Lesson Plan

Name of Faculty: **Sana Bharti**

Discipline: **MCA**

Semester: **4th**

Subject: **Data Mining and Warehousing (MCA-16-43)**

Lesson Plan Duration: **15 Weeks**

Workload (Lecture) Per Week**: 4 Lecture Per Week**

Week	**Theory**	
	Lecture Day	**Topic(Including Assignment /Test)**
1st	1st	Data Warehouse: Basic concepts, A Brief History
	2nd	Difference between Operational Database Systems and Data Warehouse, Architecture for a Data Warehouse
	3rd	Fact and Dimension Tables, Data Warehouse Schemas, Data Cube : A Multidimensional Data Model
	4th	A Multidimensional Data Model ,Data Cube Computation Methods, Typical OLAP Operations
2nd	5st	Typical OLAP Operations , Data Warehouse Design and Usage
	6th	Data Warehouse Design and Usage , Data Warehouse Implementation
	7th	Data Generalization by Attribute Oriented Induction. Assignment1: 1) Explain Data Warehouse 2)Differencebetween operational Database and data warehouse 3) Explain OLAP operations
	8th	Data Generalization by Attribute Oriented Induction.

3rd	9th	Test of Unit1
	10th	Data Mining: Introduction: Motivation, Importance Knowledge Discovery Process
	11th	. Importance Knowledge Discovery Process Data Mining Functionalities
	12th	Data Mining Functionalities Interesting Patterns
4th	13th	Interesting Patterns Classification of Data Mining Systems, Major issues
	14th	Classification of Data Mining Systems, Major issue Data Objects and Attribute Types. Data Preprocessing: Overview, Data Cleaning
	15th	Data Objects and Attribute Types. Data Preprocessing: Overview. Data Cleaning
	16th	Data Integration, Data Reduction
5th	17th	Data Transformation and Data Discretization
	18th	Data Mining Models: Directed Data Mining Models
	19th	Directed Data Mining Models , Directed Data Mining Methodology
	20th	Directed Data Mining Methodology
6th	21st	Data Mining Models: Directed Data Mining Models
	22nd	Directed Data Mining Models
	23rd	Directed Data Mining Methodology
	24th	Directed Data Mining Methodology
7th	25th	Data Visualization
	26th	Outliers, Types of Outliers Assignment 2: 1) Explain data mining functionalities 2) Explain steps of Data perprocessing in detail 3) Explain directed data mining models 4) What are outliers and explain its types
	27th	Challenges of Outlier Detection.
	28th	Revision of UNIT 2
8th	29th	Test of Unit 2
	30th	Data Mining Classical Techniques: Statistics

		– Similarity Models
	31st	Similarity Models
	32nd	Similarity Models
9th	33rd	Steps for Designing Similarity Models
	34th	Table Lookup Model
	35th	Table Lookup Model
	36th	Clustering- Requirement for Cluster Analysis
10th	37th	Clustering Methods- Partitioning Methods, Hierarchical Methods,
	38th	Density-Based Methods
	39th	Grid-Based Methods, Evaluation of Clustering
	40th	Nearest Neighborhood- Memory Based Reasoning, Challenges of Memory Based Reasoning, Assignment 3: 1) Explain clustering in detail. 2) Difference between Hierarchical clustering and Partitioning clustering 3) Explain nearest neighbourhood method in detail
11th	41st	Revision of Unit 3
	42nd	Test of Unit 3
	43rd	Data Mining Next Generation Techniques: Decision Tree
	44th	Decision Tree Induction, Attribute Selection Measures
12th	45th	Tree Pruning
	46th	Association Rule Mining- Market Basket Analysis
	47th	Frequent Itemset Mining using Apriori Algorithm
	48th	Improving the Efficiency of Apriori
13th	49th	Neural Network- Bayesian Belief Networks,
	50th	Bayesian Belief Networks,, Classification by Backpropagation
	51st	Classification by Backpropagation

	52nd	Data Mining Applications,
14th	53rd	Data Mining Trends and Tools. Assignment 4: 1) Explain Decision Tree Induction and attribute selection measure 2) Explain Apriori Algorithm 3) Explain Bayesian Belief Network
	54th	Data Mining Trends and Tools.
	55th	Revision of Unit 4
	56th	Test of Unit 4
15th	57th	Revision of Unit 1
	58th	Revision of Unit 2
	59th	Revision of Unit 3
	60th	Revision of Unit 4

Lesson Plan

Name of Faculty: **Dr. Narinder Rana**

Discipline: **MCA**

Semester: **4th Semester**

Subject: **Programming in JAVA (MCA-14-41)**

Lesson Plan Duration: **13 Weeks**

Workload Per Week**: 4 Lecture, 2 Practical labs of 2 lectures each**

	Theory		***Practical***	
Week	**Lecture Day**	**Topic (Including Assignment Test)**	**Practical Day**	**Topic**
1st	1st	Features of Java	1st	WAP to find absolute difference between n and 21 and return it as double.
	2nd	Data types in Java		
	3rd	Operators & expressions	2nd	WAP to find is a number is teen number or not.
	4th	Control structures		
2nd	5th	Arrays in Java	3rd	WAP to print diamond of number till N.
	6th	Classes, objects & methods		
	7th	Constructors	4th	WAP to calculate coins, notes and amount for entered denominations.
	8th	Garbage collection		
3rd	9th	Access qualifiers	5th	WAP to count occurrence of a number N in an array.
	10th	String handling and operations		
	11th	Character extraction and string comparison	6th	WAP to print number of days if month and year are entered as two integer values.
	12th	Searching and modifying strings		
4th	13th	StringBuffer class	7th	WAP to arrange words of a sentence in alphabetical order.
	14th	Packages and interfaces		
	15th	Wrapper classes	8th	WAP to show usage of wrapper classes.
	16th	MCQs/Class test		

5th	17th	Inheritance	9th	WAP to show the usage of multilevel inheritance with help of a real life example.
	18th	Multilevel inheritance		
	19th	Method overriding	10th	WAP to show usage of method overriding with help of real life example.
	20th	Abstract class		
6th	21st	Use of super and final keyword	11th	WAP to implement and explain usage of an abstract class.
	22nd	Exception Handling and exception types		
	23rd	Uncaught exceptions	12th	WAP to show implementation of multiple catch clauses with help of a real life example.
	24th	Multiple catch clauses		
7th	25th	Nested try statements	13th	WAP to create user defined exception which is through in N is less the 10 or more than 99.
	26th	Creating your own exceptions.		
	27th	Multithreading, Java thread model	14th	WAP to show implementation of multithreading with help of a real life example.
	28th	Creating multiple threads		
8th	29th	Thread priorities and synchronization	15th	WAP to show usage of inter thread communication with help of a real life example.
	30th	Inter-thread communication		
	31st	Suspending, resuming and stopping threads	16th	WAP to run an Applet using Appletviewer.
	32nd	MCQs/Class test		
9th	33rd	Applets: Local & remote Applets	17th	Implement the above Applet in a browser, preferably Mozilla Firefox.
	34th	Applet architecture		
	35th	Passing Parameters to Applets	18th	WAP to show usage of parameter passing in Applet with help of a real life example.
	36th	Applet graphics		
10th	37th	Adapter class	19th	WAP to draw a smiley using graphics in Applet.
	38th	Input/Output streams		
	39th	Reading and writing console input	20th	WAP to show usage of interface in Java with help of a real life example.
	40th	Collections Interfaces & classes		
11th	41st	Delegation Event Model	21st	

	42nd	MCQs		
	43rd	Class test	22nd	WAP to draw a smiley using AWT graphics
	44th	AWT classes and window fundamentals		
12th	45th	Working with graphics, color & fonts	23rd	Color the above smiley with appropriate colors and run as standalone AWT class
	46th	AWT controls		
	47th	Layout managers	24th	WAP to show usage of various layouts in Java. Use same controls on all layouts.
	48th	Working with menus		
13th	49th	Swing Classes	25th	WAP to implement a calculator using Swing classes.
	50th	JFrames		
	51st	Java Beans	26th	WAP to use Servlet for creating music app using Swing classes and database.
	52nd	Servlet classes & life cycle		

Lesson Plan

Name of Faculty: **Safurti**

Discipline: **MCA**

Semester: **4th**

Subject: **Advanced Computer Architecture (MCA-14-42)**
Lesson Plan Duration: **15 Weeks**

Workload (Lecture) Per Week**: 4 Lecture Per Week**

Week	**Theory**	
	Lecture Day	**Topic(Including Assignment /Test)**
1st	1st	Computational Model: Basic computational models
	2nd	evolution and interpretation of computer architecture
	3rd	concept of computer architecture as a multilevel hierarchical framework
	4th	Classification of parallel architectures
2nd	5st	Relationships between programming languages and parallel architectures
	6th	Parallel Processing: Types and levels of parallelism
	7th	Instruction Level Parallel (ILP) processors
	8th	dependencies between instructions
3rd	9th	principle and general structure of pipelines
	10th	performance measures of pipeline, pipelined processing of integer
	11th	Boolean, load and store instructions
	12th	VLIW architecture
4th	13th	Code Scheduling for ILP-Processors -Basic block scheduling
	14th	loop scheduling
	15th	global scheduling.
	16th	Assignment 1:

		1) What is code scheduling? Explain software pipelining technique of code scheduling. 2) Explain the structure of pipeline for Boolean, load and store instructions.
5th	17th	Revision of Assignment 1
	18th	MCQs of Unit-I
	19th	Superscalar Processors: Emergence of superscalar processors
	20st	Tasks of superscalar processing –parallel decoding
6th	21th	superscalar instruction issue, shelving
	22th	register renaming, parallel execution
	23th	Test of Unit-I
	24st	preserving sequential consistency of instruction execution and exception processing
7th	25nd	comparison of VLIW & superscalar processors
	26rd	Branch Handling: Branch problem
	27th	Approaches to branch handling –delayed branching
	28th	Branch detection and prediction schemes
8th	29th	Branch penalties and schemes to reduce them
	30th	Multiway branches, guarded execution.
	31th	Assignment 2: 1) Compare VLIW AND SUPERSCALAR ARCHITECTURES. 2) What are dynamic prediction schemes for branches? Explain.
	32th	Revision of Assignment 2
9th	33th	MCQs of Unit-II
	34st	MIMD Architectures: Concepts of distributed
	35nd	shared memory MIMD architectures
	36rd	UMA, NUMA models
10th	37th	CC-NUMA & COMA models
	38st	Problems of scalable computers

	39th	Direct Interconnection Networks: Linear array, ring
	41st	Test of Unit-II
11th	42nd	chordal rings
	43rd	star, tree
	44th	2D mesh, barrel shifter, hypercubes.
		Assignment 3: 1) Explain the following static interconnection networks along with their performance parameters; barrel shifter, ring, 2D Torus and 3-cube connected cycles.
12th	45th	Revision of Assignment 3
	46th	MCQs of Unit-III
	47th	Dynamic interconnection networks: single shared buses
	48th	comparison of bandwidths of locked
13th	49th	pended & split transaction buses, arbiter logics crossbar, multistage networks –omega
	50th	Test of Unit-III
	51st	Butterfly Cache coherence problem
	52nd	hardware based protocols –snoopy cache protocol
14th	53rd	directory schemes, hierarchical cache coherence protocols
		software based protocols
	54th	Assignment 4: 1) What is centralized arbiter logic? What are limitations of this logic? How daisy chaining overcome these limitations? 2) What is MIN? Explain the working of Butterfly network with suitable diagram.
	55th	Revision of Assignment 4
15th	56th	MCQs of Unit-IV
	57th	Revision of University Question paper 2015

	58th	Test of Unit-IV
	59th	Test of University Question paper 2015
	60th	Revision of University Question paper 2016

Lesson Plan

Name of Faculty: **Richa Gupta**

Discipline: **MCA**

Semester: **4th**

Subject: **Computer Graphics**

Lesson Plan Duration: **15 Weeks**

Workload (Lecture) Per Week**: 4 Lectures,6 Practicals Per Week**

Week	*Theory*		*Practical*	
	Lecture Day	Topic(including assignment Test)	Practical Day	Topic
1st	1st	Introduction to Computer Graphics and its applications	1st	Write a program to create a chess board using DDA line algorithm
	2nd	Components and working of Interactive Graphics	2nd	Write a program to create a chess board using DDA line algorithm
	3rd	Video Display Devices: Raster scan and Random Scan displays	3rd	Write a program to create a chess board using DDA line algorithm
			4th	Write a program to implement Bresenham's line drawing algorithm with all values of slopes.
	4th	Display Processors; Resolution, Aspect Ratio, Refresh CRT	5th	Write a program to implement Bresenham's line drawing algorithm with all values of slopes.
			6th	Write a program to implement Bresenham's line drawing algorithm with all values of slopes.
2nd	5th	Display Processors; Resolution, Aspect Ratio, Refresh CRT	7th	Write a program to implement Bresenham's line drawing algorithm with all values of slopes.
	6th	interlacing; Color CRT monitors	8th	Write a program to display the lines of different styles and

				different thickness
	7th	LookUp tables	9th	Write a program to display the lines of different styles and different thickness
			10th	Write a program to display the lines of different styles and different thickness
	8th	Plasma Panel and LCD monitors	11th	Write a program to implement Midpoint circle generation algorithm.
			12th	Write a program to implement Midpoint circle generation algorithm.
3rd	9th	Interactive Input and Output Devices: keyboard, mouse, trackball, joystick, light pen, digitizers	13th	Write a program to implement Midpoint circle generation algorithm.
	10th	Interactive Input and Output Devices: keyboard, mouse, trackball, joystick, light pen, digitizers	14th	Write a program to implement Midpoint circle generation algorithm.
	11th	Interactive Input and Output Devices: keyboard, mouse, trackball, joystick, light pen, digitizers	15th	Write a program to create a wireframe model of globe using equation of ellipse.
			16th	Write a program to create a wireframe model of globe using equation of ellipse.
	12th	Image scanners, Touch Panels; Voice systems; printers	17th	Write a program to create a wireframe model of globe using equation of ellipse.
			18th	Write a program to create a wireframe model of globe using equation of ellipse.
4th	13th	Image scanners, Touch Panels; Voice systems; printers	19th	Write a program to implement Bresenham's circle generation algorithm.
	14th	plotters; Graphics Software; Coordinate Representations	20th	Write a program to implement Bresenham's circle generation algorithm.
	15th	plotters; Graphics Software;	21st	Write a program to implement Bresenham's circle generation

		Coordinate Representations		algorithm.
			22nd	Write a program to create and fill the two dimensional object by using boundary fill algorithm
	16th	MCQs	23rd	Write a program to create and fill the two dimensional object by using boundary fill algorithm
			24th	Write a program to create and fill the two dimensional object by using boundary fill algorithm
5th	17th	Class test	25th	Write a program to create (without using built in function) a cube by implementing translation algorithm by translating along a) X-axis b) Y-axis and c) X and Y plane
	18th	Drawing Geometry: Symmetrical and Simple DDA line drawing algorithm	26th	Write a program to create (without using built in function) a cube by implementing translation algorithm by translating along a) X-axis b) Y-axis and c) X and Y plane
	19th	Bresenham's line Algorithm	27th	Write a program to create (without using built in function) a cube by implementing translation algorithm by translating along a) X-axis b) Y-axis and c) X and Y plane
			28th	Write a program to create (without using built in function) a cube by implementing translation algorithm by translating along a) X-axis b) Y-axis and c) X and Y plane
	20th	loading frame buffer	29th	Write a program to create (without using built in function)

				and rotate a) given an angle b) Around x and y axis a triangle by implementing rotation algorithm.
			30th	Write a program to create (without using built in function) and rotate a) given an angle b) Around x and y axis a triangle by implementing rotation algorithm.
6th	21st	Symmetrical DDA for drawing circle	31st	Write a program to create (without using built in function) and rotate a) given an angle b) Around x and y axis a triangle by implementing rotation algorithm.
	22nd	Polynomial method for circle drawing	32nd	Write a program to create (without using built in function) a triangle by implementing scaling algorithm by zooming/un-zooming along a) X-axis b) Y-axis and c) X and Y plane
	23rd	Circle drawing using polar coordinates	33rd	Write a program to create (without using built in function) a triangle by implementing scaling algorithm by zooming/un-zooming along a) X-axis b) Y-axis and c) X and Y plane
			34th	Write a program to create (without using built in function) a

				triangle by implementing scaling algorithm by zooming/un-zooming along a) X-axis b) Y-axis and c) X and Y plane
	24th	Bresenham's circle drawing	35th	Write a program to create (without using built in function) a triangle by implementing scaling algorithm by zooming/un-zooming along a) X-axis b) Y-axis and c) X and Y plane
			36th	Write a program to create (without using built in function) a Cube by implementing reflection algorithm a) X-axis, b) Y-axis
7th	25th	Generation of ellipse; parametric representation of cubic curves	37th	Write a program to create (without using built in function) a Cube by implementing reflection algorithm a) X-axis, b) Y-axis
	26th	drawing Bezier curves	38th	Write a program to create (without using built in function) a Cube by implementing reflection algorithm a) X-axis, b) Y-axis
	27th	Filled-Area Primitives: Flood fill algorithm	39th	Write a program to create (without using built in function) a square by implementing shear algorithm along a) X-axis

				b) Y-axis
			40th	Write a program to create (without using built in function) a square by implementing shear algorithm along a) X-axis b) Y-axis
	28th	Boundary fill algorithm	41st	Write a program to create (without using built in function) a square by implementing shear algorithm along a) X-axis b) Y-axis
			42nd	Write a program to animate a flag using Bezier Curve algorithm
8th	29th	Scan-line polygon fill algorithm	43rd	Write a program to animate a flag using Bezier Curve algorithm
	30th	MCQs	44th	Write a program to animate a flag using Bezier Curve algorithm
	31st	Class test	45th	Write a program to clip lines using Liang-Barsky algorithm
			46th	Write a program to clip lines using Liang-Barsky algorithm
	32nd	2-D Transformations: translation	47th	Write a program to clip lines using Liang-Barsky algorithm
			48th	Write a program to clip lines using Cohen Sutherland clipping algorithm
9th	33rd	Rotation	49th	Write a program to clip lines using Cohen Sutherland clipping algorithm
	34th	Scaling	50th	Write a program to clip lines using Cohen Sutherland clipping algorithm

	35th	matrix representations and homogeneous coordinates	51st	Write a program to clip lines using Mid-Point Subdivision algorithm
			52nd	Write a program to clip lines using Mid-Point Subdivision algorithm
	36th	matrix representations and homogeneous coordinates	53rd	Write a program to clip lines using Mid-Point Subdivision algorithm
			54th	Develop different chart options with the given inputs by applying DDA algorithm
10th	37th	composite transformations	55th	Develop different chart options with the given inputs by applying DDA algorithm
	38th	general pivot point rotation	56th	Develop different chart options with the given inputs by applying DDA algorithm
	39th	general fixed point scaling	57th	Develop different circular patterns using midpoint circle generation algorithm
			58th	Develop different circular patterns using midpoint circle generation algorithm
	40th	Shearing; Reflection	59th	Develop different circular patterns using midpoint circle generation algorithm
			60th	Develop a screen saver with 2D objects.
11th	41st	Reflection about an arbitrary line	61st	Develop a screen saver with 2D objects.
	42nd	2-D Viewing: window, viewport	62nd	Develop a screen saver with 2D objects.
	43rd	2-D viewing transformation	63rd	Develop a screen saver with 3D objects
			64th	Develop a screen saver with 3D objects

	44th	zooming, Panning	65th	Develop a screen saver with 3D objects
			66th	Develop different chart options with the given inputs by applying DDA algorithm
12th	45th	Clipping operations: point and line clipping	67th	Develop different chart options with the given inputs by applying DDA algorithm
	46th	Cohen-Sutherland line clipping	68th	Develop different chart options with the given inputs by applying DDA algorithm
	47th	mid-point subdivision line clipping	69th	Develop different chart options with the given inputs by applying DDA algorithm
			70th	Develop different line styles using Bresenham's algorithm
	48th	Liang-Barsky line Clipping	71st	Develop different line styles using Bresenham's algorithm
			72nd	Develop different line styles using Bresenham's algorithm
13th	49th	Sutherland-Hodgman polygon clipping	73rd	Develop different line styles using Bresenham's algorithm
	50th	Weiler-Atherton polygon Clipping Pointing and positioning techniques	74th	Develop different circular patterns using midpoint circle generation algorithm
	51st	3-D Graphics: 3-D modeling of objects, 3D transformation matrices for translation	75th	Develop different circular patterns using midpoint circle generation algorithm
			76th	Develop different circular patterns using midpoint circle generation algorithm
	52nd	scaling and rotation, parallel projection: Orthographic and oblique	77th	Develop different circular patterns using midpoint circle generation algorithm

		projection	78th	Develop a screen saver with text with given attributes
14th	53rd	perspective projection; Hidden surface removal	79th	Develop a screen saver with text with given attributes
	54th	Zbuffer, depth-sorting, area subdivision	80th	Develop a screen saver with text with given attributes
	55th	BSP-Tree method; Ray casting	81st	Develop a screen saver with text with given attributes
			82nd	Write a program to perform scaling on triangular object
	56th	Shading: Modelling light intensities, Gouraud shading	83rd	Write a program to perform scaling on triangular object
			84th	Write a program to perform scaling on triangular object
15th	57th	Phong shading; Introduction to Animation, Tweening	85th	Write a program to implement flood fill algorithm.
	58th	Morphing, Fractals	86th	Write a program to implement flood fill algorithm.
	59th	MCQs	87th	Write a program to implement flood fill algorithm.
			88th	Write a program to perform rotation on rectangular object with respect to arbitrary point.
	60th	Class test	89th	Write a program to perform rotation on rectangular object with respect to arbitrary point.
			90th	Write a program to perform rotation on rectangular object with respect to arbitrary point.