TIME TABLE

	08:00 -09:00 AM	09:00 - 10:00 AM	10:20 - 11:20 AM	11:20 - 12:20 PM	1:00 - 2:00 PM	2:00 -3:00 PM	3:00 - 4:00 PM
Monday	SE	DM/UID	WEB	JAVA	DBMS	MA	
Tuesday	DBMS	JAVA	MA	SE	MA	A1- DBMS/A2- JAVA / A3-WEB	
Wednesday	A1-WEB/A2-DBMS/ A3-JAVA		SE	WEB	DM/UID	*Club Activities*	
Thursday	MA	DBMS	WEB	DM/UID	JAVA	*Mini Projects*	
Friday	DM/UID	SE	JAVA	WEB	A1-JAVA/A2-WEB/ A3-DBMS		
Saturday	JAVA(T)	DBMS	*Events*		WEB(T)		

For Queries
Click/Scan
to connect Aditya

CALENDAR OF EVENTS

		JUNE
23.06.23	Fri	Working with Flask - Day 2 - ISE/Google DSC Club
		Industry visit for Second semester students - Chemistry
		Quiz on Clean Environment - ISTE student chapter
		Maths Exhibition - Mathematics
		Guest lecture on Chemical sensors - Chemistry
		Organizing Innovation & Entrepreneurship Outreach Program in Schools/Community
		Gender Equity session by Prof. Preeja Sreedhar - Women Cell
		Alumni talk on "Analyzing and developing integrated innovative software solutions" - CSE Dept.
		Expert talk on "Multidimensional Sensor Data Fusion Algorithms" - CoE Signal Processing
		Talk on Robotic Process Automation - AIML & AI-DS dept.
		Session on Accelerators/Incubation - Opportunities for Students & Faculties - Early Stage Entrepreneurs, Dept. of CSE
24.06.23	Sat	HOLIDAY
25.06.23	Sun	HOLIDAY
26.06.23	Mon	Commencement of MBA, MCA-II Sem.
27.06.23	Tue	VI Sem. Mini Project Exhibition (CIVIL, CSE, ECE)
		Yoga Day - EBSB Club
		Working with Arduino - ISE/Google DSC Club
28.06.23	Wed	SAT TT
		VI Sem. Mini Project Exhibition (EEE, ISE, MECH)
		Design Challenge Competition - COE Additive Manufacturing
		Webinar on "How to raise fund for Startups" - EEE I&E Activity Through M-Core Technologies Pvt. Ltd. - COE IES
29.06.23	Thu	HOLIDAY
		Bakrid
30.06.23	Fri	National Conference on Emerging Trends Artificial Intelligence & Computer Applications Research (n-ETACAR-23) - MCA Dept.

		JULY
01.07.23	Sat	HOLIDAY
02.07.23	Sun	HOLIDAY
03.07.23	Mon	SAT TT
		Session on Achieving "Value Proposition Fit" & "Business Fit" - Dept. of CSE
04.07.23	Tue	IAT-3 (BE-VI Sem.)
		IAT-1 (BE-II, IV Sem.)
05.07.23	Wed	IAT-3 (BE-VI Sem.)
		IAT-1 (BE-II, IV Sem.)
06.07.23	Thu	IAT-3 (BE-VI Sem.)
		IAT-1 (BE-II, IV Sem.)
07.07.23	Fri	IAT-3 (BE-VI Sem.)
		IAT-1 (BE-II, IV Sem.)
08.07.23	Sat	Cx Test- BE VI Sem.
		Guest lecture on recent trends in development nanomaterial - Chemistry
09.07.23	Sun	HOLIDAY
14.07.23	Fri	
15.07.23	Sat	HOLIDAY
16.07.23	Sun	HOLIDAY
23.07.23	Sun	HOLIDAY
24.07.23	Mon	First Faculty/Mentoring Feedback - MBA, MCA-II Sem.
25.07.23	Tue	
26.07.23	Wed	Guest lecture - Water resource management - COE-NRM
		Industry Visit for Second Year Students - EEE-Industry Connect
		Ideas Competition - Cybernauts - Student Club
27.07.23	Thu	International Friendship Day - EBSB Club
28.07.23	Fri	Alumni talk on "Networking and security" - CSE Dept.
29.07.23	Sat	HOLIDAY
		Last Day of Moharam
30.07.23	Sun	HOLIDAY

		AUGUST
05.08.23	Sat	HOLIDAY
06.08.23	Sun	HOLIDAY
07.08.23	**Mon**	**IAT-2 (BE-II, IV Sem.)**
		IAT-1 (MBA, MCA-II Sem.)
08.08.23	**Tue**	**IAT-2 (BE-II, IV Sem.)**
		IAT-1 (MBA, MCA-II Sem.)
09.08.23	**Wed**	**IAT-2 (BE-II, IV Sem.)**
		IAT-1 (MBA, MCA-II Sem.)
10.08.23	**Thu**	**IAT-2 (BE-II, IV Sem.)**
		IAT-1 (MBA, MCA-II Sem.)
11.08.23	Fri	
12.08.23	Sat	Programming on cloud By Mr. Sridhar Murthy, Principal architect, Infosys - AIMI/AI-DS Dept.
		Expert Talk on Industrial IoT - Dept. of ISE
13.08.23	Sun	HOLIDAY
14.08.23	Mon	
15.08.23	Tue	HOLIDAY
		Independence Day
19.08.23	Sat	HOLIDAY
20.08.23	Sun	HOLIDAY
21.08.23	Mon	Second Faculty/Mentoring Feedback - BE-II, IV Sem.
22.08.23	Tue	Expert talk on "Industry opportunities in Additive Manufacturing" by Dr. Anjan Kunar J - COE-Additive Manufacturing
		Expert talk on "Remote sensing Application" - COE-NRM
23.08.23	Wed	II Sem Mini Project Exhibition
		Hands-on "Easy Performance Based Learning of Arduino and Sensors through Tinkercad" - COE-Embedded Systems
24.08.23	Thu	II Sem. Mini Project Exhibition
		Expert Talk on IoT and Big Data Analytics - ISE/COE DDIOT
		Expert talk on "AI-WSN: Adaptive and Intelligent Wireless Sensor Network" - COE-Embedded Systems
		Talk on Quantum dot solar cells - COE-Materials Science
		Ultimate Battle - EBSB Club

		SEPTEMBER
02.09.23	Sat	HOLIDAY
03.09.23	Sun	HOLIDAY
04.09.23	**Mon**	**IAT-3 (BE-II, IV Sem.)** **IAT-2 (MBA, MCA-II Sem.)**
05.09.23	**Tue**	**IAT-3 (BE-II, IV Sem.)** **IAT-2 (MBA, MCA-II Sem.)**
06.09.23	**Wed**	**IAT-3 (BE-II, IV Sem.)** **IAT-2 (MBA, MCA-II Sem.)**
07.09.23	**Thu**	**IAT-3 (BE-II, IV Sem.)** **IAT-2 (MBA, MCA-II Sem.)**
08.09.23	Fri	Cx Test- BE II, IV Sem.
09.09.23	Sat	Cx Test- BE II, IV Sem.
10.09.23	Sun	HOLIDAY
11.09.23	Mon	Commencement of B.E-VII Sem.
		Second Faculty/Mentoring Feedback – MBA, MCA-II Sem.
12.09.23	Tue	Department Newsletter 2022-23 EVEN Sem.
16.09.23	Sat	HOLIDAY
17.09.23	Sun	HOLIDAY
18.09.23	Mon	HOLIDAY
		Varasiddhi Vinayaka Vrata
19.09.23	Tue	Release of CMRIT 'CONNECT' Sept. 2023
24.09.23	Sun	HOLIDAY
25.09.23	**Mon**	**IAT-3 (MBA, MCA-II Sem.)**
26.09.23	**Tue**	**IAT-3 (MBA, MCA-II Sem.)**
27.09.23	**Wed**	**IAT-3 (MBA, MCA-II Sem.)**
28.09.23	Thu	HOLIDAY- Eid-Milad
29.09.23	Fri	IAT-3 (MBA, MCA-II Sem.)
30.09.23	Sat	HOLIDAY

SYLLABUS SUMMARY

SEMESTER 1		
	22MCA11	Mathematical Foundation for Computer Applications
	22MCA12	Operating System Concepts
	22MCA13	Data Structures
	22MCA14	Computer Networks
	22RMI18	Research Methodology and IPR
	22MCA15	Design and Analysis of Algorithms
	22MCAL16	Data Structures with Algorithms Laboratory
	22MCAL17	Computer Networks Laboratory
	22AUD19	BOS recommended ONLINE courses
	22MCA110-BC*	Basics of Programming & CO
SEMESTER 2		
	22MCA21	Database Management System
	22MCA22	Object Oriented Programming Using Java
	22MCA23	Software Engineering
	22MCA24	Web Technologies
	22MCA25x	Professional Elective 1
	22MCA26x	Professional Elective 2
	22MCAL27	DBMS Laboratory
	22MCAL28	Java Programming Laboratory
	22MCA29	SEMINAR
	22AUD210	BOS recommended ONLINE courses
SEMESTER 3		
	22MCA31	Data Analytics Using Python
	22MCA32	Internet of Things
	22MCA33X	Professional Elective 3
	22MCA34	Open elective Courses 1
	22MCAL36	Data Analytics Lab with Mini-project
	22MCAL37	IoT Laboratory with Mini Project
	22MCAL38	Societal Project
	22MCAL35	Project Work Phase 1
	22MCA39	Internship
SEMESTER 4		
	22MCA41	Advances in Web Technologies
	22MCA42X	Professional Elective 4
	22MCA43X	Professional Elective 5
	22MCA44	SEMINAR (on Project work phase -2)
	22MCA45	Project work phase -2

Professional Elective 1	
Course Code under 22MCA25X	**Course title**
22MCA251	Computer Graphics with Open GL
22MCA252	Data Mining and Business Intelligence
22MCA253	Enterprise Resource Planning
22MCA254	User Interface Design
22MCA255	Optimization Techniques

Professional Elective 2	
Course Code under 22MCA26X	**Course title**
22MCA261	Cryptography and Network Security
22MCA262	Artificial Intelligence
22MCA263	Mobile Application Development
22MCA264	Distributed operating System
22MCA265	Natural Language Processing

Professional Elective 3	
Course Code under 22MCA33X	**Course title**
22MCA331	Block chain Technology
22MCA332	Cloud Computing
22MCA333	Digital Marketing
22MCA334	Object Oriented Design
22MCA335	NOSQL

Open Elective 1	
Course Code under 22MCA34X	**Course title**
22MCA341	Data Structures
22MCA342	Fundamentals of Cloud Computing
22MCA343	Basics of Python Programming
22MCA344	Web Programming
22MCA345	E-commerce

	Elective Subject
	Lab Subject
	Other Important Activity

1. Database Management System

Course Code	22MCA21	CIE Marks	50

Introduction to Databases: Introduction, Characteristics of database approach, Advantages of using the DBMS approach, History of database applications. Overview of Database Languages and Architectures: Data Models, Schemas, and Instances. Three schema architecture and data independence, database languages, and interfaces, The Database System environment. Conceptual Data Modelling using Entities and Relationships: Entity types, Entity sets, attributes, roles, and structural constraints, Weak entity types, ER diagrams, Examples Textbook 1: Ch 1.1 to 1.8, 2.1 to 2.6, 3.1 to 3.7

Module-2

Relational Model: Relational Model Concepts, Relational Model Constraints and relational database schemas, Update operations, transactions, and dealing with constraint violations. Relational Algebra: Unary and Binary relational operations, additional relational operations (aggregate, grouping, etc.) Examples of Queries in relational algebra. Mapping Conceptual Design into a Logical Design: Relational Database Design using ER-to-Relational mapping.Textbook 1:, Ch 5.1 to 5.3, 8.1 to 8.5, 9.1;

Module-3

SQL: SQL data definition and data types, specifying constraints in SQL, retrieval queries in SQL, INSERT, DELETE, and UPDATE statements in SQL, Additional features of SQL. Advances Queries: More complex SQL retrieval queries, Specifying constraints as assertions and action triggers, Views in SQL, Schema change statements in SQL. Database Application Development: Accessing databases from applications, An introduction to JDBC, JDBC classes and interfaces, SQLJ, Stored procedures, Case study: The internet Bookshop. Textbook 1: Ch 6.1 to 6.5, 7.1 to 7.4; Textbook 2: 6.1 to 6.6;

Module-4

Normalization: Database Design Theory – Introduction to Normalization using Functional and MultivaluedDependencies: Informal design guidelines for relation schema, Functional Dependencies, Normal Forms based onPrimary Keys, Second and Third Normal Forms, Boyce-Codd Normal Form, Multivalued Dependency and Fourth Normal Form, Join Dependencies and Fifth Normal Form. Examples on normal forms. Normalization Algorithms: Inference Rules, Equivalence, and Minimal Cover, Properties of Relational Decompositions, Algorithms for Relational Database Schema Design, Nulls, Dangling tuples, and alternate Relational Designs, Further discussion of Multivalued dependencies and 4NF, Other dependencies and Normal Forms Textbook 1: Ch 14.1 to -14.7, 15.1 to 15.6

Module-5

Transaction Processing: Introduction to Transaction Processing, Transaction and System concepts, Desirable properties of Transactions, Characterizing schedules based on recoverability, Characterizing schedules based on Serializability,Transaction support in SQL. Concurrency Control in Databases: Two-phase locking techniques for Concurrency control, Concurrency control based on Timestamp ordering, Multiversion Concurrency control techniques, Validation Concurrency control techniques, Granularity of Data items and Multiple Granularity Locking. Textbook 1: Ch 20.1 to 20.6, 21.1 to 21.7;

Suggested Learning Resources:

Text Books:

1. Fundamentals of Database Systems, Ramez Elmasri and Shamkant B. Navathe, 7th Edition, 2017, Pearson.
2. Database management systems, Ramakrishnan, and Gehrke, 3rd Edition, 2014, McGraw Hill.

Reference books:

1. Abraham Silberschatz, Henry F. Korth and S. Sudarshan's Database System Concepts 6th EditionTata Mcgraw HillEducation Private Limited

2. Object Oriented Programming Using Java

Course Code	22MCA22	CIE Marks	50

Module-1

OOPS CONCEPTS AND JAVA PROGRAMMING: OOP concepts: Classes and objects, data abstraction, encapsulation, inheritance, benefits of inheritance, polymorphism, procedural and object oriented programming paradigm. Java programming: History of java, comments data types, variables, constants, scope and life time of variables, operators, operator hierarchy, expressions, type conversion and casting, enumerated types, control flow statements, jump statements, simple java stand alone programs, arrays, console input and output, formatting output, constructors ,methods, parameter passing, static fields and methods, access control, this reference, overloading methods and constructors, recursion, garbage collection, exploring string class.

Module-2

MULTIPLE INHERITANCE: Inheritance: Inheritance hierarchies, super and subclasses, member access rules, super keyword, preventing inheritance: final classes and methods, the object class and its methods; Polymorphism: dynamic binding, method overriding, abstract classes and methods;

Module-3

INTERFACES AND PACKAGES: Interface: Interfaces VS Abstract classes, defining an interface, implement interfaces, accessing implementations through interface references, extending interface; Packages: Defining, creating and accessing a package, understanding CLASSPATH, importing packages.

Module-4

EXCEPTION HANDLING: Exception Handling: Benefits of exception handling, the classification of exceptions , exception hierarchy, checked exceptions and unchecked exceptions, usage of try, catch, throw, throws and finally, rethrowing exceptions, exception specification, built in exceptions, creating own exception sub classes.

Module-5

GUI PROGRAMMING AND APPLETS: GUI Programming with Java: The AWT class hierarchy, introduction to swing, swings Vs AWT, hierarchy for swing components.Containers: JFrame, JApplet, JDialog, Jpanel, overview of some swing components: JButton, JLabel, JTextField, JTextArea, simple applications.Layout management: Layout manager types, border, grid and flow. Applets: Inheritance hierarchy for applets, differences between applets and applications, life cycleof an applet, passing parameters to applets.

Suggested Learning Resources:

Text Books:

1. Herbert Schildt and Dale Skrien, "Java Fundamentals – A comprehensive Introduction", McGraw Hill, 1st Edition,2013.
2. Herbert Schildt, "Java the complete reference", McGraw Hill, Osborne, 7th Edition, 2011.
3. T.Budd, "Understanding Object- Oriented Programming with Java", Pearson Education, Updated Edition (New Java 2 Coverage), 1999.

Reference books:

1. P.J.Dietel and H.M.Dietel , "Java How to program", Prentice Hall, 6th Edition, 2005.
2. P.Radha Krishna , "Object Oriented programming through Java", CRC Press, 1 st Edition, 2007.

S.Malhotra and S. Choudhary, "Programming in Java", Oxford University Press, 2nd Edition, 2014 .

3. Software Engineering

Course Code	**22MCA23**	CIE Marks	50

Module-1

Introduction: Software Crisis, Need for Software Engineering. Professional Software Development, Software Engineering Ethics. Case Studies. Software Processes: Models: Waterfall Model (Sec 2.1.1), Incremental Model (Sec 2.1.2) and Spiral Model (Sec 2.1.3). Process activities. Requirements Engineering: Requirements Engineering Processes (Chap 4). Requirements Elicitation and Analysis (Sec 4.5). Functional and non-functional requirements (Sec 4.1). The software Requirements Document (Sec 4.2). Requirements Specification (Sec 4.3). Requirements validation (Sec 4.6).
Requirements Management (Sec 4.7). RBT: L1, L2, L3

Module-2

What is Object orientation? What is OO development? OO Themes; Evidence for usefulness of OO development; OO modelling history. Modelling as Design technique: Modelling; abstraction; The Three models. Introduction, Modelling Concepts and Class Modelling: What is Object orientation? What is OO development? OO Themes; Evidence for usefulness of OO development; OO modelling history. Modelling as Design technique: Modelling; abstraction; The Three models. Class Modelling: Object and Class Concept; Link and associations concepts; Generalization and Inheritance; A sample class model; Navigation of class models; Textbook 2: Ch 1,2,3. RBT: L1, L2 L3

Module-3

System Models: Context models (Sec 5.1). Interaction models (Sec 5.2). Structural models (Sec 5.3). Behavioral models (Sec 5.4). Model-driven engineering (Sec 5.5). Design and Implementation: Introduction to RUP (Sec 2.4), Design Principles (Chap 7). Object-oriented design using the UML (Sec 7.1). Design patterns (Sec 7.2). Implementation issues (Sec 7.3). Open source development (Sec 7.4). RBT: L1, L2, L3

Module-4

Software Testing: Development testing (Sec 8.1), Test-driven development (Sec 8.2), Release testing (Sec 8.3), User testing (Sec 8.4). Test Automation (Page no 212). Software Evolution: Evolution processes (Sec 9.1). Program evolution dynamics (Sec 9.2). Software maintenance (Sec 9.3). Legacy system management (Sec 9.4). RBT: L1, L2, L3

Module-5

Project Planning: Software pricing (Sec 23.1). Plan-driven development (Sec 23.2). Project scheduling (Sec 23.3): Estimation techniques (Sec 23.5). Quality management: Software quality (Sec 24.1). Reviews and inspections (Sec 24.3). Software measurement and metrics (Sec 24.4). Software standards (Sec 24.2) RBT: L1, L2, L3

Suggested Learning Resources:

Text Books:

1. Ian Sommerville: Software Engineering, 9th Edition, Pearson Education, 2012. (Listed topics only from Chapters1,2,3,4, 5, 7, 8, 9, 23, and 24)
2. Michael Blaha, James Rumbaugh: Object Oriented Modelling and Design with UML,2nd Edition, PearsonEducation,2005.

Reference books:

1. Roger S. Pressman: Software Engineering-A Practitioners approach, 7th Edition, Tata McGraw Hill.
Pankaj Jalote: An Integrated Approach to Software Engineering, Wiley India

4. Web Technologies

Course Code	22MCA24	CIE Marks	50

MODULE-1

Web browsers, web servers, MIME, URL, HTTP Introduction to XHTML5 tags, Basic syntax and structure, text markups, images, lists, tables,progress, Media tags-audio and video ,forms, frames.

MODULE-2

Introduction to CSS, Levels of CSS, Selectors, Font, color and Text Properties, BOX Model, Span and Div tags. Introduction to Javascript, controls statements, Arrays and functions, pattern matching, Element Access, Event Handling.

MODULE-3

Introduction to Bootstrap, First example, containers, Bootstrap elements: colors, tables, images, buttons, button groups, progress bars, Forms, utilities, Classes, alerts, custom forms, Grid System.

MODULE-4

Introduction to JQuery, Syntax, selectors, events, JQuery HTML, JQuery Effects, JQuery CSS.

MODULE 5

Introduction to Angular JS, Directives, Expressions, Directives, Controllers, Filters, Services, Events, Forms,Validations, Examples.

PRACTICAL COMPONENT OF IPCC *(May cover all / major modules)*

Sl.NO	Experiments
1	Create an XHTML page that provides information about your department. Your XHTML page must use the following tags: a) Text Formatting tags b) Horizontal rule c) Meta element d) Links e) Images f) Tables(Use of additional tags encouraged).
2	Develop and demonstrate the usage of inline, external and internal style sheet using CSS. Use XHTMLpage that contains at least three paragraphs of text, listed elements and a table with four rows and four columns.
3	Develop and demonstrate a XHTML file that includes Javascript script for the following problems: a) Input : A number n obtained using prompt Output : The first n Fibonacci numbers b) Input : A number n obtainedusing prompt Output : A table of numbers from 1 to n and their squares using alert
4	Develop, test and validate an XHTML document that has checkboxes for apple (59 cents each), orange (49 cents each), and banana (39 cents each) along with submit button. Each check boxes should have its own onclick event handler. These handlers must add the cost of their fruit to a total cost. An event handler for the submit button must produce an alert window with the message 'your total cost is $xxx', where xxx is the total cost of the chose fruit, including 5 percent sales tax. This handler must return 'false' (to avoid actual submission of the form data). Modify the document to accept quantity for each item using textboxes.
5	Develop and demonstrate a HTML file which includes JavaScript that uses functions for the followingproblems: a. Parameter: A string Output: The position in the string of the left-most vowel. b. Parameter: A number Output: The number with its digits in the reverse order.
6	Develop and demonstrate, using JavaScript script, a XHTML document that contains three short paragraphs of text, stacked on top of each other, with only enough of each showing so that the mouse cursor can be placed over some part of them. When the cursor is placed over the exposed part of any paragraph, it should rise to the top to become completely visible. Modify the above document so that when a text is moved from the top stacking position, it returns to its original position rather than to the bottom

Suggested Learning Resources:

Text Books

1. Web Programming By Chris Bates , Wiley Publications
2. HTML5 Black Book by Dreamtech
3. Angular JS By Krishna Rungta
4. Bootstrap essentials by Snig by Packt-open source

5. Data Mining and Business Intelligence

Course Code	22MCA252	CIE Marks	50

Module-1

Overview and concepts Data Warehousing and Business Intelligence: Why reporting and Analysing data, Raw data to valuable information-Lifecycle of Data - What is Business Intelligence - BI and DW in today's perspective - What is data warehousing - The building Blocks: Defining Features - Data warehouses and data 1marts - Overview of the components - Metadata in the data warehouse - Need for data warehousing - Basic elements of data warehousing - trendsin data warehousing. The Architecture of BI and DW BI and DW architectures and its types - Relation between BI and DW - OLAP (Online analytical processing) definitions - Difference between OLAP and OLTP - Dimensional analysis - What are cubes? Drill-down and roll-up - slice and dice or rotation - OLAP models - ROLAP versus MOLAP - defining
schemas: Stars, snowflakes and fact constellations.

Module-2

Introduction to data mining (DM): Motivation for Data Mining - Data Mining-Definition and Functionalities – Classification of DM Systems - DM task primitives - Integration of a Data Mining system with a Database or a Data Warehouse - Issues in DM – KDD Process Data Pre-processing:Why to pre-process data? - Data cleaning: Missing Values, Noisy Data - Data Integration and transformation - Data Reduction: Data cube aggregation, Dimensionality reduction - Data Compression - Numerosity Reduction - Data Mining Primitives - Languages and System Architectures: Task relevant data - Kind of Knowledge to be mined - Discretization and Concept Hierarchy.

Module-3

Concept Description and Association Rule Mining What is concept description? - Data Generalization and summarization-based characterization - Attribute relevance - class comparisons Association Rule Mining: Market basket analysis - basic concepts - Finding frequent item sets: Apriori algorithm - generating rules – Improved Apriori algorithm
– Incremental ARM – Associative Classification – Rule Mining.

Module-4

Classification and prediction: What is classification and prediction? – Issues regarding Classification and prediction: Classification methods: Decision tree, Bayesian Classification, Rule based, CART, Neural Network Prediction methods: Linear and nonlinear regression, Logistic Regression. Introduction of tools such as DB Miner /WEKA/DTREG DM
Tools.

Module-5

Data Mining for Business Intelligence Applications: Data mining for business Applications like Balanced Scorecard,Fraud Detection, Click stream Mining, Market Segmentation, retail industry, telecommunications industry, banking &
finance and CRM etc., Data Analytics Life Cycle: Introduction to Big data Business Analytics - State of the practice inanalytics role of data scientists Key roles for successful analytic project - Main phases of life cycle - Developing core
deliverables for stakeholders.

Suggested Learning Resources:

Text Books:

1. J. Han, M. Kamber, "Data Mining Concepts and Techniques", Morgan Kaufmann
2. M. Kantardzic, "Data mining: Concepts, models, methods and algorithms, John Wiley &Sons Inc.
3. PaulrajPonnian, "Data Warehousing Fundamentals", John Willey.
4. M. Dunham, "Data Mining: Introductory and Advanced Topics", Pearson Education.

G. Shmueli, N.R. Patel, P.C. Bruce, "Data Mining for Business Intelligence: Concepts, Techniques, and Applications inMicrosoft Office Excel with XLMiner", Wiley India

6. User Interface Design

Course Code	**22MCA254**	CIE Marks	50

Module-1

Introduction: Usability of Interactive Systems: Introduction, Usability Goals and Measures, Usability Motivation, Universal Usability, Goals for our profession. Guideline, principles, and theories: Introduction, Guidelines, principles, Theories

Module-2

Development Processes: Managing Design Processes: Introduction, Organizational Design to support Usability, The Four Pillars of Design, Development methodologies: Ethnographic Observation, Participatory Design, Scenario Development, Social Impact statement for Early Design Review, Legal Issues.

Module-3

Evaluating Interface: Design Introduction, Expert Reviews, Usability Testing and Laboratories, Survey Instruments, Acceptance tests, Evaluation during Active Use, Controlled Psychologically Oriented Experiments

Module-4

Direct Manipulation and Virtual Environments: Introduction, Examples of Direct Manipulation, Discussion of direct manipulation, 3D Interfaces, Tele-operation, Virtual and Augmented Reality Menu Selection, Form Filling and Dialog Boxes: Introduction, Task-Related Menu Organization, Single Menus, Combination of Multiple Menus, Content Organization, Fast Movement Through Menus, Data Entry With Menus, Form Filling, Dialog Boxes and Alternatives, Audio Menus and Menus for Small Displays

Module-5

Command and Natural Languages Introduction, Command-organization functionality strategies and structure, Naming and Abbreviations, Natural Language in computing. Interaction Devices: Introduction, Keyboards and Keypads, Pointing Devices, Speech and Auditory interfaces, Displays-Small and Large

Suggested Learning Resources:

Text Books:

1. BenShneiderman, Plaisant, Cohen, Jacobs: Designing the User Interface, 5th Edition, Pearson ,Education, 2010.

Reference books:

2. Alan Dix, Janet Finalay, Gregory D AbiwdmRusselBealel: Human-Computer Interaction, III Edition, Pearson , Education, 2008.
3. Eberts: User Interface Design, Prentice Hall, 1994 3 Wilber O Galitz: The Essential Guide to User Interface Design- An Introduction to GUI Design, Principles and Techniques, Wiley-Dreamtech India Pvt Ltd, 2011

7. Mobile Application Development

Course Code	22MCA263	CIE Marks	50

Course Learning objectives:

- Programming technologies, design and development related to mobile applications.
- Topics include accessing device capabilities, industry standards, operating systems, and programming for mobile applications using an OS Software Development Kit (SDK).
- Upon completion, students should be able to create basic applications for mobile devices.

Module-1

Introduction to mobile communication and computing: Introduction to mobile computing, Novel applications, limitationsand GSM architecture, Mobile services, System architecture, Radio interface, protocols, Handover and security. Smart phone operating systems and smart phones applications.

Module-2

Fundamentals of Android Development: Introduction to Android., The Android 4.1 Jelly Bean SDK, Understanding the Android Software Stack, Installing the Android SDK, Creating Android Virtual Devices, Creating the First Android Project, Using the Text View Control, Using the Android Emulator.

Module-3

The Intent of Android Development, Four kinds of Android Components: Activity, Service, Broadcast Receiver and Content Provider. Building Blocks for Android Application Design, Laying Out Controls in Containers. Graphics andAnimation: Drawing graphics in Android, Creating Animation with Android's Graphics API.

Module-4

Creating the Activity, working with views: Exploring common views, using a list view, creating custom views, understanding layout. Using Selection Widgets and Debugging Displaying and Fetching Information Using Dialogs and Fragments. Multimedia: Playing Audio, Playing Video and Capturing Media. Advanced Android Programming: Internet, Entertainment, and Services.

Module-5

Displaying web pages and maps, communicating with SMS and emails. Creating and using content providers: Creatingand consuming services, publishing android applications.

Suggested Learning Resources:

Text Books:

1. Mobile Computing: (technologies and Applications N. N. Jani S chand 2 Android programming B.M.Hirwani Pearson publications 2013
2. Android in Action W. Frank Ableson, RobiSen and C. E. Ortiz DreamTech Publisher Third Edition-2012

Reference books:

3. Android Application development James C. Sheusi Cengage learning 2017

8. Java Programming Laboratory

Course Code	**22MCAL28**	CIE Marks	50
Teaching Hours/Week (L:P: SDA)	0:3:0	SEE Marks	50
Credits	1.5	Exam Hours	03

Course objectives:

- Using java programming to develop programs for solving real-world problems.
- Reinforce the understanding of basic object-oriented programming concepts.

	Experiments
1	Write a Java program to print the following triangle of numbers 1 1 2 1 2 3 1 2 3 4 1 2 3 4 5
2	Write a Java program to list the factorial of the numbers 1 to 10. To calculate the factorial value, use while loop.(Hint Fact of 4 = 4*3*2*1)
3	Write a Java program • To find the area and circumference of the circle by accepting the radius from the user. • To accept a number and find whether the number is Prime or not
4	Write a Java program to demonstrate a division by zero exception
5	Write a Java program to implement Inner class and demonstrate its Access protection.
6	Write a Java program to demonstrate Constructor Overloading and Method Overloading.
7	Write a JAVA program to demonstrate Inheritance. Simple Program on Java for the implementation of Multiple inheritance using interfaces to calculate the area of a rectangle and triangle.
8	Write a Java applet program, which handles keyboard event.
	Demonstration Experiments (For CIE) if any
9	Write a Java Program to create a window when we press ✓ M or m the window displays Good Morning ✓ A or a the window displays Good After Noon ✓ E or e the window displays Good Evening ✓ N or n the window displays Good Night
10	Write a Java program to implement a Queue using user defined Exception Handling (also make use of throw, throws). a. Complete the following: b. Create a package named shape. c. Create some classes in the package representing some common shapes like Square, Triangle, and Circle. d. Import and compile these classes in other program.

9. DBMS Laboratory

Course Code	**22MCAL27**	CIE Marks	50
Teaching Hours/Week (L:P: SDA)	0:3:0	SEE Marks	50
Credits	1.5	Exam Hours	03

Course objectives:

- Create SQL queries for the small projects.
- Create database objects that include tables, constraints, indexes, and sequences.

Sl.NO	Experiments
1	Create the following tables with properly specifying Primary keys, Foreign keys and solve the following queries.BRANCH (Branchid, Branchname, HOD) STUDENT (USN, Name, Address, Branchid, sem) BOOK (Bookid, Bookname, Authorid, Publisher, Branchid)AUTHOR (Authorid, Authorname, Country, age) BORROW (USN, Bookid, Borrowed_Date) Execute the following Queries: i.List the details of Students who are all studying in 2nd sem MCA.ii.List the students who are not borrowed any books. iii. Display the USN, Student name, Branch_name, Book_name, Author_name, Books_Borrowed_Date of 2ndsem MCA Students who borrowed books. iv. Display the number of books written by each Author. v.Display the student details who borrowed more than two books. vi.Display the student details who borrowed books of more than one Author.vii.Display the Book names in descending order of their names. viii.List the details of students who borrowed the books which are all published by the same publisher.
2	Consider the following schema: STUDENT (USN, name, date_of_birth, branch, mark1, mark2, mark3, total, GPA) Execute the following queries: i. Update the column total by adding the columns mark1, mark2, mark3. ii. Find the GPA score of all the students. iii. Find the students who born on a particular year of birth from the date_of_birth column. iv. List the students who are studying in a particular branch of study. v. Find the maximumGPA score of the student branch-wise. vi. Find the students whose name starts with the alphabet "S". vii. Findthe students whose name ends with the alphabets "AR". viii. Delete the student details whose USN is given as 1001
3	Design an ER-diagram for the following scenario, Convert the same into a relational model and then solve the following queries. Consider a Cricket Tournament "ABC CUP" organized by an organization. In the tournament there are many teams are contesting each having a Teamid,Team_Name, City, a coach. Each team is uniquely identified by using Teamid. A team can have many Players and a captain. Each player is uniquely identified by Playerid, having a Name, and multiple phone numbers,age. A player represents only one team. There are many Stadiums to conduct matches. Each stadium is identified using Stadiumid, having a stadium_name,Address (involves city,area_name,pincode). A team can play many matches. Each match played between the two teams in the scheduled date and time in the predefined Stadium. Each match is identified uniquely by using Matchid. Eachmatch won by any of the one team that also wants to record in the database. For each match man_of_the match award given to a player. Execute the following Queries: i. Display the youngest player (in terms of age) Name, Team name, age in which he belongs of the tournament. ii. List the details of the stadium where the maximum number of matches were played. iii. List the details of the player who is not a captain but got the man_of _match award at least in two matches. iv. Display the Team details who won the maximum matches. v. Display the team name where all its won matches played in the same stadium.

4	A country wants to conduct an election for the parliament. A country having many constituencies. Each constituency is identified uniquely by Constituency_id, having the Name, belongs to a state,Number_of_voters. A constituency can have many voters. Each voter is uniquely identified by using Voter_id, having the Name, age, address (involves Houseno,city,state,pincode). Each voter belongs to only one constituency. There are many candidates contesting in the election. Each candidates are uniquely identified by using candidate_id, having Name, phone_no, age, state. A candidate belongs to only one party.Thereare many parties. Each party is uniquely identified by using Party_id, having Party_Name,Party_symbol. A candidate can contest from many constituencies under a same party. A party can have many candidates contesting from different constituencies. No constituency having the candidates from the same party. A constituency can have many contesting candidates belongs to different parties. Each voter votes only one candidate of his/her constituencty. Queries: i. List the details of the candidates who are contesting from more than one constituencies which are belongs to different states. ii. Display the state name having maximum number of constituencies. iii. Create a stored procedure to insert the tuple into the voter table by checking the voter age. If voter's age is at least 18 years old, then insert the tuple into the voter else display the "Not an eligible voter msg". iv. Create a stored procedure to display the number_of_voters in the specified constituency. Where the constituency name is passed as an argument to the stored procedure. v. Create a TRIGGER to UPDATE the count of " Number_of_voters" of the respective constituency in "CONSTITUENCY" table , AFTER inserting a tuple into the "VOTERS" table.
5	Design an ER-diagram for the following scenario, Convert the same into a relational model, normalize Relations into a suitable Normal form and then solve the following queries. A country can have many Tourist places . Each Tourist place is identified by using tourist_place_id, having a name, belongs to a state, Number of kilometers away from the 02.03.2021 updated 52/ 104 capital city of that state,history. There are many Tourists visits tourist places every year. Each tourist is identified uniquely by using Tourist_id, having a Name, age, Country and multiple emailids. A tourist visits many Tourist places, it is also required to record the visted_date in the database. A tourist can visit a Tourist place many times at different dates. A Tourist place can be visited by many tourists either in the same date or at different dates. Queries: i. List the state name which is having maximum number of tourist places. ii. List details of Tourist place where maximum number of tourists visited. iii. List the details of tourists visited all tourist places of the state "KARNATAKA". iv. Display the details of the tourists visited at least one tourist place of the state, but visited all states tourist places. v. Display the details of the tourist place visited by the tourists of all country.
	Demonstration Experiments (For CIE) if any
6	Consider the following database of student enrollment in courses and books adopted for each course.STUDENT (regno#: string, name: string, major: string, bdate: date) COURSE (course#: int, cname: string, dept: String) TEXT (book_ISBN#: int, book_title: string, publisher: string, author: string)ENROLL (regno#: string, course#: int, sem: int, marks: int) BOOK_ADOPTION (course#: int, sem: int, book_ISBN: int) 1) Create the above tables by properly specifying the primary keys and the foreign keys 2) Enter at least 7 to 10 records to each table. Execute SQL queries for the following requirements: 3) List out the student details, and their course details. The records should be ordered in a semester wise manner. 4) List out the student details under a particular department whose name is ordered in a semester wise 5) List out all the book details under a particular course 6) Find out the Courses in which number of students studying will be more than 2. 7) Find out the Publisher who has published more than 2 books. 8) Find out the authors who have written book for I semester, computer science course. 9) List out the student details whose total number of months starting from their date of birth is more than 225 10) Find out the course name to which maximum number of students have joined

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