corrective)		• Lecture • Brainstorming	**CO-5**		
47.		Software Re-engineering		• Lecture • Brainstorming	**CO-5**		
48.		Discussed Univ ques		• Buzz Grouping • Brainstorming			
49.		ClassTest					
Unit-6							
50.	**Comprehensive examples using available software platforms**	Agile Methodology		• Lecture • Brainstorming	**CO-6**		
51.		contd		• Lecture • Brainstorming	**CO-6**		
52.		Case Tools		• Lecture • Brainstorming	**CO-6**		
53.		Configuration Management		• Lecture	**CO-6**		
54.		Discussed Univ ques		• Buzz Grouping • Brainstorming			
55.		Revision of Unit-VI		• Buzz Grouping • Brainstorming			

Text Books:

1. Software Engineering: A practitioner's Approach(McGraw Hill) : R.S.Pressman
2. Software Engineering (New Age International) : K.K.Aggarwal

Reference Books:

1. Fundamentals of Software Engineering(PHI Learning) : Rajib Mall
2. Software Engineering(Springer) : Pankaj Jalote

3. Software Engineering (Addison Wisley) : Sommer Ville