COURSE OUTCOMES OF INFORMATION TECHNOLOGY

ACADEMIC YEAR: 2019-20

SECOND YEAR, SEMESTER-III

SUBJECT: APPLIED MATHEMATICS-III

Course Outcomes:

- Apply the Set theory and Relation concepts.
- Apply the Functions and define the recursive functions.
- Apply Laplace transform to different applications.
- Apply Inverse Laplace transform to different applications.
- Identify the permutations and combinations.
- Define variable and also identify the mapping.

SUBJECT: LOGIC DESIGN

Course Outcomes:

- Understand the concepts of various components to design stable analog circuits.
- Represent numbers and perform arithmetic operations.
- Minimize the Boolean expression using Boolean algebra and design it using logic gates
- Analyze and design combinational circuit.
- Design and develop sequential circuits
- Translate real world problems into digital logic formulations using VHDL

SUBJECT: DATA STRUCTURES & ANALYSIS

Course Outcomes:

- Select appropriate data structures as applied to specified problem definition.
- Implement operations like searching, insertion, and deletion, traversing mechanism etc. on various data structures.
- Students will be able to implement linear and Non-Linear data structures.
- Implement appropriate sorting/searching technique for given problem.
- Design advance data structure using Non-Linear data structure.

- Determine and analyze the complexity of given Algorithms

SUBJECT: DATABASE MANAGEMENT SYSTEM

Course Outcomes:

- Explain the features of database management systems and Relational database
- Design conceptual models of a database using ER modeling for real life applications and also construct queries in Relational Algebra
- Create and populate a RDBMS for a real life application, with constraints and keys, using SQL.
- Retrieve any type of information from a data base by formulating complex queries in SQL.
- Analyze the existing design of a database schema and apply concepts of normalization to design an optimal database.
- Build indexing mechanisms for efficient retrieval of information from a database

SUBJECT: PRINCIPLE OF COMMUNICATION

Course Outcomes:

- Differentiate analog and digital communication systems
- Identify different types of noise occurred, its minimization and able to apply Fourier analysis in frequency & time domain to quantify bandwidth requirement of variety of analog and digital Communication systems.
- Design generation & detection AM, DSB, SSB, FM transmitter and receiver.
- Apply sampling theorem to quantify the fundamental relationship between channel bandwidth, digital symbol rate and bit rate
- Explain different types of line coding techniques for generation and detection of signals.
- Describe Electromagnetic Radiation and propagation of waves.

SECOND YEAR, SEMESTER-IV

SUBJECT: APPLIED MATHEMATICS IV

Course Outcomes:

- Apply the Number Theory to different applications using theorem.
- Apply probability and understand PDF.
- Understand sampling theory and correlation.
- Apply the graphs and trees concepts to different applications.
- Understand group's theory.
- Understand the Lattice theory

SUBJECT: COMPUTER NETWORKS

Course Outcomes:

- Describe the functions of each layer in OSI and TCP/IP model.
- Explain the functions of Application layer and Presentation layer paradigms and Protocols.
- Describe the Session layer design issues and Transport layer services.
- Classify the routing protocols and analyze how to assign the IP addresses for the given Network.
- Describe the functions of data link layer and explain the protocols.
- Explain the types of transmission media with real time applications.

SUBJECT: OPERATING SYSTEM

Course Outcomes:

- Describe the important computer system resources and the role of operating system in their management policies and algorithms.
- Understand the process management policies and scheduling of processes by CPU
- Evaluate the requirement for process synchronization and coordination handled by operating system

- Describe and analyze the memory management and its allocation policies.
- Identify use and evaluate the storage management policies with respect to different storage management technologies.
- Identify the need to create the special purpose operating system.

SUBJECT: COMPUTER ORGANIZATION AND ARCHITECTURE

Course Outcomes:

- Describe basic organization of computer and the architecture of 8086 microprocessor.
- Implement assembly language program for given task for 8086 microprocessor.
- Demonstrate control unit operations and conceptualize instruction level parallelism.
- Demonstrate and perform computer arithmetic operations on integer and real numbers.
- Categorize memory organization and explain the function of each element of a memory hierarchy.
- Identify and compare different methods for computer I/O mechanisms.

SUBJECT: AUTOMATA THEORY

Course Outcomes:

- Understand, design, construct, analyze and interpret Regular languages, Expression and Grammars.
- Design different types of Finite Automata and Machines as Acceptor, Verifier and Translator.
- Understand, design, analyze and interpret Context Free languages, Expression and Grammars.
- Design different types of Push down Automata as Simple Parser.
- Design different types of Turing Machines as Acceptor, Verifier, Translator and Basic computing machine.
- Compare, understand and analyze different languages, grammars, Automata and Machines and appreciate their power and convert Automata to Programs and Functions

THIRD YEAR, SEMESTER-V

SUBJECT: MICROCONTROLLER AND EMBEDDED PROGRAMMING

Course outcomes:

- Explain the embedded system concepts and architecture of embedded systems
- Describe the architecture of 8051 microcontroller and write embedded program for 8051 Microcontroller.
- Design the interfacing for 8051 microcontroller.
- Understand the concepts of arm architecture.
- Demonstrate the open source rtos and solve the design issues for the same.

SUBJECT: INTERNET PROGRAMMING

Course Outcomes:

- Implement interactive web page(s) using HTML,CSS and JavaScript.
- Design a responsive web site using HTML5 and CSS3.
- Demonstrate Rich Internet Application.
- Build Dynamic web site using server side PHP Programming and Database connectivity.
- Describe and differentiate different Web Extensions and Web Services.
- Demonstrate web application using Python web Framework-Django

SUBJECT: ADVANCED DATA MANAGEMENT TECHNOLOGY

Course Outcomes:

- Explain and understand the concept of a transaction and how ACID properties are maintained when concurrent transaction occur in a database
- Measure query costs and design alternate efficient paths for query execution.
- Apply sophisticated access protocols to control access to the database.

- Implement alternate models like Distributed databases and Design applications using advanced models like mobile, spatial databases.
- Organize strategic data in an enterprise and build a data Warehouse.
- Analyze data using OLAP operations so as to take strategic decisions.

SUBJECT: CRYPTOGRAPHY & NETWORK SECURITY

Course Outcomes:

- Identify information security goals, classical encryption techniques and acquire fundamental knowledge on the concepts of finite fields and number theory.
- Understand, compare and apply different encryption and decryption techniques to solve problems related to confidentiality and authentication
- Apply the knowledge of cryptographic checksums and evaluate the performance of different message digest algorithms for verifying the integrity of varying message sizes
- Apply different digital signature algorithms to achieve authentication and create secure applications
- Apply network security basics, analyze different attacks on networks and evaluate the performance of firewalls and security protocols like SSL, IPSec, and PGP.

SUBJECT: BUSINESS COMMUNICATION AND ETHICS

Course Outcomes:

- Design a technical document using precise language, suitable vocabulary and apt style.
- Develop the life skills/ interpersonal skills to progress professionally by building stronger relationships.
- Demonstrate awareness of contemporary issues knowledge of professional and ethical responsibilities.
- Apply the traits of a suitable candidate for a job/higher education, upon being trained in the techniques of holding a group discussion, facing interviews and writing resume/SOP.
- Deliver formal presentations effectively implementing the verbal and non-verbal skills1. Design a technical document using precise language, suitable vocabulary and apt style.

- Develop the life skills/ interpersonal skills to progress professionally by building stronger relationships.
- Demonstrate awareness of contemporary issues knowledge of professional and ethical responsibilities.
- Apply the traits of a suitable candidate for a job/higher education, upon being trained in the techniques of holding a group discussion, facing interviews and writing resume/SOP

SUBJECT: E-COMMERCE & E-BUSINESS

Course Outcomes:

- Define and differentiate various types of E-commerce.
- Describe Hardware and Software Technologies for E-commerce.
- Explain payment systems for E -commerce.
- Describe the process of Selling and Marketing on web.
- Define and Describe E-business and its Models.
- Discuss various E-business Strategies.

THIRD YEAR, SEMESTER-VI

SUBJECT: SOFTWARE ENGINEERING WITH PROJECT MANAGEMENT

Course Outcomes:

- Define various software application domains and remember different process model used in software development.
- Explain needs for software specifications also they can classify different types of software requirements and their gathering techniques.
- Convert the requirements model into the design model and demonstrate use of software and user-interface design principles.
- Distinguish among SCM and SQA and can classify different testing strategies and tactics and compare them.
- Justify role of SDLC in Software Project Development and they can evaluate importance of Software Engineering in PLC.
- Generate project schedule and can construct, design and develop network diagram for different type of Projects. They can also organize different activities of project as per Risk impact factor

SUBJECT: DATA MINING AND BUSINESS INTELLIGENCE

Course Outcomes:

- Demonstrate an understanding of the importance of data mining and the principles of business intelligence
- Organize and prepare the data needed for data mining using pre preprocessing techniques
- Perform exploratory analysis of the data to be used for mining.
- Implement the appropriate data mining methods like classification, clustering or Frequent Pattern mining on large data sets.
- Define and apply metrics to measure the performance of various data mining algorithms.
- Apply BI to solve practical problems : Analyze the problem domain, use the data collected in enterprise apply the appropriate data mining technique, interpret and visualize the results and provide decision support.

SUBJECT: CLOUD COMPUTING & SERVICES

Course Outcomes:

- Define Cloud Computing and memorize the different Cloud service and deployment models
- Describe importance of virtualization along with their technologies.
- Use and Examine different cloud computing services
- Analyze the components of open stack & Google Cloud platform and understand Mobile Cloud Computing
- Describe the key components of Amazon web Service
- Design & develop backup strategies for cloud data based on features

SUBJECT: WIRELESS NETWORKS

Course Outcomes:

- Explain the basic concepts of wireless network and wireless generations.

- Demonstrate the different wireless technologies such as CDMA, GSM, GPRS etc.
- Appraise the importance of Ad-hoc networks such as MANET and VANET and Wireless Sensor networks
- Describe and judge the emerging wireless technologies standards such as WLL, WLAN, WPAN, WMAN.
- Explain the design considerations for deploying the wireless network infrastructure.
- Differentiate and support the security measures, standards. Services and layer wise security considerations.

SUBJECT: ADVANCE INTERNET PROGRAMMING

Course Outcomes:

- Determine SEO Objectives and Develop SEO plan prior to Site Development.
- Explain Search Engine Optimization Techniques and Develop Keyword Generation.
- Describe different Web Services Standards.
- Develop Rich Internet Application using proper choice of Framework.
- Apply multiple quantitative and qualitative methods for web analytics 2.0.
- Explain Web 3.0 and Semantic web standards

BE, SEMESTER-VII

SUBJECT: ENTERPRISE NETWORK DESIGN

Course Outcomes:

- Understand the customer requirements and apply a Methodology to Network Design.
- Structure and Modularize the Network
- Design Basic Campus and Data Center Network.
- Design Remote Connectivity
- Design IP Addressing and Select suitable Routing Protocols for the Network
- Compare Openflow controllers and switches with other enterprise networks

SUBJECT: INFRASTRUCTURE SECURITY

Course Outcomes:

- Understand the concept of vulnerabilities, attacks and protection mechanisms
- Analyze and evaluate software vulnerabilities and attacks on databases and operating systems.
- Explain the need for security protocols in the context of wireless communication
- Understand and explain various security solutions for Web and Cloud infrastructure
- Understand, and evaluate different attacks on Open Web Applications and Web services
- Design appropriate security policies to protect infrastructure components.

SUBJECT: ARTIFICIAL INTELLIGENCE

Course Outcomes:

- Demonstrate knowledge of the building blocks of AI as presented in terms of intelligent agents.
- Analyze and formalize the problem as a state space, graph, design heuristics and select amongst different search or game based techniques to solve them.
- Develop intelligent algorithms for constraint satisfaction problems and also design intelligent systems for Game Playing
- Attain the capability to represent various real life problem domains using logic based techniques and use this to perform inference or planning.
- Formulate and solve problems with uncertain information using Bayesian approaches.
- Apply concept Natural Language processing to problems leading to understanding of cognitive computing.

SUBJECT: SOFTWARE TESTING AND QUALITY ASSURANCE

Course Outcomes:

- Investigate the reason for bugs and analyze the principles in software testing to prevent and remove bugs.
- Implement various test processes for quality improvement
- Design test planning.

- Manage the test process
- Apply the software testing techniques in commercial environment
- Use practical knowledge of a variety of ways to test software and an understanding of some of the trade-offs between testing techniques.

SUBJECT: SOFT COMPUTING

Course Outcomes:

- List the facts and outline the different process carried out in fuzzy logic, ANN and Genetic Algorithms.
- Explain the concepts and meta-cognitive of soft computing.
- Apply Soft computing techniques the solve character recognition, pattern classification, regression and similar problems.
- Outline facts to identify process/procedures to handle real world problems using soft computing.
- Evaluate various techniques of soft computing to defend the best working solutions.
- Design hybrid system to revise the principles of soft computing in various applications

SUBJECT: CYBER SECURITY AND LAWS

Course Outcomes:

- Understand the concept of cybercrime and its effect on outside world
- Interpret and apply IT law in various legal issues
- Distinguish different aspects of cyber law
- Apply Information Security Standards compliance during software design and development.

BE, SEMESTER-VIII

SUBJECT: BIG DATA ANALYTICS.

Course Outcomes:

- Explain the motivation for big data systems and identify the main sources of Big Data in the real world.
- Demonstrate an ability to use frameworks like Hadoop, NOSQL to efficiently store retrieve and process Big Data for Analytics.
- Implement several Data Intensive tasks using the Map Reduce Paradigm
- Apply several newer algorithms for Clustering Classifying and finding associations in Big Data.
- Design algorithms to analyze big data like streams, Web Graphs and Social Media data.
- Design and implement successful Recommendation engines for enterprises.

SUBJECT: INTERNET OF EVERYTHING

Course Outcomes:

- Apply the concepts of IOT.
- Identify the different technology.
- Apply IOT to different applications.
- Analysis and evaluate protocols used in IOT.
- Design and develop smart city in IOT.
- Analysis and evaluate the data received through sensors in IOT.

SUBJECT: USER INTERACTION DESIGN

Course Outcomes:

- Students will be able to identify and criticize bad features of interface designs.
- Students will be able to predict good features of interface designs.

- Students will be able to illustrate and analyze user needs and formulate user design specifications.
- Students will be able to interpret and evaluate the data collected during the process.
- Students will be able to evaluate designs based on theoretical frameworks and methodological approaches.
- Students will be able to produce/show better techniques to improve the user interaction design interfaces.

SUBJECT: ROBOTICS

Course Outcomes:

- Apply the basic concepts of Robots.
- Apply and evaluate the concepts of Kinematics of Robotics.
- Apply the Motions, velocities and dynamic analysis of force.
- Apply and evaluate Motion planning.
- Apply the concepts of Trajectory Planning
- Apply the concepts of Potential Functions, Visibility Graphs and Coverage Planning

SUBJECT: ENTERPRISE RESOURCE PLANNING

Course Outcomes:

- Understand the basic concepts of ERP.
- Identify different technologies used in ERP.
- Understand and apply the concepts of ERP Manufacturing Perspective and ERP Modules.
- Discuss the benefits of ERP
- Understand and implement the ERP life cycle.
- Apply different tools used in ERP.