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: BCA Sem: III Sec-A & B
Course Code: BCA- 234
Nomenclature: Software Engineering
Duration: 16 Weeks
Dates: 5 Sep,2022 - 25 Dec, 2022

Syllabus

BCA – 234 SOFTWARE ENGINEERING

Maximum Marks: 100 **External: 80**

Minimum Pass Marks: 35 **Internal: 20**

Time: 3 hours

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. A candidate will be required to answer five questions in all, selecting one question from each unit in addition to compulsory Question No. 1. All questions will carry equal marks.

UNIT – I

Introduction: Program vs. Software , Software Engineering, Programming paradigms, Software Crisis – problem and causes, Phases in Software development: Requirement Analysis, Software Design, Coding, Testing, Maintenance, Software Development Process Models: Waterfall, Prototype, Evolutionary and Spiral models, Role of Metrics.

UNIT – II

Feasibility Study, Software Requirement Analysis and Specifications: SRS, Need for SRS, Characteristics of an SRS, Components of an SRS, Problem Analysis, Information gathering tools, Organizing and structuring information, Requirement specification, validation and Verification. . SCM

UNIT – III

Structured Analysis and Tools: Data Flow Diagram, Data Dictionary, Decision table, Decision tress, Structured English, Entity-Relationship diagrams, Cohesion and Coupling. Gantt chart, PERT Chart, Software Maintenance: Type of maintenance, Management of Maintenance, Maintenance Process, maintenance characteristics.

UNIT – IV

Software Project Planning: Cost estimation: COCOMO model, Project scheduling, Staffing and personnel planning, team structure, Software configuration management, Quality assurance plans, Project monitoring plans, Risk Management. Software testing strategies: unit testing, integration testing, Validation testing, System testing, Alpha and Beta testing.

TEXT BOOKS:

1. Pressman R. S., "Software Engineering – A Practitioner's Approach", Tata McGraw Hill.
2. Jalote P., "An Integrated approach to Software Engineering", Narosa.

REFERENCE BOOKS:

1. Sommerville, "Software Engineering", Addison Wesley.
2. Fairley R., "Software Engineering Concepts", Tata McGraw Hill.
3. James Peter, W Pedrycz, "Software Engineering", John Wiley & Sons.

Course Outcomes

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

Semester-IV Course: BCA – 241 ADVANCED DATA STRUCTURE At the end of course student should be able to:	
CO-1	Understand and apply operations on Binary search Tree, General trees
CO-2	Perform Huffman's algorithm
CO-3	Understand and apply operations on Graph
CO-3	Implement Warshall's algorithm for shortest path, Dijkstra algorithm for shortest path
CO-4	Perform Sorting and Searching using various techniques.
CO-5	Differentiate different Sorting and Searching techniques
CO-6	Implement all types of File organization
CO-7	Implementing Hashing
CO-8	Understand and explain Collision Resolution

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	BCA (IIIrd Sem) BCA-234 Software Engineering (Section-A)	BCA (IIIrd Sem) BCA-234 Software Engineering (Section-B)	Instructional Technique	Assessment Method
1	**5- Sep-22**	-	**Introduction: Program vs. Software**	**2-(PPT/Projector)**	**----**
	6-Sep-22	-	**Software Engineering**	**2(PPT/Projector)**	**1**
	7- Sep-22	-	**Software Engineering Cont….**	**1**	**1**
	8- Sep-22	**Introduction: Program vs. Software**	-	**2-(PPT/Projector)**	**----**

	9- Sep-22	Software Engineering	-	2(PPT/Projector)	1
	10-Sep-22	Software Engineering Cont….	-	1	1
	11-Sep-22	Sunday			
2	12-Sep-22	-	Programming paradigms	2-(PPT/Projector)	1,2,3,4
	13-Sep-22	-	Software Crisis – problem and causes	2-(PPT/Projector)	1,2,3,4
	14-Sep-22	-	Phases in Software development: Requirement Analysis, Software Design, Coding, Testing, Maintenance	2-(PPT/Projector)	1,2,3,4
	15-Sep-22	Programming paradigms	-	2-(PPT/Projector)	1,2,3,4
	16-Sep-22	Software Crisis – problem and causes	-	2-(PPT/Projector)	1,2,3,4
	17-Sep-22	Phases in Software development: Requirement Analysis, Software Design, Coding, Testing, Maintenance	-	2-(PPT/Projector)	1,2,3,4
	18-Sep-22	Sunday			
3	19-Sep-22	-	Maintenance Cont…..	2-(PPT/Projector)	1,2,3,4
	20-Sep-22	-	Software Development Process Models	9	1,2,3,4
	21-Sep-22	-	Waterfall, Prototype, Evolutionary and Spiral models	8,10,2	1,2,3,4,

	22-Sep-22	Maintenance Cont…..	-	2-(PPT/Projector)	1,2,3,4
	23-Sep-22	Software Development Process Models	-	9	1,2,3,4
	24-Sep-22	Waterfall, Prototype, Evolutionary and Spiral models	-	8,10,2	1,2,3,4,
	25-Sep-22	Sunday			
4	26-Sept-22	Holiday			
	27-Sept-22	-	Models Cont….	6	1,2,3,4
	28-Sept-22	-	Role of Metrics	6	1,2,3,4
	29-Sept-22	Models Cont…..	-	6	1,2,3,4
	30-Sept-22	Models Cont….	-	6	1,2,3,4
	1-Oct-22	Role of Metrics	-	6	1,2,3,4
	2-Oct-22	Sunday			
5	3-Oct-22		Assignment -1	----	----
	4-Oct-22		Feasibility Study, Software Requirement Analysis and Specifications,	8,10,2	1,2,3,4,
	5-Oct-22		SRS, Need for SRS, Characteristics and Components of SRS	8,10,2	1,2,3,4,
	6-Oct-22	Assignment -1	-	----	----
	7-Oct-22	Feasibility Study, Software Requirement Analysis and Specifications,	-	8,10,2	1,2,3,4,
	8-Oct-22	SRS, Need for SRS, Characteristics and Components of SRS	-	8,10,2	1,2,3,4,
	9-Oct-22	Sunday			
6	10-Oct-22	-	Problem Analysis	6	1,2,3,4
	11-Oct-22	-	Information gathering tools	6	1,2,3,4
	12-Oct-22	-	Information gathering tools Cont…..	6	1,2,3,4

	13-Oct-22	Holiday			
	14-Oct-22	Problem Analysis	-	6	1,2,3,4
	15-Oct-22	Information gathering tools	-	6	1,2,3,4
	16-Oct-22	Sunday			
7	17-Oct-22	-	Organizing and structuring information, Requirement specification	2-(PPT/Projector)	1,2,3,4
	18-Oct-22	-	Validation and Verification. . SCM	2-(PPT/Projector)	1,2,3,4
	19-Oct-22	-	Structured Analysis and Tools: Data Flow Diagram	6	1,2,3,4
	20-Oct-22	Organizing and structuring information, Requirement specification	-	2-(PPT/Projector)	1,2,3,4
	21-Oct-22	Validation and Verification. . SCM	-	2-(PPT/Projector)	1,2,3,4
8	22-Oct-22 to 26-Oct-22	Diwali Vacation			
	27-Oct-22	Structured Analysis and Tools: Data Flow Diagram	-	6	1,2,3,4
	28-Oct-22	Data Flow Diagram Cont…	-	6	1,2,3,4
	29-Oct-22	Data Dictionary, Decision table, Decision tress, Structured English	-	6	1,2,3,4
	30-Oct-22	Sunday			
9	31-Oct-22	-	Data Dictionary, Decision table, Decision tress, Structured English	6	1,2,3,4
	1-Nov-22	Holiday			
	2-Nov-22	-	Entity-Relationship diagrams	6	1,2,3,4
	3-Nov-22	Decision Tables Cont…..	-	6	1,2,3,4
	4-Nov-22	Entity-Relationship diagrams	-	6	1,2,3,4

	5-Nov-22	Entity-Relationship diagrams	-	6	1,2,3,4
	6-Nov-22	Sunday			
10	7-Nov-22	-	Entity-Relationship diagrams	6	1,2,3,4
	8-Nov-22	Holiday			
	9-Nov-22	-	Cohesion and Coupling	2-(PPT/Projector)	1,2,3,4
	10-Nov-22	Cohesion and Coupling	-	2-(PPT/Projector)	1,2,3,4
	11-Nov-22	Assignment-2	-	----	----
	12-Nov-22	Cohesion and Coupling	-	2-(PPT/Projector)	1,2,3,4
	13-Nov-22	Sunday			
11	14-Nov-22	-	Gantt chart, PERT Chart	2-(PPT/Projector)	1,2,3,4
	15-Nov-22	-	Gantt chart, PERT Chart Cont….	2-(PPT/Projector)	1,2,3,4
	16-Nov-22	-	Sessional	----	----
	17-Nov-22	Gantt chart, PERT Chart	-	2-(PPT/Projector)	1,2,3,4
	18-Nov-22	Gantt chart, PERT Chart Cont….	-	2-(PPT/Projector)	1,2,3,4
	19-Nov-22	Sessional	-	----	----
	20-Nov-22	Sunday			
12	21-Nov-22	-	Software Maintenance: Type of maintenance	2-(PPT/Projector)	1,2,3,4
	22-Nov-22	-	Type of maintenance Cont…..	2-(PPT/Projector)	1,2,3,4

	23-Nov-22	-	Management of Maintenance, Maintenance Process, maintenance characteristics.	2-(PPT/Projector)	1,2,3,4
	24-Nov-22	Software Maintenance: Type of maintenance		2-(PPT/Projector)	1,2,3,4
	25-Nov-22	Type of maintenance Cont…..		2-(PPT/Projector)	1,2,3,4
	26-Nov-22	Management of Maintenance, Maintenance Process, maintenance characteristics.		2-(PPT/Projector)	1,2,3,4
	27-Nov-22	Sunday			
13	28-Nov-22	-	Assignment-2	----	----
	29-Nov-22	-	Software Project Planning: Cost estimation: COCOMO model	2-(PPT/Projector)	1,2,3,4
	30-Nov-22	-	Project scheduling, Staffing and personnel planning, team structure	2-(PPT/Projector)	1,2,3,4
	1-Dec-22	Software Project Planning: Cost estimation: COCOMO model	-	2-(PPT/Projector)	1,2,3,4
	2-Dec-22	Project scheduling, Staffing and personnel planning, team structure	-	2-(PPT/Projector)	1,2,3,4
	3-Dec-22	Software configuration management	-	6	1,2,3,4
	4-Dec-22	Sunday			
14	5-Dec-22	-	Software configuration management	6	1,2,3,4
	6-Dec-22	-	Quality assurance plans, Project monitoring plans	8,10,2	1,2,3,4,
	7-Dec-22	-	Risk Management.	8,10,2	1,2,3,4,

	8-Dec-22	Quality assurance plans, Project monitoring plans	-	8,10,2	1,2,3,4,
	9-Dec-22	Cont…..	-	8,10,2	1,2,3,4,
	10-Dec-22	Risk Management.	-	8,10,2	1,2,3,4,
	11-Dec-22	Sunday			
15	12-Dec-22	-	Software testing strategies: unit testing, integration testing, Validation testing, System testing, Alpha and Beta testing.	2-(PPT/Projector)	1,2,3,4
	13-Dec-22	-	Testing Cont….	2-(PPT/Projector)	1,2,3,4
	14-Dec-22	-	Testing Cont….	2-(PPT/Projector)	1,2,3,4
	15-Dec-22	Software testing strategies: unit testing, integration testing, Validation testing, System testing, Alpha and Beta testing.		2-(PPT/Projector)	1,2,3,4
	16-Dec-22	Testing Cont….		2-(PPT/Projector)	1,2,3,4
	17-Dec-22	Testing Cont….		2-(PPT/Projector)	1,2,3,4
	18-Dec-22	Sunday			
16	19-Dec-22	-	Revision	----	----
	20-Dec-22	-	Revision	----	----
	21-Dec-22	-	Revision	----	----
	22-Dec-22	Revision	-	----	----
	23-Dec-22	Revision	-	----	----
	24-Dec-22	Revision	-	----	----
	25-Dec-22	Sunday			