DEPARTMENT OF COMPUTER SCIENCE AND APPLICATIONS SCHEME AND SYLLABUS OF EXAMINATION FOR

Bachelor of (Honours/Honours with Research) in Computer Application

Duration 4Years (8Semesters) w.e.f. Academic Session 2023-24

Semester–IV Scheme-D									
Course Code	Course Title	Credit	L: T:P: CH	Internal Marks		External Marks		Total Marks	
				Th	Pr	Th	Pr	Min	Max
Major/Core Courses									
BCA23-CC401	Data Structures and Applications	4	3 :0:1:5	20	10	50	20	40	100
BCA23-CC402	Front-End Development	4	3 :0:1:5	20	10	50	20	40	100
BCA23-CC403	Computer Graphics	4	3 :0:1:5	20	10	50	20	40	100
Minor/Vocational Courses									
BCA23-M401	Modeling for OOP	4	3 :0:1:5	20	10	50	20	40	100
Ability Enhancement Courses									
	To be opted by students from the Central Pool	2	1 :0 :1:3	15	-	35	-	20	50
Value Added Courses									
	To be opted by students from the Central Pool	2	2 :0:0:2	15	-	35	-	20	50
	Total	**18**	**23**						**450**

BCA23-M401
Modeling for OOP

Max.Marks:100
Min.PassMarks:40

Internal Assessment Marks :30[Theory(20) + Practical(10)]
External End TermExamMarks:70[Theory(50)+Practical(20)]

Time: Theory(3Hours),Practical(3Hours)

Credit:4

Course Objectives:

1. Understand the basic concepts of UML.
2. Understand need of drawing models.
3. Understand interdependency of various models
4. Learn problem solving strategies
5. Learn UML tools.

Examiner Note: Examiner will set a total of NINE questions. Out of which FIRST question will be compulsory and the remaining EIGHT questions will be set from four units selecting two questions from each unit. All questions will carry equal marks. First question will comprise of short answer type questions covering entire syllabus. Candidate will have to attempt FIVE questions in all, selecting one question from each unit. Examination will be of three-hour duration.

Practicum will be evaluated by an external and an internal examiner. Examination will be of three-hour duration.

UNIT-I

Factional view: Use case diagram, Requirement Capture with Use case, Building blocks of Use Case diagram - actors, use case guidelines for use case models, Relationships between use cases - extend, include, generalize. Activity diagram: Elements of Activity Diagram - Action state, Activity state, Object, Node, Control and Object flow, Transition (Fork, Merge, Join), Guidelines for Creating Activity Diagrams.

UNIT-II

Static view: Classes, values and attributes, operations and methods, responsibilities for abstract classes, access specifier ,Relationships among classes: Associations, Dependencies., Inheritance - Generalizations, Aggregation, Adornments on Association: association names, association classes, qualified association, n-ary associations, ternary and reflexive association, Dependency relationships among classes, notations.

UNIT-III

Dynamic View: State diagram, Notations, Events (signal events, change events, Time events), States: Composite states, parallel states, History states, transition and condition, State diagram behavior(activity effect, do-activity, entry and exit activity).

UNIT-IV

Interaction diagrams: Sequence diagram Notations, iterations, conditional messaging, branching, object creation and destruction, time constraints, origin of links, Activations in sequence diagram, Collaboration diagram - Collaboration diagram notations, iterations, conditional messaging, branching.

UNIT-V(PRACTICUM)

In practical component the teacher concerned / instructor will ensure minimum 15 programs / case studies execution based on elements of UML along with their graphical syntax during the laboratory work.

Suggested Evaluation Methods:

Internal Assessment:	Theory	Practicum	End Term Examination:
Class Participation	4	-	A three hour exam for both Theory and Practicum
Seminar/presentation/assignment/quiz/class test etc	-	-	
Seminar/Demonstration/Viva-voce/Lab records etc.:	-	5	
Mid-Term Exam	6	-	
Total	10	5	

SuggestedReading

1. Designing Flexible Object Oriented systems with UML - Charles Ritcher
2. Object Oriented Analysis & Design, Sat/.inger. Jackson, Burd Thomson
3. Object oriented Modeling and Design with UML - James Rumbaugh. Micheal Blaha (second edition)
4. The Unified Modeling Language User Guide - Grady Booch, James Rumbaugh, Ivar Jacobson.
5. Object Oriented Modeling and Design - James Rumbaugh