INTRODUCTION TO LINUX PROGRAMMING
(Common to IT and CSIT)

Course outcomes: At the end of the course, the student will be able to

CO 1 : Apply the concepts of basic commands, filters and write simple scripts to automate application building.

CO 2 : Appreciate File abstraction and understand the implementation of basic commands on files and directories using system calls and library functions.

CO 3 : Demonstrate process abstraction and event handling through signal dispositions

CO 4 : Implement concurrent applications using Processes and Thread API.

CO 5 : Demonstrate process communication semantics using SVR4 IPC objects and sockets.

CRYPTOGRAPHY & NETWORK SECURITY
(Common to IT and CSIT)

Course Outcomes: At the end of the course, the student will be able to

CO 1 : Understand the theory of fundamental cryptography, encryption and decryption algorithm.

CO 2 : Build a secure authentication system.

CO 3 : Understand the key management principles and implement the digital signature.

CO 4 : Develop the secured IP and the secured Web for electronic transactions.

CO 5 : Familiar with the classification of intruders, viruses and study the mechanisms to counter them and be familiar with the concepts of Firewalls, Trusted systems and IDS.

CLOUD COMPUTING
(Common to IT and CSIT)
(Professional Elective II)

Course outcomes: At the end of the course, the student will be able to

CO 1 : Learn about Cloud Provider, User and Services provided by Cloud.

CO 2 : Explore the Cloud Architecture, SOA.

CO 3 : Realize the importance of Virtualization, how it is useful to Cloud Computing.

CO 4 : Learn federation presence, identity and privacy in the cloud, common standards in cloud computing.

CO 5 : Know about end user access to cloud computing and also mobile platform virtualization.

CO 6 : Explore case studies like Amazon S3, Amazon cloud front and Amazon SQS, Google App Engine, Microsoft Dynamic CRM

NoSQL DATABASES
(Professional Elective II)

Course Outcomes: After completion of the course, students would be able to

CO 1 : Know the concepts of NoSQL Databases

CO 2 : Understand different types of NoSQL Databases for different applications.

CO 3 : Understand what are document databases and concepts using MongoDB.

CO 4 : Understand the concepts of Column family databases using HBase and Cassandra

CO 5 : Understand the concepts of Graph Databases.

COMPUTATIONAL INTELLIGENCE
(Professional Elective II)

Course Outcomes: At the end of the course, the student will be able to

CO 1 :Identify, describe and familiarize with the primitives of soft computing and the structure of metaheuristic algorithms in building intelligent machines.

CO 2 : Understand the importance of Genetic algorithms, its structure and classes with special emphasis on the operators that improves its optimum performance.

CO 3 : Recognize the significance of structure associated with Population-based Metaheuristics and scalability of Metaheuristic Algorithms.

CO 4 : Apply swarm intelligence, difference-based and Probabilistic Algorithms for solving combinatorial optimization problems in pattern recognition and classification.

CO 5 :Introduce and use the concepts of Trajectory-based Metaheuristics and Multi-objective dynamic optimization and its applications to soft computing.

WIRELESS ADHOC & SENSOR NETWORKS
(Common to IT and CSIT)
(Professional Elective II)

Course outcomes: At the end of the course, the student will be able to

CO 1 : Understand basics of MANETs and routing protocols

CO 2 : Understand how TCP modified for wireless networks

CO 3 : Design of different layers of WSN

CO 4 : Understand issues and challenges of security in WSNs

CO 5 : Design and implement sensor network protocols in the NesC/TinyOS

SOA and MICRO SERVICES
(Professional Elective III)

Course outcomes: At the end of the course, the student will be able to

CO 1 : Understand basics of SOA and MSA.

CO 2 : Understand MSA Service-Oriented Architecture, OOAD Process and SOAD Process.

CO 3 : Understand Service –oriented applications.

CO 4 : Model Service-Oriented Analysis and Design

CO 5 : Understand Mobile and MSA

Social Media Analytics
(Professional Elective III)

Course Outcomes: At the end of the course, the student should be able to

CO 1 : Able to understand and apply key concepts in social media metrics.

CO 2 : Able to understand and apply social media analytics tools.

CO 3 : Able to develop social media strategy and measures social media campaign efficiently and effectively.

CO 4 : Able to take better business decisions by leveraging social media data.

CO 5 : Able to collect, extract, analyze and visualize social media networks Face book, LinkedIn, Twitter and YouTube.

COMPUTER VISION
(Common to CSE and CSIT)
(Professional Elective III)

Course Outcomes: At the end of the course, the student should be able to

CO 1 : Understand fundamental image processing techniques required for computer vision.

CO 2 : Implement Thresholding Techniques and edge detection methods

CO 3 : Implement Corner and Intersect point Detection.

CO 4 : Apply Hough Transform for line, circle, and ellipse detections.

CO 5 : Design 3D object recognition schemes.

CYBER SECURITY
(Professional Elective III)

Course Outcomes: At the end of the course, the student will be able to

CO 1 : Understand the basics of cyber security and cyber-attacks.

CO 2 : Secure the computer by using different tools and techniques.

CO 3 : Prevent cyber-attacks by choosing appropriate methods.

CO 4 : Analyze the LAN and wireless LAN vulnerabilities and preventing from Cyber attacks.

CO 5 : Master the Cyber security concepts and analyze the issues in the mobile platforms and cyber security standards.

DIGITAL FORENSICS
(Professional Elective III)

Course Outcomes: At the end of the course, the student will be able to

CO 1 : Understand the fundamentals of computer forensics.

CO 2 : Understand the problem and choosing an appropriate method for investigation.

CO 3 : Understand the Data acquisition methods and tools.

CO 4 : Be well-trained as next-generation computer crime investigators.

CO 5 : Know how to apply forensic analysis tools to recover important evidence for identifying computer crime

LINUX PROGRAMMING LAB

Course outcomes: At the end of the course, the student will be able to

CO1 : Apply the concepts of basic commands, filters and write simple scripts to automate application building.

CO2 : Realize the implementation of basic commands on files and directories.

CO3 : Demonstrate process creation and exception handling using signals.

CO4 : Implement concurrent applications using Processes and Threads

CO5 : Implement client server applications using SVR4 IPC objects

ADVANCED WEB ENGINEERING LAB

Course Objectives: At the end of the course the student will be able to:

CO1: Create react applications.

CO2: Understand components in React.

CO3: Handle event in React and bind event listeners.

CO4: Work with React forms.
CO5: Create applications for consuming REST APIs.

HIGH PERFORMANCE COMPUTING
(Professional Elective IV)

Course Outcomes: After completion of the course, the student will be able to
CO1: Understand the hardware features of parallel and high performance computers.
CO2: Estimate the performance of parallel vs serial applications and apply the speed up metrics.
CO3: Appreciate different parallel programming models.
CO4: Design parallel programs in message passing environment.
CO5: Design simple parallel applications in shared memory environment.

COGNITIVE ANALYTICS
(Professional Elective IV)

Course Outcomes: At the end of the course the students will be able to
1. Apply some of those cognitive capabilities along with other advanced analytical capabilities like predictive analytics to analyze and visualize your data.
2. Design cognitive frameworks for the application to be developed with necessary requirements. With effect from the academic year 2022-23
3. Use visualizations of social data to measure consumer sentiment and evaluate trends.
4. Extract multiple snippets of conversation from a single social post for a true picture of social sentiment.
5. Compare social media analytics results with other data sources for new insights derived from different views of information.

GENERATIVE DEEP LEARNING
(Professional Elective IV)

Course Outcomes: At the end of the course, the student should be able to
CO1 : Understand the concepts of generative modeling and deep learning in generative deep learning.
CO2 : Formalize, build, train and analyze Variational Auto-encoders.
CO3 : Formalize, build, train and analyze Generative Adversarial Networks.
CO4 : Use generative deep learning to build models to Paint and Write.
CO5 : Use generative deep learning to build models to Compose and Play

IOT SECURITY
(Professional Elective IV)

Course outcomes: At the end of the course, the student will be able to
CO 1 : Familiarize various characteristics of IoT Security.
CO 2 : Implement security life cycle for IoT devices.
CO 3 : Apply IAM (identity and access management) for a typical IoT device.
CO 4 : To perform privacy impact assessment (PIA) for IoT Case study.
CO 5 : To store IoT data securely on the cloud.

GPU COMPUTING
(Professional Elective V)

Course outcomes: At the end of the course, the student will be able to

CO 1 : Understand the role of Multi-core and Many core processors

CO 2 : Understand the topology and architecture of GPUs

CO 3 : Write programs using CUDA, identify issues and debug them

CO 4 : Implement efficient algorithms in GPUs for common application kernels, such as matrix multiplication.

CO 5 : Write simple programs using OpenCL

REALTIME ANALYTICS
(Professional Elective V)

Course Outcomes: At the end of this course students will be able to:

1. Understand the architecture of the streaming data system and the operational aspects of the system.
2. Construct and coordinate a data motion system.
3. Introduce popular streaming processing software and options for storing the data.
4. Deliver data from the streaming environment to the end user.
5. Implement Algorithms Associated with Streaming Data Problems

REINFORCEMENT LEARNING
(Professional Elective V)

Course Outcomes: At the end of the course, the student will be able to

CO 1 : Understand the basic Reinforcement Learning problems with few examples.

CO 2 : Understand the Multi-arm Bandits and Finite Markov Decision Processes to solve classical control problems.

CO 3 : Apply Dynamic Programming approaches and Monte Carlo Methods to solve classical control problems.

CO 4 : Analyze temporal-difference Reinforcement Learning algorithms.

CO 5 : Understand On-policy and Off-policy reinforcement learning algorithms with function approximation.

MASTERING BLOCKCHAIN
(Professional Elective V)

Course Outcomes: At the end of the course, the student will be able to

CO 1 : Understand the basic cryptographic primitives of a block chain simple distributed system concepts.

CO 2 : Understand the structure of a block chain and different types of block chains

CO 3 : Understand what constitutes a "smart" contract, what are its legal implications and what it can and cannot do, now and in the near future.

CO 4 : Learn concepts of Hyper ledger fabric platform for application development.

CO 5 : Attain awareness of the new challenges that exist in monetizing businesses around block chains and smart contracts.