

LESSON PLAN

NAME OF FACULTY: DR. MEENU NAIN

DISCIPLINE: COMPUTER ENGINEERING

SEMESTER: 4TH

SUBJECT: OBJECT ORIENTED PROGRAMMING USING JAVA

LESSON PLAN DURATION: 16 WEEKS

WORK LOAD (LECTURE/ PRACTICAL): LECTURES-3 , PRACTICAL-6

WEEK	THEORY		PRACTICAL	
1st	LECTURE DAY	TOPIC	PRACTICAL DAY/PERIOD	TOPIC
1st	1	UNIT 1 INTRODUCTION AND FEATURES Fundamentals of object oriented programming	1-3	Consider we have a Class of Cars under which Santro Xing, Alto and Wagon R represents individual Objects. In this context each Car Object will have its own, Model, Year of Manufacture, Colour, Top Speed, etc. which form Properties of the Car class and the associated actions i.e., object functions like Create(), Sold(), display() form the Methods of Car Class. Use this class to create another class Company that tracks the models it creates.
	2	Procedure oriented programming Vs. object oriented programming (OOP)		
	3	Object oriented programming concepts – Classes, object, object reference		
2nd	1	Abstraction, encapsulation	1-3	In a software company Software Engineers, Sr. Software Engineers, Module Lead, Technical Lead, Project Lead, Project Manager, Program Manager, Directors all are the employees of the company but their work, perks, roles, responsibilities differs. Create the Employee base class would provide the common behaviors of all types of employee and also some behaviors properties that all employee must have for that company. Also include search method to search an employee by name
	2	Inheritance, polymorphism		
	3	Introduction of eclipse (IDE) for developing programs in Java		
3rd	1	UNIT 2 LANGUAGE CONSTRUCTS Review of constructs of C used in JAVA : variables	1-3	Suppose the Airport personals want to maintain records for the arrival and departure of the planes. Create a class Airport that has data like name, id, and
	2	Types and type declarations		
	3	Data types		

				address. Create two more classes for Arrival and Departure implementing Airport that will have track of planes (their name, id, arrival time or departure time and a counter to count the number of arrivals) also include the necessary methods to access the information. Also try to keep record of passengers by creating a new class Passenger. Also include a method search() in Airport class to search any passenger by name
4 th	1	Increment operators	1-3	Create a whole menu driven hospital management system using concept of OOP like classes, inheritance. Include information about the following: a. Patient -name, registration id, age, disease, etc.
	2	Decrement operators		
	3	Relational and logical operators		
5 th	1	If then else clause; conditional expressions	1-3	Create a whole menu driven hospital management system using concept of OOP like classes, inheritance. Include information about the following: b. Staff – id, name, designation, salary, etc.
	2	Input using scanner class and output statement		
	3	Loops, switch case, arrays, methods		
6 th	1	UNIT 3 CLASSES AND OBJECTS Creation	1-3	Create a class called Musicians to contain three methods string (), wind () and perc (). Each of these methods should initialize a string array to contain the following instruments: - veena, guitar, sitar, sarod and mandolin under string () - flute, clarinet saxophone, nadhaswaram and piccolo under wind () - tabla, mridangam, bangos, drums and tambour under perc () It should also display the contents of the arrays that are initialized. Create a derived class called TypeInsto contain a method called get () and show (). The get () method must display a means as follows.
	2	Accessing class members		
	3	Private Vs Public Vs Protected Vs Default		

				Type of instruments to be displayed: a. String instruments b. wind instruments c. Percussion instruments The show () method should display the relevant detail according to our choice. The base class variables must be accessible only to its derived classes
7th	1	Constructors	1-3	Write three derived classes inheriting functionality of base class person (should have a member function that ask to enter name and age) and with added unique features of student, and employee, and functionality to assign, change and delete records of student and employee
	2	Object		
	3	Object Reference		
8th	1	UNIT 4 INHERITANCE Definition of inheritance	1-3	Using the concept of multiple inheritance create classes: Shape, Circle, Square, Cube, Sphere, Cylinder. Your classes may only have the class variable specified in the table below and the methods Area and/or Volume to output their area and/or volume.
	2	Protected data		
	3	Public data, Constructor chaining		
9th	1	Order of invocation	1-3	Write a program to create class Person. a. Make two classes, Student and Instructor, inherit from Person. A person has a name and year of birth.
	2	Types of inheritance		
	3	Single inheritance		
10th	1	Multilevel inheritance,	1-3	Write a program to create class Person b. A student has a major, student id.
	2	Hierarchical inheritance		
	3	Hybrid inheritance		
11 th	1	UNIT 5 POLYMORPHISM Method overloading	1-3	Write a program to create class Person c. An instructor has salary, subject.
	2	Constructor overloading		
	3	Method overriding		
12th	1	Up-casting	1-3	Write the class definitions, the constructors, set methods, get methods and for all classes.
	2	Down-casting		
	3	UNIT 6 ABSTRACT CLASS & INTERFACE Key points of Abstract class		
13th	1	Interface	1-3	Old MacDonald had a farm and several types of animals. Every animal shared certain characteristics: they had a type (such as cow, chick or
	2	Difference between an abstract class & interface		
	3	Implementation of multiple inheritance through interface		

				<p>pig) and each made a sound (moo, cluck or oink). An Interface defines those things required to be an animal on the farm. Define new classes for the Old MacDonald that implement the Animal and Farm class. Create array of object of animal to define the different types of animal in the farm. Also create appropriate methods to get and set the properties.</p>
14th	1	UNIT 7 EXCEPTION HANDLING Definition of exception handling	1-3	<p>Write a program with Student as abstract class and create derive classes Engineering, Medicine and Science from base class Student. Create the objects of the derived classes and process them and access them using array of pointer of type base class Student.</p>
	2	Implementation of keywords like try		
	3	Catch, finally		
15th	1	Throw & Throws	1-3	Revision
	2	Importance of exception handling in practical implementation of live projects		
	3	REVISION		
16th	1	TEST	1-3	Revision
	2	REVISION		
	3	REVISION		