STATISTICAL FOUNDATIONS FOR COMPUTER SCIENCE

Course	B.Tech.-III-Sem.	L	T	P	C
Course Code	22BS31	3	1	-	4

Course Outcomes (COs) & CO-PO Mapping (3-Strong; 2-Medium; 1-Weak Correlation)

COs	Upon completion of course the students will be able to	PO1	PO2	PO12
CO1	explain the concepts of probability and random variables	3	2	1
CO2	illustrate the importance of discrete, continuous and sampling distributions	3	2	1
CO3	use various estimation methods and test hypothesis for large samples	3	2	1
CO4	test hypothesis for small samples and find correlation/regression analysis	3	2	1
CO5	apply the theory of stochastic processes to analyze classification of states	3	2	1

Syllabus

Unit	Title/Topics	Hours
I	**Probability and Random variables**	8
	Introduction, Sample space and events-the axioms of probability-some elementary theorems-conditional probability-Baye's theorem. Random Variables, Mathematical Expectations-Discrete Random Variables and Continuous Random Variables. *Task: Write a program to find mathematical expectations.*	
II	**Distributions**	10
	Basic Definitions, Discrete probability distributions- Binomial distribution, Poisson distribution Continuous probability Distributions-Normal distribution, Applications of Normal distributions Normal approximation to the binomial distribution, Chebyshev's theorem. Sampling distribution of means (σ Known and unknown). *Task: Write a program to find Binomial and Poisson distributions for a given data.*	
III	**Estimation and Testing of Hypothesis-I (large sample)**	6+6=12
	PART-A: Introduction, Point Estimation-inferences concerning means, Interval Estimation-Confidence interval for the mean (σ known and unknown), Bayesian Estimation. *Task: Write a program to find point and interval estimations.*	
	PART-B: Tests of Hypothesis, Large samples, Null hypothesis-Alternate hypothesis, type-I & Type-II errors-critical region confidence interval and test of hypothesis single mean, Difference between the means, confidence interval for the proportions. Tests of hypothesis for the single and difference between the proportions. *Task: Write a program to test the hypothesis for large samples.*	
IV	**Testing of Hypothesis-II (Small samples)**	10
	Test concerning small samples- t-Test, F-Test and Chi-Square (χ^2) - Test for independence of attribute. Correlation and regression: Rank Correlation-coefficient of correlation-Regression coefficient-The lines of regression. *Task: Write a program to test the hypothesis for small samples.*	
V	**Stochastic Processes and Markov Chains**	8
	Introduction to Stochastic processes- Markov process classification of states-Examples of Markov Chains, Stochastic Matrix, limiting probabilities. *Task: Write a program for classification of states of Markov chain.*	
Textbooks		
1. S.C. Gupta and V.K. Kapoor, Fundamentals of Mathematical Statistics, 9th extensively revised edition, S Chand & Sons, 1999. 2. Johnson. R. A., "Miller & Freund's Probability and Statistics for Engineers" 6th Edition, Pearson Education, Delhi, 2000. 3. Probability and statistics by Dr.T.K.V. Iyengar, Dr.B.Krishna Gandhi, S.Ranganatham, Dr.M.V.S.S.N. Prasad. A division of S Chand & Co. Ltd.		
References		
1. Mathematics for engineers and scientists by Alan Jeffrey, 6th Edition, CRC press.		

DIGITAL LOGIC DESIGN AND COMPUTER ORGANIZATION

Course	B.Tech.-III-Sem.	L	T	P	C
Course Code	22ES32	3	-	-	3

Course Outcomes (COs) & CO-PO Mapping (3-Strong; 2-Medium; 1-Weak Correlation)

COs	Upon completion of course the students will be able to	PO1	PO2	PO3	PO6	PO12
CO1	interpret number systems and logical functions using K-Maps	3	3	2	2	2
CO2	design various combinational and sequential circuits	3	3	2	2	3
CO3	illustrate computer components and function of 8086 processor	3	3	2	2	2
CO4	analyze arithmetic operations and I/O operations	3	3	2	2	3
CO5	distinguish various memories and pipelining operations	3	3	2	2	3

Syllabus

Unit	Title/Topics	Hours
I	**Binary System, Boolean algebra and logic gates**	10
	Binary System: Digital Systems, Binary Numbers, Number base conversions, Octal, Hexadecimal numbers, signed binary numbers, complements, floating point representation, binary codes. **Boolean algebra and logic gates**: Basic Definitions, Basic theorems and properties of Boolean algebra, Boolean functions, canonical and standard forms, Digital Logic Gates, The K-Map Method, Three-Variable Map, Four-Variable Map, sum of products, product of sums simplification, don't care conditions, NAND and NOR implementation.	
II	**Combinational and Sequential Circuits**	10
	Combinational Circuits: Design Procedure, Combinational circuit for different code converters, Binary Adder - Subtractor, Decoders, Encoders, Multiplexers and De-Multiplexers. **Sequential circuits:** Synchronous sequential Circuits, Latches, Flip-flops, Registers, ripple counters, synchronous counters, ring counter, Johnson counter.	
III	**Basic Computer Organization & Design and CPU**	4+5=9
	Part-A: Basic Computer Organization and Design: Instruction codes, computer registers, computer instructions, timing and control, instruction cycle, micro program example.	
	Part-B: Central Processing Unit: The 8086 processor architecture, register organization, physical memory organization, general bus operation, instruction formats, addressing modes, 8086 instruction set and assembler directives, Assembly Language Programming (ALP).	
IV	**Computer Arithmetic and Input-Output Organization**	10
	Computer Arithmetic: Introduction, addition and subtraction, multiplication algorithms, division algorithms. **Input-Output Organization:** Peripheral devices, input-output interface, asynchronous data transfer, modes of transfer, priority interrupt, direct memory access, input - output processor.	
V	**Memory and Pipeline Processing**	9
	Memory: Memory hierarchy, RAM, ROM, associative memory, and cache memory. **Pipeline Processing:** Parallel processing, pipelining, arithmetic pipeline, instruction pipeline.	
Textbooks		
1. Digital Design, M. Morris Mano, M.D.Ciletti, 5th Edn., Pearson. 2. Computer System Architecture, M.Morris Mano, 3rd Edn., Pearson. 3. Advanced Microprocessors and Peripherals, K. M. Bhurchandi, A.K Ray, 3rd Edn., TMH.		
References		
1. Fundamentals of Logic Design, C. H. Roth, L. L. Kinney, 7th Edn, Cengage Learning. 2. Microprocessors and Interfacing, D V Hall, SSSP Rao, 3rd Edn, TMH. 3. Carl Hamacher, ZvonkoVranesic, SafwatZaky: Computer Organization, 5th Edn., TMH, 2002.		

SOFTWARE DESIGN AND ENGINEERING

Course	B.Tech.-III-Sem.	L	T	P	C
Course Code	22CSPC31	3	-	-	3

Course Outcomes (COs) & CO-PO Mapping (3-Strong; 2-Medium; 1-Weak Correlation)

COs	Upon completion of course the students will be able to	PO2	PO3	PO8	PO11	PO12	PSO1
CO1	identify & analyze software requirements and prepare SRS	3	3	3	3	3	3
CO2	design a system, component or process to meet the needs	3	3	3	3	3	3
CO3	make use of UML diagrams in software design	3	3	3	3	3	3
CO4	analyze various testing techniques by using various metrics	3	3	3	3	3	3
CO5	adapt risk management strategies to assure software quality	3	2	3	3	3	3

Syllabus

Unit	Title/Topics	Hours
I	**Introduction**	10
	Introduction to Software Engineering: Evolving role of Software, SDLC, Software engineering-A layered technology, The Capability Maturity Model Integration (CMMI), Process Assessment. **Process Models:** The waterfall model, incremental process models, evolutionary process models, the unified process. **Software Requirements:** Functional and Nonfunctional requirements, User requirements, System requirements, the software requirements document. **Requirements Engineering Process:** Feasibility studies, requirements elicitation and analysis, requirements validation, requirements management. *Task: Develop a problem statement.*	
II	**Design**	9
	Design engineering: Design process and design quality, design concepts, the design model, Creating an Architectural Design: Software architecture, data design, architectural styles and patterns, architectural design. **Modeling component-level design & performing user interface design**: Designing Class based components, conducting component level design, Golden rules, user interface analysis and design. *Task: Develop Data Flow Diagram Model.*	
III	**Modelling**	5+5=10
	Part-A: Introduction to UML: Principles of modeling, conceptual model of the UML, **Class and Object Diagrams**: terms, concepts, modeling techniques. *Task: Create a Class diagram for ATM Application.*	
	Part-B: Behavioral Modeling: Interaction diagrams, use case diagrams, activity diagrams, state chart diagram, component and deployment diagrams. *Task: Create a Use Case diagram for an ATM Application.*	
IV	**Testing**	10
	Testing Strategies: A strategic approach to software testing, strategies for conventional software, Black-Box and White-Box testing, Validation Testing, System Testing, the art of Debugging. **Process and Product Metrics**: Software Quality and measurement, Metrics for software quality, analysis model, design model, source code, testing and maintenance. *Task: Develop test cases for unit testing and integration testing.*	
V	**Management**	9
	Risk Analysis and Management: Risk Management, Reactive vs. Proactive risk strategies, Software risks, Risk identification, Risk projection, Risk refinement, RMMM, RMMM plan. **Software Quality Assurance:** Quality Management, Quality concepts, Software quality assurance, Software reviews, Formal technical reviews, Software reliability, ISO 9000 Quality standards. *Task: Preparation of Software Configuration and Risk Management related documents.*	
	Textbooks	
	1. Roger S. Pressman, Software engineering- A practitioner's Approach, TMH (I), 7th Edn, 2019.	
	2. Ian Sommerville, Software Engineering, Pearson education Asia, 10th Edn, 2015.	
	3. Grady Booch, James Rumbaugh, Ivar Jacobson: The Unified Modelling Language User Guide, Pearson Education.	

OOP THROUGH JAVA

Course	B.Tech.-III-Sem.	L	T	P	C
Course Code	22CSPC32	3	-	-	3

Course Outcomes (COs) & CO-PO Mapping (3-Strong; 2-Medium; 1-Weak Correlation)

COs	Upon completion of course the students will be able to	PO1	PO2	PO3	PO12
CO1	write simple java programs using OOP concepts	3	3	2	2
CO2	interpret programs using OOP concepts	3	3	2	2
CO3	build efficient codes using multithreading and exception handling	3	3	3	3
CO4	design GUI programs using AWT and event handling	3	3	3	2
CO5	develop real-time applications using applets and swings	3	3	3	3

Syllabus

Unit	Title/Topics	Hours
I	**Java Basics**	10
	Java Basics: History of Java, Java buzzwords, data types, variables, scope and lifetime of variables, arrays, operators, expressions, control statements, type conversion and casting, simple java programs, concepts of classes, objects, constructors, methods, access control, this keyword, garbage collection, overloading methods, parameter passing, recursion, exploring String class.	
II	**Inheritance, Polymorphism, Packages and Interfaces**	9
	Inheritance and Polymorphism: Types of inheritance, member access rules, super uses, using final with inheritance, the object class and its methods, Method overriding, dynamic binding, abstract classes and methods. **Packages and Interfaces**: Defining, Creating and Accessing a Package, understanding CLASSPATH, importing packages, exploring java.util. Differences between classes and interfaces, defining an interface, implementing interface, applying interfaces, variables in interface and extending interfaces.	
III	**Exception handling and Multithreading**	5+5=10
	Part-A: Exception handling: Concepts of exception handling, benefits of exception handling, exception hierarchy, usage of try, catch, throw, throws and finally, built in exceptions, creating own exception subclasses.	
	Part-B: Multithreading: Differences between multithreading and multitasking, thread life cycle, creating threads, thread priorities, synchronizing threads, inter thread communication.	
IV	**Event handling and AWT**	9
	Event Handling: Events, Event sources, Event classes, Event Listeners, Delegation event model, handling mouse and keyboard events, Adapter classes. **AWT:** class hierarchy, user interface components- labels, buttons, scrollbars, text components, checkbox, checkbox groups, choices, lists panels – scroll pane, dialogs, menu bar, Layout Managers-Flow Layout, Border Layout, Grid Layout, Card Layout, Grid Bag Layout.	
V	**Applets and Swings**	10
	Applets: Concepts of Applets, differences between applets and applications, life cycle of an applet, types of applets, creating applets, passing parameters to applets. **Swings:** Introduction, limitations of AWT, MVC architecture, components, containers, exploring swing- JApplet, JFrame and JComponent, ImageIcon, JLabel, JTextfield, JButton, JCheckbox, JList, JRadiobutton, JComboBox, JTabbedPane, JScrollPane.	
	Textbooks	
	1. Java the complete reference, 8th Edition, Herbert Schildt, TMH.	
	References	
	1. Java How to Program, H. M. Dietel and P. J. Dietel, 6th Edition, Pearson Education/PHI. 2. Introduction to Java programming, Y. Daniel Liang, Pearson Education.	

DATABASE MANAGEMENT SYSTEMS

Course	B.Tech.-III-Sem.	L	T	P	C
Course Code	22CSPC33	3	-	-	3

Course Outcomes (COs) & CO-PO Mapping (3-Strong; 2-Medium; 1-Weak Correlation)

COs	Upon completion of course the students will be able to	PO1	PO2	PO3	PO12
CO1	design simple databases using database architectures	3	3	3	2
CO2	construct databases using ER Modelling	3	3	3	2
CO3	formulate SQL queries to interact with database	3	3	3	2
CO4	apply normalization on database to eliminate redundancy	3	3	3	2
CO5	explain transaction processing and concurrency control	3	3	3	2

Syllabus

Unit	Title/Topics	Hours
I	**Introduction to Database Systems**	10
	Introduction: Introduction and applications of DBMS, Purpose of database, database architecture and structure - abstraction levels, data independence, database languages, database users and DBA. **Introduction to Database Design:** Database design process, data models, ER diagrams - entities, attributes, relationships, constraints, keys, generalization, specialization, aggregation, conceptual design with the E-R model for large enterprise.	
II	**Relational Model, Algebra and Calculus**	9
	The Relational Model: Introduction to the relational model, integrity constraints over relations, enforcing integrity constraints, querying relational data, logical database design: E-R to relational, introduction to views, destroying/altering tables and views. **Relational Algebra and Calculus:** Relational algebra operators, relational calculus - tuple and domain relational calculus.	
III	**SQL**	5+5=10
	Part-A: Basics of SQL, DDL, DML, DCL, structure – creation, alteration, defining constraints – Primary key, foreign key, unique, not null, check, in operator, Functions - aggregate functions, built-in functions – numeric, date, string functions, set operations.	
	Part-B: Sub-queries, correlated sub-queries, Use of group by, having, order by, join and its types, exist, any, all, view and its types. Transaction control commands – commit, rollback, save point, cursors, stored procedures, Triggers.	
IV	**Schema Refinement and Normal Forms**	10
	Schema Refinement and Normal Forms: Introduction to schema refinement, functional dependencies, reasoning about FDs. Normalization, normal forms: 1NF, 2NF, 3NF, BCNF, multi valued dependency-fourth normal form-join dependency-fifth normal form, properties of decomposition, dependency preservation.	
V	**Transactions Management, Concurrency Control and Recovery System**	9
	Transactions Management: Transaction concept and ACID properties, transaction state, implementation of atomicity and durability, concurrent executions, Serializability, testing for Serializability, recoverability, implementation of isolation. **Concurrency Control and Recovery System:** Concurrency control, lock based protocols, time-stamp protocols, validation protocols, crash recovery, remote backup system.	
	Textbooks	
	1. Raghurama Krishnan, Johannes Gehrke, Database Management Systems, 3rd Edn, TMH. 2. Abraham Silberschatz, Henry F.Korth, S.Sudarshan, Database System Concepts, 5th Edn, TMH.	
	References	
	1. Elmasri Navate, Fundamentals of Database Systems, Pearson Education, India. 2. Database Management System Oracle SQL, P. K. Das Guptha and P Radha Krishna PHI.	

OOP THROUGH JAVA LAB

Course	B.Tech.-III-Sem.	L	T	P	C
Course Code	22CSPC34	-	-	2	1

Course Outcomes (COs) & CO-PO Mapping (3-Strong; 2-Medium; 1-Weak Correlation)

COs	Upon completion of course the students will be able to	PO4	PO5	PO9
CO1	write, compile and execute simple java programs	3	3	3
CO2	develop programs using inheritance, polymorphism, packages and Interfaces	3	3	3
CO3	demonstrate multithreading and exception handling mechanisms	3	3	3
CO4	design GUI using the concepts of AWT and event handling	3	3	3
CO5	build real-time applications using applets and swings	3	3	3

List of Experiments

Note: Use Eclipse or NetBeans platform and get acquainted with the various menus.

Week	Title/Experiment
1	Write a Java program to a) find the roots of quadratic equation $ax^2+bx+c = 0$ b) print all prime numbers up to a given integer (use Scanner class to read input)
2	Write a Java program to a) check whether a given string is a palindrome or not b) sort given list of strings. Read input from command line
3	Write a Java program to demonstrate a) method overloading and method overriding b) implement multiple inheritance
4	Write a Java program to a) demonstrate packages b) demonstrate abstract usage
5	Write a java program to a) demonstrate exception handling mechanism b) create user defined exception.
6	Write a Java program that implements the producer - consumer problem.
7	Write a Java program to handle a) mouse events b) key events.
8	Write an applet program to a) displays a simple message b) compute factorial value.
9	Write a Java program that creates a user interface to perform integer divisions.
10	Write a Java program that simulates a traffic light.
11	Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for thedigits and for the +, -,*, % operations.
12	Write Java programs to develop swing application using JList, JTree, and JTable.
13	Write Java programs to develop swing application using JTabbedPane and JScrollPane.
References	
1. OOP through JAVA Lab Manual, Department of CSE, CMRIT, Hyd.	
Micro-Projects: Student should submit a report on one of the following/any other micro-project(s) approved by the lab faculty before commencement of lab internal examination.	

1. Design job application form using swing/applet
2. Develop Attendance Management System
3. Implement Social Media System
4. Implement Library Management System.
5. Design New Patient Registry Management System
6. Develop Scientific Calculator
7. Demonstrate login validation using rich GUIcomponents
8. Create a package which has classes and methods to read Student Admission details.
9. Event handler to display cut/copy/paste events using swings
10. Demonstrate Graphics class

DATABASE MANAGEMENT SYSTEMS LAB

Course	B.Tech.-III-Sem.	L	T	P	C
Course Code	22CSPC35	-	-	2	1

Course Outcomes (COs) & CO-PO Mapping (3-Strong; 2-Medium; 1-Weak Correlation)

COs	Upon completion of course the students will be able to	PO4	PO5	PO9
CO1	construct databases using SQL commands	3	3	3
CO2	apply normalization techniques to eliminate redundancy	3	3	3
CO3	design a database schema for a given domain	3	3	3
CO4	solve queries based on joins, nested queries and aggregate functions	3	3	3
CO5	execute PL/SQL programs for a given application	3	3	3

List of Experiments

Note: Take any database application and conduct experiments to get expertise on various case studies

Week	Title/Experiment
1	Student should decide on a case study, analyze and then formulate the problem Statement by populating objects (entities) and their role.
2	**Conceptual Designing using ER Diagrams** (Identifying entities, attributes, keys and relationships between entities, cardinalities, generalization, specialization etc.) **Note:** Student is required to submit a document by drawing an ER Diagram.
3	**Converting ER Model to Relational Model** (Represent entities and relationships in Tabular form, represent attributes as columns, identifying keys). **Note:** Student is required to submit a document showing the database tables created from the ER Model.
4	**Creation of Tables using SQL**- Overview of using SQL tool, Data types in SQL, **Practicing DDL Commands-**Creating Tables (along with Primary and Foreign keys), Altering Tables and Dropping Tables.
5	**Practicing DML commands** - Insert, Select, Update, Delete of Tables.
6	**Practicing Queries** using ANY, ALL, IN, EXISTS, NOT EXISTS, UNION, INTERSECT, EXCEPT, CONSTRAINTS etc.
7	**Practicing Sub queries** (Nested, Correlated) and Joins (Inner, Outer and Equi).
8	**Practice Queries** using Aggregate Operators - COUNT, SUM, AVG, MAX, MIN. GROUP BY, HAVING, VIEWS Creation and Dropping.
9	**Practicing on** Triggers - creation of trigger, Insertion using trigger, Deletion using trigger, Updating using trigger
10	**Procedures**- Creation of Stored Procedures, Execution of Procedure, and Modification of Procedure.
11	**Cursors** - Declaring Cursor, Opening Cursor, Fetching the data, closing the cursor.
12	**Normalization** -To remove the redundancies and anomalies in the above relational tables, Normalize up to Third Normal Form.

References

1. Database Management Systems Lab Manual, Department of CSE, CMRIT, Hyd.

Micro-Projects: Student should submit a report on one of the following/any other micro-project(s) approved by the lab faculty before commencement of lab internal examination.

1. Design and implement University Database for External examination schedule.
2. Construct an E-R diagram for a motor-vehicle sales company.
3. Design and implement a relational database for University Registrar's office.
4. Take any schema and convert it into 1st Normal Form and 2nd Normal Form.
5. Design and implement a schema for Life Insurance Company.
6. Design an E-R diagram for the Library Management system.
7. Demonstrate various built-in functions of SQL with suitable examples.
8. Demonstrate various operators in SQL with suitable examples.
9. Perform sub-queries, nested Queries and join concepts in SQL with suitable examples.
10. Analyze tuple relational calculus and domain relational calculus for suitable queries.

DATA WRANGLING AND VISUALIZATION – PYTHON/ R PROGRAMMING/POWER BI

Course	B.Tech.-III-Sem.	L	T	P	C
Course Code	22CSPC36	-	-	2	1

Course Outcomes (COs) & CO-PO Mapping (3-Strong; 2-Medium; 1-Weak Correlation)

COs	Upon completion of course the students will be able to	PO3	PO4	PO5	PO9	PO12	PSO2
CO1	create python shell script for data validation	3	3	3	3	3	3
CO2	demonstrate how to import data into tableau	3	3	3	3	3	3
CO3	apply the tableau concepts of dimensions and measures	3	3	3	3	3	3
CO4	develop programs, map visual layouts and graphical properties	3	3	3	3	3	3
CO5	create a dashboard that links multiple visualizations	3	3	3	3	3	3

List of Experiments

Week	Title/Experiment
	Data Wrangling
1	Understanding Data, what is data, where to find data, data wrangling, data clean up basics - formatting, outliers, duplicates, normalizing and standardizing data.
2	Develop the python script to parse the pdf files using pdfminer.
3	Develop the python Shell Script to do the basic data cleanup on child labour and child marriagedata.xlsx a) check duplicates and missing data b) eliminate mismatches c) cleans line breaks, spaces, and special characters.
4	Draw the chart between perceived corruption scores compared to the child labour percentages using matplotlib.
5	Write a python program to download & display content of robot.txt for en.wikipedia.org.
	Data Visualization
6	Foundations for building data visualizations, Creating first visualization.
7	Getting started with tableau software using data file formats, connecting data to tableau, creating basic charts (line, bar charts, tree maps) using the show me panel.
8	Tableau calculations, overview of SUM, AVG and aggregate features, creating custom calculations and fields.
9	Applying new data calculations to visualizations, formatting visualizations, formatting tools and menus, formatting specific parts of the view.
10	Editing and formatting axes, manipulating data in tableau data, pivoting tableau data.
11	Structuring the data, sorting and filtering tableau data, pivoting tableau data.
12	Advanced visualization tools: using filters, using the detail panel, using the size panels, customizing filters, using and customizing tooltips, formatting data with colors.
13	Creating dashboards and storytelling, design for differentdisplays, adding interactivity in the dashboard, distributing, publishing data visualization.
14	Creating custom charts, cyclical data and circular area charts, dual axis charts.
	References
	1. Data Wrangling & Visualization - Python/R Programming/Power BI Manual, Dept. of CSE, CMRIT.
	Micro-Projects: Student should submit a report on one of the following/any other micro-project(s) approved by the lab faculty before commencement of lab internal examination.

1. Apply the raw data set, and implement the different data wrangling functionalities.
2. Perform Exploratory Data Analysis (EDA) and Data Wrangling in Pandas.
3. Perform Feature Engineering, one-hot encoding and deal with missing data.
4. Import Datasets and Perform Basic Statistical Data Analysis.
5. Develop a Scatter Plot with Matplotlib.
6. Basic Interactive Binned Scatter Plot with Altair.
7. Histogram with Plotnine (ggplot).
8. Create a Viz on Cricket Stadium.
9. Creating common visualizations on various charts and assembling a dashboard layout.
10. Develop data visualization on interactive plot with Plotly (using Cufflinks).

APP DEVELOPMENT - ANDROID/FLUTTER/FLASK

Course	B.Tech.-III-Sem.	L	T	P	C
Course Code	22CSPC37	-	-	2	1

Course Outcomes (COs) & CO-PO Mapping (3-Strong; 2-Medium; 1-Weak Correlation)

COs	Upon completion of course the students will be able to	PO3	PO4	PO5	PO9	PO12	PSO2
CO1	demonstrate android/flutter/flask installation	3	3	3	3	3	3
CO2	develop various applications using android	3	3	3	3	3	3
CO3	design various applications using flutter	3	3	3	3	3	3
CO4	implement various applications using flask	3	3	3	3	3	3
CO5	solve real-world problems using android/flutter/flask	3	3	3	3	3	3

List of Experiments

Week	Title/Experiment
	App development
1	Install Android studio and setup AVD.
2	Develop mobile apps with menu options for Dial number, Open website and Send SMS. On selecting an option, the appropriate action should be invoked using intents.
3	Develop mobile apps that inserts some notifications into Notification areas and whenever a notification is inserted, it should show a toast with details of the notification.
4	Develop mobile apps with register screen When the user submits registration details validate and register user.
5	Develop mobile apps with login and welcome screens, When the user submits a username and password validate and verify user details on success navigate to welcome screen.
	Flutter
6	Installing and Configuring Flutter SDK.
7	Creating a Dart Project Using IntelliJ IDEA.
8	Create a Navigation and Routing a Pizza Store App.
9	Create forgot password option for Pizza Store App using existing email to get password reset link.
10	Create a User Profile Interface using Firebase.
	Flask
11	Setup a virtual environment for Flask.
12	Using HTML templates create Web App with different menu items.
13	Design a form to get some data at the client side from the user, and try to access this data on the server by using the POST request.
14	Develop a web app with login and welcome pages When the user submits a username and password validate and verify user details on success navigate to the welcome page.
15	Implement a simple chatbot for answering python questions from text file.

References

1. App development - Android/Flutter/Flask Manual, Dept. of CSE, CMRIT, Hyd.

Micro-Projects: Student should submit a report on one of the following/any other micro-project(s) approved by the lab faculty before commencement of lab internal examination.

1. Design an App to Create a 2D Snake Game.
2. Design a responsive Nutrition App.
3. Design a Book search App.
4. Build a Chat App.
5. Develop a dynamic To Do App.
6. Design an E-Commerce App.
7. Design Quiz App.
8. Design BMI Calculator App.
9. Design Food Order/Travel App.
10. Design Sudoku Game App.