

DMAD-1-01T: Introduction Mobile Architecture

Total Marks: 100
External Marks: 70
Internal Marks: 30
Credits: 6
Pass Percentage: 40%

Course: Introduction Mobile Architecture	
Course Code: DMAD-1-01T	
Course Outcomes (COs) After the completion of this course, the students will be able to:	
CO1	Gain a foundational understanding of major mobile platforms (iOS, Android) and their architecture, including the key components and frameworks that enable mobile application development.
CO2	Learn the fundamental principles of designing mobile applications, considering factors such as user interface (UI), user experience (UX), and responsiveness across different devices.
CO3	Acquire knowledge of cross-platform development frameworks (e.g., React Native, Flutter) and understand how to create mobile applications that can run on multiple platforms with a single codebase.
CO4	Develop an awareness of mobile security concerns and best practices, including data encryption, secure authentication, and protection against common mobile app vulnerabilities.
CO5	Learn how mobile applications interact with backend services, including the use of APIs (Application Programming Interfaces) and understanding the role of backend architecture in supporting mobile functionality.

Detailed Contents:

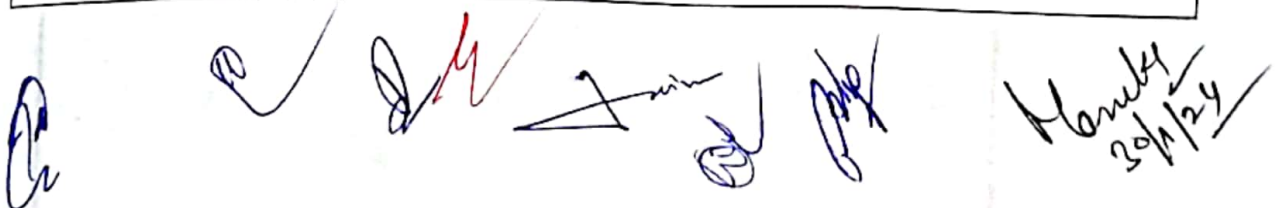
Module	Module Name	Module Contents
Module I	Introduction to Mobile App	Introduction to Mobile App, Objectives of Mobile App, Considerations and Challenges for Mobile App, PC Based Applications, Web Based Applications, Evolution of Mobile Based Apps, Comparison of Mobile App with Web Application, Content and Protocol in Mobility, Trends in Mobility Space, Mobile App Platforms
Module II	Components of a Mobile Application	Components of a Mobile Application: Architecture of a Mobile Application, Architecture of a native Mobile App, Architecture of a hybrid Mobile App, Architecture of a Mobile Web App, Components of a Mobile Client Application, Components of Mobile Support Infrastructure, End to End Case Study of Android Mobile Architecture, Basics of Mobile Application Design: Design

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		Considerations, User Interface Design for Mobile Apps, Deployment, Power Usage, Synchronization, Patterns and Design Elements, Security Standards and Best Practices, Mobile App Testing
Module III	Introduction to Mobile Operating Systems	Introduction to Mobile Operating Systems: Basic Functions of an Operating System, Mobile Operating Systems: Layer 0, Layer 1, Layer 2, Architecture of Android, Knowing the Operating System of a Mobile Phone, Discontinued Mobile Operating Systems, Existing Mobile Operating Systems, Types of Mobile Operating Systems, Basics of Android: Objectives, Interface, Applications, Memory Management, Virtual Reality
Module IV	Basics of iOS	Basics of iOS: Objectives, Accessibility, Multitasking, Siri, Setting up Siri, Launching Siri, Game Center, Basics of Windows Mobile: Evolution of Windows Phone, Features of Windows Phone, Virtual Private Networking, Windows Phone 7, Windows Phone, Windows 10 Mobile
Module V	Mobile Processors	Mobile Processors, ARM Processors, Features of ARM processor, ARM architecture, x86 Processors, Basic Design of x86 Processor, Instruction Execution Cycle, Differences Between x86 and ARM Processors, Memory in a Mobile Phone: Volatile Memory, Non-Volatile Memory, Memory Card, ROM, Flash Memory, Differences between NOR and NAND flash memories
Module VI	Sensors	Sensors: Gyroscope, Accelerometer, Types of Accelerometer, Specification of an Accelerometer, Output of an Accelerometer, Applications of an Accelerometer, Compass, Proximity Sensor, Input-Output: Display, Camera, Speakers, Active Speakers, Passive Speakers, Microphones, Types of Microphones, Native Development Tools: Native Development Tools: Development Tools for Android, Android Studio, Eclipse IDE, Development Tools for iOS, Xcode, Swift, Development Tools for Windows Based Mobiles, C#, XAML

Books

1. Brian Fling "Mobile Design and Development: Practical concepts and techniques for creating mobile sites and web apps", O'Reilly
2. Jim O'Donnell "Mobile Architecture: Patterns and Components for Enterprise Mobile Applications"



3. David Thiel and Rich Mogull "iOS Application Security: The Definitive Guide for Hackers and Developers"
4. Bill Phillips and Chris Stewart "Android Programming: The Big Nerd Ranch Guide", Big Nerd Ranch Guides
5. Nader Dabit "React Native in Action", Manning

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DMAD-1-02T: Java Programming

Total Marks: 100
 External Marks: 70
 Internal Marks: 30
 Credits: 6
 Pass Percentage: 40%

Course: Java Programming	
Course Code: DMAD-1-02T	
Course Outcomes (COs)	
After the completion of this course, the students will be able to:	
CO1	Mastery of core Java principles, encompassing variables, data types, control structures, and the application of object-oriented programming concepts to address diverse programming challenges.
CO2	Competency in crafting Java applications, involving the creation of modular, well-structured code, effective exception handling, and the implementation of efficient data structures and algorithms to address practical scenarios.
CO3	Strong debugging skills, including the identification and resolution of errors within Java code, an understanding of common programming pitfalls, and the application of effective troubleshooting methods to enhance program reliability.
CO4	Exploration of advanced Java topics such as multithreading, networking, file input/output, and database connectivity. Proficiency in utilizing Java's standard libraries and APIs, demonstrating competence in areas such as working with collections, managing network interactions, and connecting to databases.
CO5	Acquisition of collaborative software development skills, encompassing experience with version control systems like Git, adherence to established coding standards, and the cultivation of effective documentation habits. Capability to contribute effectively to team-based Java projects.

Detailed Contents:

Module	Module Name	Module Contents
Module I	Fundamental of Java	Java and the Internet: The Java programming language and its characteristics; Java development kit, Java run- time environment; Java compiler. Fundamentals of Java: Java Vs. C++, Byte Code, Java Virtual Machine, constants, variables, data types, operators, expressions, control structures, defining class, creating objects, accessing class members, constructors, Garbage Collection, method overloading.
Module II	Inheritance	Inheritance: Different types of Inheritance,

		member access, using super keyword to call super class constructors, creating a multilevel hierarchy, method overriding, dynamic method dispatch, using abstract classes, using Final keyword.
Module III	I/O Basics	I/O Basics: streams, the predefined streams; Reading console Input, Writing console Output. Arrays and Strings: One-dimensional and two-dimensional Arrays, String Handling using String and String Buffer class, String Functions
Module IV	Packages and Exception Handling	Packages: Types of packages, defining a package, importing packages, Access protection Interfaces: Defining an Interface, Implementing Interfaces, Variables in Interfaces, achieving multiple inheritance using interfaces, Interface and Abstract classes.
Module V	Exception Handling	Exception Handling: Java Exception handling model, Types of exception, using Try and catch, Multiple Try and Catch clauses, Nested Try statements, finally block, user defined exceptions.
Module VI	Multithread and Applet Programming	Multi-threaded Programming: The Java Thread model, the Thread class and Runnable interface, creating a Thread using Runnable Interface and extending Thread, Creating Multiple Threads, Thread Priorities, Synchronizations: Methods, Statements, Inter Thread Communication, Deadlock, Suspending, Resuming and Stopping Threads. Applet Programming: Introduction, Types of applet, Life Cycle, incorporating an applet into web page using Applet Tag, running applets, using Graphics class and its methods to draw lines, rectangles, circles, ellipses, arcs and polygons

Books

1. Balaguruswamy, E., "Programming with Java", A Primer, TMH, New Delhi, Latest reprint
2. Bayross, Ivan, "Java 2", BPB publication
3. Schildt, Herbert, "The Complete Reference Java 2", TMH.

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DMAD-1-03T: Introduction to Android

Total Marks: 100
 External Marks: 70
 Internal Marks: 30
 Credits: 4
 Pass Percentage: 40%

Course: Introduction to Android	
Course Code: DMAD-1-03T	
Course Outcomes (COs)	
After the completion of this course, the students will be able to:	
CO1	Gain proficiency in Android app development, understanding the Android Studio development environment, Java or Kotlin programming languages, and the fundamental concepts of building Android applications.
CO2	Develop skills in designing user interfaces (UI) for Android applications, adhering to Android's design principles and guidelines to create visually appealing and user-friendly experiences.
CO3	Understand the process of deploying Android applications on the Google Play Store, including the necessary steps for app submission, review, and updates.
CO4	Learn to integrate and utilize various Android APIs and features, such as location services, camera access, notifications, and other functionalities to enhance the capabilities of Android applications.
CO5	Gain a comprehensive understanding of the Android ecosystem, including the Android OS architecture, application lifecycle, and how apps interact with the underlying system and hardware.

Detailed Contents:

Module	Module Name	Module Contents
Module I	Introduction to Android	Introduction to Android: Android as a popular mobile platform, History of Android, Evolution of Android, Features of Android, Comparison of mobile Operating systems, Devices that run Android as the Operating System, Categories of Android applications Android Architecture: Introduction, Android Architecture, Android Architecture, Types of mobile applications, Application Fundamentals
Module II	Activity lifecycle	Activity lifecycle: Introduction, what is an Activity in Android? Android Application Fundamentals, what are the Android process states? Android Development Environment: Introduction, Reasons for Android Development, Android Development Platforms, Features and Tools, Configuring Android Development Environment, Setting Up



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		Android Development Environment, Install Android for Windows 10
Module III	Integrating Multimedia	Integrating Multimedia: Introduction to Multimedia, Audio and video integration into Android Application Development, Multimedia for Android Interactive Application Development, Camera functions in Android Application Development, Supported Media Formats, Saving Data on Android Devices: Android Storage Options, Shared Preferences, Internal Storage, External Storage, Saving data in SQLite databases
Module IV	Connectivity and the cloud	Connectivity and the cloud: Connecting devices wirelessly, performing network operations, Considerations when transferring data, syncing to the cloud with information delivery models, Push Notification, publish to Android Market: How can you obtain an Android Application? App Stores, Revenue Models, Google Play, Process of Publishing an Android Application, Performance Profiling, Android Monitor Overview, Android Monitor Basics, Profiling a Running App in Android Monitor, How Android Manages Memory, Battery Analysis, Optimizing Battery Analysis, Security: Security Concerns of an Android Application, Security Provided by the OS, Information Leakage, Device Management Policies

Books

1. Dawn Griffiths and David Griffiths, "Head First Android Development", Shroff/O'Reilly
2. Bill Phillips and Chris Stewart, "Android Programming: The Big Nerd Ranch Guide", Big Nerd Ranch Guides
3. Neil Smyth, "Android Studio 4.0 Development Essentials - Kotlin Edition", O'Reilly Media
4. Michael Burton and Donn Felker, "Android App Development for Dummies", For Dummies
5. John Horton, "Android Programming for Beginners", Packt Publishing

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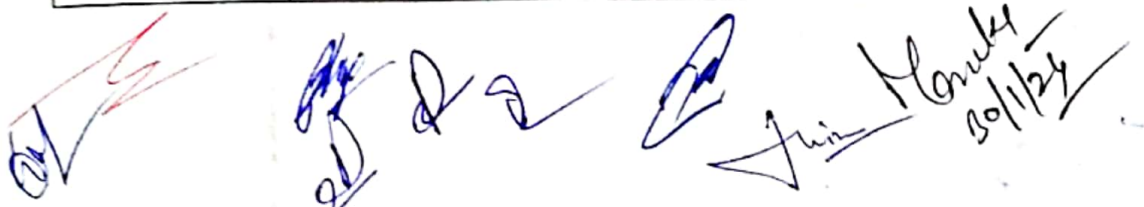
DMAD-1-02P: Java Programming Lab

Total Marks: 50
External Marks: 35
Internal Marks: 15
Credits: 2
Pass Percentage: 40%

Course: Java Programming Lab	
Course Code: DMAD-1-02P	
Course Outcomes (COs)	
After the completion of this course, the students will be able to:	
CO1	Develop the ability to apply these fundamentals in creating well-structured and readable code.
CO2	Acquire the skills to proficiently design and build Java.
CO3	Hone the art of debugging by mastering techniques to identify and rectify errors in Java code.
CO4	Develop a working knowledge of Java's extensive set of standard libraries and APIs.
CO5	Cultivate the skills necessary for collaborative software development. This involves working seamlessly within a team using version control systems like Git, adhering to coding standards, documenting code effectively, and embracing best practices. The goal is to produce software that is not only functional but also maintainable and scalable over time.

Detailed List of Programs:

Programme No.	Name of Program
P1	Write a simple program that prints "Hello, World!" to the console.
P2	Take two numbers as input and display their sum.
P3	Generate and print the multiplication table for a given number.
P4	Compute the factorial of a given number.
P5	Check whether a given number is prime or not.
P6	Create a program that prints the Fibonacci sequence up to a specified number of terms.
P7	Implement a switch statement to handle different cases based on user input.
P8	Find the largest element in an array.
P9	Write a program to reverse the elements in an array.



P10	Create a program that performs linear search in an array.
P11	Design a class representing a book with attributes like title, author, and publication year.
P12	Implement inheritance by creating a base class and derived class.
P13	Create a simple interface and implement it in a class.
P14	Develop a program that demonstrates the use of try-catch blocks for handling exceptions.
P15	Write a program that reads input from the user and handles input mismatch exceptions.
P16	Read and write data to a text file using Java I/O classes.
P17	Create a program to list all files in a directory.
P18	Implement a simple multithreaded program using the Thread class.

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DMAD-1-03P: Introduction to Android Lab

Total Marks: 50
External Marks: 35
Internal Marks: 15
Credits: 2
Pass Percentage: 40%

Course: Introduction to Android Lab	
Course Code: DMAD-1-03P	
Course Outcomes (COs)	
After the completion of this course, the students will be able to:	
CO1	Attain proficiency in Android app development by gaining hands-on experience in designing, coding, and debugging basic Android applications using the Android Studio IDE.
CO2	Develop expertise in designing visually appealing and user-friendly Android user interfaces (UI), applying Android's design principles, layouts, and widgets effectively.
CO3	Learn to integrate and utilize various device features such as camera, sensors, and location services in Android applications, demonstrating the ability to create feature-rich and interactive mobile apps.
CO4	Acquire strong debugging and troubleshooting skills in the Android development environment, including the use of debugging tools and techniques to identify and fix common issues in Android applications.
CO5	Understand the process of deploying Android applications on physical devices or emulators, and gain proficiency in testing and validating the functionality of Android apps on different devices and screen sizes.

Detailed List of Programs:

Programme No.	Name of Program
P1	Create a simple Android app that displays "Hello, World!" on the screen.
P2	Develop a calculator app that performs basic arithmetic operations like addition, subtraction, multiplication, and division.
P3	Design an app that calculates and displays the tip amount based on the entered bill and tip percentage.
P4	Build an app that converts temperatures between Celsius and Fahrenheit.
P5	Create a simple to-do list app that allows users to add, edit, and delete tasks.
P6	Develop an app that displays a list of images and allows users to view

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	them in a larger format.
P7	Create a flashlight app that turns the device's flashlight on and off.
P8	Design an app that simulates rolling a six-sided die.
P9	Build a Body Mass Index (BMI) calculator app that takes height and weight inputs and calculates the BMI.
P10	Develop a quiz app with multiple-choice questions and provides feedback on the user's answers.
P11	Create an app that converts currencies based on the latest exchange rates.
P12	Build an app that displays a list of contacts and allows users to view details and make calls.
P13	Develop a basic music player app that allows users to play, pause, and skip tracks.
P14	Implement an app that tracks and displays the user's current location using GPS.
P15	Create an app that allows users to take pictures using the device's camera.
P16	Design a simple chat application that allows communication between two devices via Bluetooth.
P17	Build an alarm clock app that allows users to set alarms and receive notifications.
P18	Implement an app that logs data from device sensors, such as accelerometer or gyroscope.
P19	Create an app that recognizes and responds to different touch gestures, such as swipe or pinch.
P20	Build an app that fetches and displays weather information based on the user's location.

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DMAD-2-01T: Introduction to Windows Mobile and IOS

Total Marks: 100
 External Marks: 70
 Internal Marks: 30
 Credits: 4
 Pass Percentage: 40%

Course: Introduction to Windows Mobile and IOS	
Course Code: DMAD-2-01T	
Course Outcomes (COs)	
After the completion of this course, the students will be able to:	
CO1	Gain proficiency in developing mobile applications for both Windows Mobile and iOS platforms, understanding the respective development environments, tools, and programming languages (e.g., C# for Windows Mobile, Swift for iOS).
CO2	Develop skills in designing user interfaces (UI) for both Windows Mobile and iOS applications, considering platform-specific design guidelines and best practices to create intuitive and user-friendly experiences.
CO3	Understand the process of deploying mobile applications on the Windows Mobile Store and Apple App Store, including the submission and review processes for each platform.
CO4	Explore techniques for achieving cross-platform compatibility, either through platform-specific development or by using cross-platform frameworks, allowing the creation of applications that can run on both Windows Mobile and iOS.
CO5	Learn about the lifecycle management of mobile applications on Windows Mobile and iOS, including topics such as app states, background processing, and handling interruptions to create responsive and efficient applications.

Detailed Contents:

Module	Module Name	Module Contents
Module I	Development Environment	Development Environment: Introduction to Visual Studio, Advantages of Using Visual Studio, Setting Up Development Environment, Hello World- First Windows App, Simulators in Windows, Emulators and Debugger
Module II	Introduction to C#	Introduction to C#: Net Framework, C# (C Sharp), Basics of C# language, Keywords, Variable and Datatypes, Operators, Control Statements, Introduction to Classes, Methods, Properties, Constructors and Destructors, Model View Controller (MVC)
Module III	Integrating with Web Services in Windows	Integrating with Web Services in Windows Mobile: Web Services in ASP.NET, Building the



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	Mobile	Web Services, Discovering and Manipulating a Device, Functions, Multi-Threading in Windows Mobile: Drawbacks of Multi-Threading, Thread Synchronization, UI Threads
Module IV	Storage in iOS	Storage in iOS: Introduction, User Defaults /SQLite/Core Data, Usages and Application of Core Data , Integrating with Web Services in iOS: Data Consumption, Functions, Multi-Threading in iOS: Categories of Thread, Multithreading Models, Thread Synchronization, UI Threats, Background Threads Interaction with Camera in iOS: Introduction to Camera, Interaction with Camera Hardware, Image Capturing

Books

1. Matt Neuburg "Programming iOS 14"
2. Matthijs Hollemans "iOS Apprentice"
3. Charles Petzold "Programming Windows® Phone 7"
4. Christian Nagel, Jon D. Reid, et al. "Professional C# 9 and .NET 5"
5. Paris Buttfield-Addison, Jon Manning, and Tim Nugent "Learning Swift: Building Apps for macOS, iOS, and Beyond"

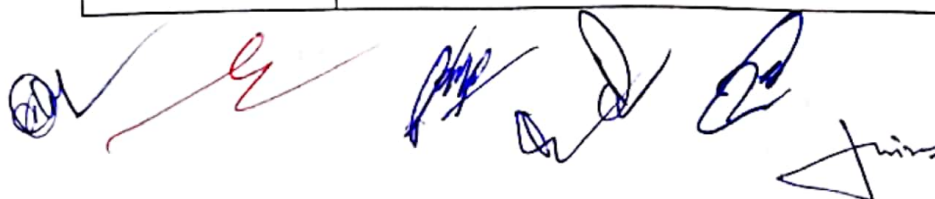
DMAD-2-01P: Introduction to Windows Mobile and IOS Lab

Total Marks: 50
 External Marks: 35
 Internal Marks: 15
 Credits: 2
 Pass Percentage: 40%

Course: Introduction to Windows Mobile and IOS Lab	
Course Code: DMAD-2-01P	
Course Outcomes (COs)	
After the completion of this course, the students will be able to:	
CO1	Attain proficiency in developing mobile applications for both Windows Mobile and iOS platforms, demonstrating the ability to use respective development environments, tools, and programming languages effectively.
CO2	Develop advanced skills in designing user interfaces (UI) for Windows Mobile and iOS applications, adhering to platform-specific design guidelines and creating visually appealing and intuitive user experiences.
CO3	Gain the ability to design and implement applications that run seamlessly on both Windows Mobile and iOS platforms, exploring approaches such as platform-specific development and cross-platform frameworks.
CO4	Learn to integrate and utilize various platform-specific features and functionalities, such as utilizing Windows Mobile and iOS APIs for device-specific capabilities like camera, location services, and notifications.
CO5	Understand the process of deploying mobile applications on the respective app stores (Microsoft Store and Apple App Store), including app submission, review processes, and compliance with store guidelines for both Windows Mobile and iOS.

Detailed List of Programs:

Programme No.	Name of Program
P1	Create a Windows Mobile app that displays a "Hello, Windows!" message.
P2	Develop an app with multiple pages and demonstrate navigation between them using different navigation controls.
P3	Implement a Windows Mobile app that stores and retrieves data using local storage options, such as SQLite or file storage.
P4	Create an app that utilizes the device's camera to capture photos and display them within the application.
P5	Implement a Windows Mobile app that utilizes location services to display the user's current location on a map.



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P6	Develop an iOS app that displays a "Hello, iOS!" message.
P7	Create an app with a table view to display a list of items and demonstrate the delegation pattern for handling interactions.
P8	Implement an iOS app that uses Core Data for persistent storage, allowing users to add, edit, and delete records.
P9	Create an app that allows users to access the device's photo library and select images for display within the application.
P10	Develop an iOS app that utilizes MapKit to display a map with specific locations marked.
P11	Create a cross-platform app using a framework like Xamarin or Flutter, ensuring a responsive design that adapts to different screen sizes.
P12	Implement push notifications in both a Windows Mobile and an iOS app, demonstrating the ability to notify users of events or updates.
P13	Develop a cross-platform app that synchronizes data between the Windows Mobile and iOS versions, ensuring consistency.
P14	Implement offline functionality in both Windows Mobile and iOS apps, allowing users to use certain features without an internet connection.
P15	Create a cross-platform app with in-app purchase functionality, demonstrating the process of integrating and testing purchases.
P16	Explore AR features in both Windows Mobile and iOS apps, implementing a simple AR experience.
P17	Implement biometric authentication (fingerprint or face recognition) in both platforms, enhancing app security.
P18	Enhance the accessibility of your apps by implementing features like VoiceOver (iOS) or Narrator (Windows Mobile).
P19	Create custom animations within your apps to enhance the user interface and overall user experience.
P20	Implement integration with cloud services such as Azure or Firebase in both Windows Mobile and iOS apps, showcasing data synchronization and storage in the cloud.

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		Service Set Identification (SSID), Encryption Methods: Wire Equivalent Privacy, WPA, WPA2, MAC Filtering, Wireless Routers, Creating Wireless Network, WLAN.
Module IV	Investigation Techniques & Cyber Forensics and Cryptography:	Investigation Techniques and Cyber Forensics: Types of Investigation, Evidence and Analysis, Steps for Forensics Investigation, Forensics Tools, Investigation, Common Types of Email Abuse, Tracking Location of Email Sender, Scam or Hoax Emails and Websites, Fake Social Media Profile. Cryptography: Objectives, Type, OS Encryption, Public key Cryptography.

Books

1. Mayank Bhushan, Rajkumar Singh Rathore, Aatif Jamshed, "Fundamentals of Cyber Security", BPB Publications.
2. Nina Godbole, SModule Belapure, "Cyber Security", Wiley.
3. Sanil Nadkarni, "Fundamentals of Information Security", pbb.
4. Mike Chapple, James Michael Stewart, Darril Gibson, "CISSP Certified Information Systems Security Professional Official Study Guide" 9th Ed., SYBEX, A Wiley Brand.
5. William Chuck Easton, "Computer Security Fundamentals", 4th Edition, Pearson.

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DBMS-2-01T: Data Base Management System (DBMS)

Total Marks: 100
External Marks: 70
Internal Marks: 30
Credits: 6
Pass Percentage: 40%

Course: Data Base Management System (DBMS)	
Course Code: DBMS-2-01T	
Course Outcomes (COs)	
After the completion of this course, the students will be able to:	
CO1	Understand the fundamental elements of database management system.
CO2	Understands the three level architecture of DBMS and mapping between these levels.
CO3	Familiar with the hierarchical model, network model, entity relationship model and relational model.
CO4	Acquire knowledge of normalization technique that reduces data redundancy and eliminates undesirable characteristics like Insertion, Update and Deletion Anomalies.
CO5	Apply SQL to solve problems

Detailed Contents:

Module No.	Module Name	Module Contents
Module 1	Introduction of DBMS	Database Approach, Characteristics of a Database Approach, Database System Environment. Roles in Database Environment: Database Administrators, Database Designers, End Users, Application Developers. Database Management Systems: Definition, Characteristics, Advantages of Using DBMS Approach, Classification of DBMSs. Three Level Architecture of DBMS: Database Schema and Database Instance, Mapping Between Different Views, Data Independence-Physical and Logical Data Independence, Difference between logical data independence and physical data independence, Components of a DBMS, Data Dictionary, DBMS Languages.
Module II	Data Models	Classification of Data Model, Hierarchical Model, Network Model, Entity Relationship Model, Database Conceptual Modeling by E-R model: Concepts, Entities and Entity Sets, Attributes, Mapping Constraints, E-R Diagram, Weak Entity Sets, Strong Entity Sets, Comparison between Data Models. Relational Data Model: Concepts and

		Terminology. Constraints: Integrity Constraints, Entity and Referential Integrity constraints, Keys,
Module III	Relational Algebra & Relational Calculus	Relational Algebra: Basic Operators, Additional Operators. Relational Calculus: Tuple Relational Calculus and Domain Relational Calculus, Difference between relational algebra and relational calculus.
Module IV	Normalization	Functional Dependency, Full Functional Dependency, Partial Dependency, Transitive Dependency, Normal Forms- 1NF, 2NF, 3NF, BCNF, Multi-valued Dependency, Join Dependency and Higher Normal Forms-4NF, 5NF.
Module V	Transaction Management & Concurrency Control	Transaction Management and Concurrency Control: ACID Properties. Database Protection: Security Issues, Discretionary Access Control-Granting and Revoking Privileges. Database Concurrency: Problems of Concurrent Databases, Serializability and Recoverability, Concurrency Control Methods- Two Phase Locking, Time Stamping. Deadlock, Database security and integrity, Different Methods of Database Security, Database Recovery: Recovery Concepts, Recovery Techniques-Deferred Update, Immediate Update, Shadow Paging.
Module VI	SQL	Introduction to SQL*PLUS, Data types, Parts of SQL: Data Definition Language, Data Manipulation Language, Data Control Language, and Transaction Control Language. SQL Operators, SQL Functions, Joins, Roll up operation, Cube operation, Nested query, Subquery, View, Disadvantages of SQL.

Books

1. Elmasry Navathe, "Fundamentals of Database System", Pearson Education.
2. James Groff, Paul Weinberg, Andy Oppel, "Oracle SQL Complete Reference", Tata McGraw-Hill.
3. T.Connolly, C Begg, "Database Systems", Pearson Education.
4. Jeffrey D. Ullman, "Principles of Database Systems", Galgotia Publications.
5. Henry F. Korth, A. Silberschhatz, "Database Concepts", Tata McGraw Hill.
6. C. J. Date, "An Introduction to Database Systems", Pearson Education

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ICS-1-02P: Introduction to Cyber Security Lab

Total Marks: 50
External Marks: 35
Internal Marks: 15
Credits: 2
Pass Percentage:
40%

Course Name: Introduction to Cyber Security Lab	
Course Code: ICS-1-02P	
Course Outcomes (COs)	
After the completion of this course, the students will be able to:	
CO 1	Identify and analyze common cyber threats, including malware, phishing attacks, and network vulnerabilities.
CO 2	Apply techniques to detect, mitigate, and respond to various types of cyber threats.
CO 3	Implement security configurations for operating systems, network devices, and applications.
CO 4	Apply ethical hacking techniques to identify and exploit vulnerabilities in controlled environments, emphasizing responsible and legal practices.
CO5	Implement cryptographic techniques for security purpose

Detailed Contents:

S. No.	Name of Experiments
1	How to identify open ports, services, and potential vulnerabilities on target systems.
2	How to scan and enumerate devices on a network using Nmap tool.
3	How to analyse the malware in a controlled environment.
4	Conduct an experiment for phishing simulation to demonstrate common phishing tactics.
5	How to configure a firewall to control incoming and outgoing network traffic.
6	Design and implement the rules to permit or deny specific types of traffic.
7	Design and implement the secure communication using tools like OpenSSL or GPG.
8	Simulate various common password cracking techniques.
9	Study of Computer Forensics and different tools used for forensic investigation
10	How to encrypt and decrypt messages using the chosen algorithm and analyze the

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DBMS-2-01P: Data Base Management System (DBMS) Lab

Total Marks: 50
External Marks: 35
Internal Marks: 15
Credits: 2
Pass Percentage: 40%

Course: Data Base Management System (DBMS) Lab	
Course Code: DBMS-2-01P	
Course Outcomes (COs)	
After the completion of this course, the students will be able to:	
CO1	Implement Basic DDL, DML and DCL commands.
CO2	Understand Data selection and operators used in queries and restrict data retrieval and control the display order.
CO3	Use Aggregate and group functions to summarize data.
CO4	Join multiple tables using different types of joins.
CO5	Implementation of different types of operators in SQL

Detailed List of Programs:

Programme No.	Name of Program
P1	Implementation of DDL commands of SQL with suitable examples <ul style="list-style-type: none">• Create table• Alter table• Drop Table
P2	Implementation of DML commands of SQL with suitable examples <ul style="list-style-type: none">• Insert• Update• Delete
P3	Implementation of different types of function with suitable examples <ul style="list-style-type: none">• Number function• Aggregate Function• Character Function• Conversion Function• Date Function
P4	Implementation of different types of operators in SQL <ul style="list-style-type: none">• Arithmetic Operators• Logical Operators• Comparison Operator• Special Operator• Set Operation

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P5	Implementation of different types of Joins <ul style="list-style-type: none"> • Inner Join • Outer Join • Natural Join etc.
P6	Implementation of <ul style="list-style-type: none"> • Group by & having clause • Order by clause • Indexing
P7	Implementation of <ul style="list-style-type: none"> • Sub queries • Views
P8	Study & Implementation of different types of constraints.
P9	Study & Implementation of Database Backup & Recovery commands. Study & Implementation of Rollback, Commit, Savepoint.
P10	Creating Database /Table Space <ul style="list-style-type: none"> • Managing Users: Create User, Delete User • Managing roles:-Grant, Revoke

Handwritten signatures and initials in blue and red ink. Includes the name "Manu" and the date "30/1/24".