



## DEPARTMENT OF COMPUTER SCIENCE

Gopinath Bordoloi Nagar, Gauhati University

Guwahati-781014, Assam, India

### LESSON PLAN

Subject Name : **ADVANCED CONCEPTS IN OOP**  
Paper Code : **CSC1016/INF1016** Session: **2022-2023**  
Program Name : **M.Sc. (CS/IT)** Semester: **First**  
Faculty Name : **Pranamika Kakati**  
Date : **01/08/2022 to 12/12/2022**

#### Detailed Lesson Plan

#### UNIT-I (Object Oriented Programming)

Lecture No	Topics to be Covered
1	Introduction to Definition and Concepts of Structured Programming
2	Introduction to Object Oriented Programming paradigms
3	Introduction to Data abstraction, Object, class, member
4	memory allocation for objects, constructors and destructors
5	Types of constructors
6	Friend function
7	Friend class
8	templates
9	Introduction to Inheritance, Extending a class, casting up the hierarchy,
10	Modes and types of inheritance
11	single and multiple inheritances
12	virtual base class
13	Introduction to Polymorphism
14	Compile time polymorphism
15	operator overloading
16	function overloading

17	static binding, dynamic binding.
18	abstract class,
19	run-time polymorphism
20	virtual functions
21	pure virtual functions
22	Exception handling
23	Exception handling in C++
24	Exception handling in JAVA
25	File handling

## **UNIT-II (Object Oriented Design)**

26	Object Oriented Design Approaches
27	Characteristics of OO approach
28	Themes of OO approach
29	OO Modeling
	Class Modeling
30	Class, Object
31	Class diagram notations
32	Operations
33	Multiplicity
34	Link, Association
35	Association end name
36	Association class
37	Qualified Association
38	Generalization and Specialization
39	OCL, bag, sequence, ordered
40	Application of OCL examples

	State Modelling
41	Event, Types of Events, State
42	State Transition and Guard condition
43	Effect and Activity
44	Completion transition and Race condition
45	Interaction Modelling
	Use case Model
46	Use Case and Use case Diagram
	Sequence Model
47	Scenario and Sequence
48	Sequence Diagram
	Interaction Model
49	Activity Model
50	Activity Diagram

With regards,

Yours faithfully,

**(Pranamika Kakati)**  
(Assistant Professor, Dept. of Computer Sc., GU)