SRI KRISHNA INSTITUTE OF TECHNOLOGY

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#29, Chimney Hills, Hesaraghatta Main Road, Chikkabanavara Post, Bengaluru- 560090

Dept. of Information Science & Engineering

The COs of 22 Scheme subject wise for the academic Year 2022-2023

III Semester (2022 Scheme)

Course Code: PCC/BSC

Subject Code BCS301

Subject Name **Mathematics for Computer Science**

Course Outcomes:

1. Explain the basic concepts of probability, random variables, probability distribution
2. Apply suitable probability distribution models for the given scenario.
3. Apply the notion of a discrete-time Markov chain and n-step transition probabilities to
4. solve the given problem
5. Use statistical methodology and tools in the engineering problem-solving process.
6. Compute the confidence intervals for the mean of the population.
7. Apply the ANOVA test related to engineering problems.

Course Code: IPCC
Subject Code BCS302

Subject Name **Digital Design and Computer Organization**

Course Outcomes

1. Apply the K–Map techniques to simplify various Boolean expressions.
2. Design different types of combinational and sequential circuits along with Verilog programs.
3. Describe the fundamentals of machine instructions, addressing modes and Processor performance.
4. Explain the approaches involved in achieving communication between processor and I/O devices.
5. Analyze internal Organization of Memory and Impact of cache/Pipelining on Processor

   Performance.

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Course Code: IPCC
Subject Code   BCS303

Subject Name   OPERATING SYSTEMS

Course Outcomes

1. Explain the structure and functionality of operating system

2. Apply appropriate CPU scheduling algorithms for the given problem.

3. Analyze the various techniques for process synchronization and deadlock handling.

4. Apply the various techniques for memory management

5. Explain file and secondary storage management strategies.

6. Describe the need for information protection mechanisms

Course Code: PCC

Subject Code   **BCS304**

Subject Name   **DATA STRUCTURES AND APPLICATIONS**

Course Outcomes

1. Explain different data structures and their applications.

2. Apply Arrays, Stacks and Queue data structures to solve the given problems.

3. Use the concept of linked list in problem solving.

4. Develop solutions using trees and graphs to model the real-world problem.

5. Explain the advanced Data Structures concepts such as Hashing Techniques and Optimal

6. Binary Search Trees.

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Dept. of Information Science & Engineering

Course Code:	**PCCL**

Subject Code	**BCSL305**

Subject Name	**DATA STRUCTURES LABORATORY**

Course Outcomes

1. Analyze various linear and non-linear data structures
2. Demonstrate the working nature of different types of data structures and their applications
3. Use appropriate searching and sorting algorithms for the give scenario.
4. Apply the appropriate data structure for solving real world problems

Course Code:	**ESC**
Subject Code	**BCS306A**

Subject Name	**Object Oriented Programming with JAVA**

Course Outcomes

1. Demonstrate proficiency in writing simple programs involving branching and looping structures.
2. Design a class involving data members and methods for the given scenario.
3. Apply the concepts of inheritance and interfaces in solving real world problems.
4. Use the concept of packages and exception handling in solving complex problem
5. Apply concepts of multithreading, autoboxing and enumerations in program development.

Course Code:	**ESC**
Subject Code	**BCS306B**

Subject Name	**OBJECT ORIENTED PROGRAMMING with C++**

Course Outcomes

1. Illustrate the basic concepts of object-oriented programming.
2. Design appropriate classes for the given real world scenario.
3. Apply the knowledge of compile-time / run-time polymorphism to solve the given problem

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4. Use the knowledge of inheritance for developing optimized solutions

5. Apply the concepts of templates and exception handling for the given problem

6. Use the concepts of input output streams for file operations

Course Code:	**ESC**
Subject Code	**BSCK307**

Subject Name	**Social Connect & Responsibility**

Course Outcomes
1. Communicate and connect to the surrounding.

2. Create a responsible connection with the society.

3. Involve in the community in general in which they work.

4. Notice the needs and problems of the community and involve them in problem –solving.

5. Develop among themselves a sense of social & civic responsibility & utilize their knowledge in finding practical solutions to individual and community problems.

6. Develop competence required for group-living and sharing of responsibilities & gain skills in mobilizing community participation to acquire leadership qualities and democratic attitudes.

Course Code:	**AEC**
Subject Code	**BCS358A**

Subject Name	**Data Analytics with Excel**

Course Outcomes

1. Use advanced functions and productivity tools to assist in developing worksheets.

2. Manipulate data lists using Outline and PivotTables.

3. Use Consolidation to summarise and report results from multiple worksheets.

4. Apply Macros and Auto filter to solve the given real world scenario.

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Course Code:	**AEC**
Subject Code	**BCS358B**

Subject Name	R Programming

Course Outcomes

1. Explain the fundamental syntax of R data types, expressions and the usage of the R-Studio IDE
2. Develop a program in R with programming constructs: conditionals, looping and functions.
3. Apply the list and data frame structure of the R programming language.
4. Use visualization packages and file handlers for data analysis.

Course Code:	**AEC**
Subject Code	**BCS358C**

Subject Name	**Project Management with Git**

Course Outcomes

1. Use the basics commands related to git repository
2. Create and manage the branches
3. Apply commands related to Collaboration and Remote Repositories
4. Use the commands related to Git Tags, Releases and advanced git operations
5. Analyse and change the git history

Course Code:	**AEC**
Subject Code	**BCS358D**

Subject Name	**Data Visualization with Python**

Course Outcomes

1. Demonstrate the use of IDLE or PyCharm IDE to create Python Applications
2. Use Python programming constructs to develop programs for solving real-world problems
3. Use Matplotlib for drawing different Plots
4. Demonstrate working with Seaborn, Bokeh for visualization.
5. Use Plotly for drawing Time Series and Maps.

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IV Semester (2022 Scheme)

Course Code:	**PCC**
Subject Code	**BCS401**

Subject Name   **Analysis & Design of Algorithms**

Course Outcomes

1. Apply asymptotic notational method to analyze the performance of the algorithms in terms of time complexity.
2. Demonstrate divide & conquer approaches and decrease & conquer approaches to solve computational problems.
3. Make use of transform & conquer and dynamic programming design approaches to solve the given real world or complex computational problems.
5. Apply greedy and input enhancement methods to solve graph & string based computational problems.
6. Analyse various classes (P,NP and NP Complete) of problems
7. Illustrate backtracking, branch & bound and approximation methods.

Course Code:	**IPCC**
Subject Code	**BIS402**

Subject Name   **ADVANCED JAVA**

Course Outcomes

1. Apply appropriate collection class/interface to solve the given problem
2. Demonstrate the concepts of String operations in Java
3. Apply the concepts of Swings to build Java applications
4. Develop web based applications using Java servlets and JSP
5. Use JDBC to build database applications

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Course Code: **IPCC**
Subject Code   **BCS403**

Subject Name   **DATABASE MANAGEMENT SYSTEM**

Course Outcomes

1. Describe the basic elements of a relational database management system

2. Design entity relationship for the given scenario.

3. Apply various Structured Query Language (SQL) statements for database manipulation.

4. Analyse various normalization forms for the given application.

5. Develop database applications for the given real world problem.

6. Understand the concepts related to NoSQL databases.

Course Code: **IPCC**
Subject Code   **BCSL404**

Subject Name   **Analysis & Design of Algorithms Lab**

Course Outcomes

1. Develop programs to solve computational problems using suitable algorithm design strategy.

2. Compare algorithm design strategies by developing equivalent programs and observing running times for analysis (Empirical).

3. Make use of suitable integrated development tools to develop programs

4. Choose appropriate algorithm design techniques to develop solution to the computational and complex problems.

5. Demonstrate and present the development of program, its execution and running time(s) and record the results/inferences.

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Course Code:	**ESC**
Subject Code	**BCS405A**

Subject Name	**DISCRETE MATHEMATICAL STRUCTURES**

Course Outcomes

1. Apply concepts of logical reasoning and mathematical proof techniques in proving theorems and statements.
2. Demonstrate the application of discrete structures in different fields of computer science.
3. Apply the basic concepts of relations, functions and partially ordered sets for computer representations.
4. Solve problems involving recurrence relations and generating functions.
5. Illustrate the fundamental principles of Algebraic structures with the problems related to computer science & engineering.

Course Code:	**ESC**
Subject Code	**BCS405B**

Subject Name	**GRAPH THEORY**

Course Outcomes

1. Explain the fundamental concepts of properties and representation of graphs.
2. Solve the problems involving characterization and operations on graphs.
3. Apply concepts of trees and graph connectivity to solve real world problems.
4. Apply the concepts of planar graph and graph representations to solve the given problem.
5. Use the concepts of matching and coloring of graphs to solve the real world problems.

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Course Code: ESC
Subject Code   BCS405C

Subject Name   OPTIMIZATION TECHNIQUE

Course Outcomes

1. Apply the concepts of vector calculus to solve the given problem.
2. Apply the concepts of partial differentiation in machine learning and deep neural networks.
3. Analyze the convex optimization algorithms and their importance in computer science & engineering.
4. Apply the optimization algorithms to solve the problem.
5. Analyze the advanced optimization algorithms for machine learning .

Course Code: ESC
Subject Code   BCS405D

Subject Name   LINEAR ALGEBRA

Course Outcomes

1. Explain the concepts of vector spaces, subspaces, bases, dimension and their properties.

2. Use matrices and linear transformations to solve the given problem.

3. Compute Eigen values and Eigenvectors for the linear transformations

4. Determine orthogonality of inner product spaces.

5. Apply the optimization techniques to solve the problems.

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Course Code: AEC
Subject Code   BCS456A

Subject Name   **Green IT and Sustainability**

Course Outcomes

1. Classify the challenges for Green ICT

2. Relate the environmental impact due to emerging technologies.

3. Demonstrate different aspects of ICT metrics.

4. Compare the various parameters related to Sustainable Cloud Computing.

5. Interpret the effects of software design on the sustainability.

Course Code: AEC
Subject Code   BCS456B

Subject Name   **Capacity Planning for IT**

Course Outcomes

1. Identify the requirement and measurements for capacity planning by considering the goal, issues, and processes.

2. Explain capacity measurement and monitoring.

3. Make use of measurement data for prediction towards overall planning process.

4. Explain the concepts related to deployment, installation, configuration, and management.

5. Demonstrate how the virtualization and cloud services fit into a capacity plan.

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Course Code:	**AEC**
Subject Code	**BCS456C**
Subject Name	**UI/UX**

Course Outcomes

1. Explain the user experience design requirements.
2. Relate design thinking concepts and mental models to UX design.
3. Illustrate UX design in line with design goals, metrics and targets.
4. Demonstrate different prototyping in relation with software engineering.
5. Explain UX design principles with case examples.

Course Code:	**AEC**
Subject Code	**BCS456D**
Subject Name	**Technical Writing using LaTeX**

Course Outcomes

1. Apply basic LaTeX command to develop simple document
2. Develop LaTeX script to present the tables and figures in the document
3. Illustrate LaTeX script to present theorems and mathematical equations in the document
4. Develop programs to generate the complete report with citations and a bibliography
5. Illustrate the use of Tikz and algorithm libraries to design graphics and algorithms in the document