M.Sc. (Computer Science)

Program Outcome:
- Provides technology-oriented students with the knowledge and ability to developcreative solutions.
- To develop skillsin new technology.
- Apply computer science theory and software development concepts to construct computing-based solutions.
- Design and develop computer programs/computer-based systems in the areas related to algorithms, networking, web design, cloud computing, Artificial Intelligence, Mobile applications.

Program Specific Outcome:
- Able to pursue a career in the IT industry, research and development, teaching and related areas of Computer Science.
- Gain industrial exposure through Six Month Industrial internship in IT Industry.
- Become a socially responsible software engineer with good leadership qualities and effective interpersonal skills.
- Apply software design and development principles in the construction of software systems of varying complexity.
- Adapt to the continuous technological change and upgrade themselves to meet the industry requirement.

Semester – I

Course Title:- CSUT111: Paradigm of Programming Language
Course Outcomes:
- To understandthe basic language implementation techniques.
- Develop the ability to learn new languages more quickly.
- To understand the concept of functional programming language.
- Develop the ability to learn and write small programs in different programming languages.

Course Title:-CSUT112: Design and Analysis of Algorithm
Course Outcomes:
- To design efficient algorithms using various algorithm designing strategies.
- To analyze the problem and develop the algorithms related to these problems.
- To classify the problem and apply the appropriate design strategy to develop an algorithm.
- To design an algorithm in the context of space and time complexity and apply the asymptotic notation.

Course Title:-CSUT113: Database Technologies
Course Outcomes:
- To study types of NoSQLdatabases (Document oriented, keyValue pairs, Column-oriented and Graph)
- To understand detailed architecture, define objects, load data, query data, and performance tune NoSQL databases.
- Able to handle large volumes of structured, semi-structured, and unstructured data using database technologies.

Course Title:-CSDT114: Cloud computing (Choice Based Optional Paper)
Course Outcomes:
- To understand the principles and paradigm of Cloud Computing.
- Ability to design and deploy Cloud Infrastructure.
- Understand cloud security issues and solutions.
- Ability to understand the role of Virtualization Technologies.
- Design & develop backup strategies for cloud data based on features.

Course Title:-CSDT114: ArtificialIntelligence (Choice Based Optional Paper)
Course Outcomes:
- To analyze and formalize the problem as a state space, graph, design heuristics.
- Ability to represent solutions for variousreal-life problem domains using logic-based techniques.
- Understand the numerous applications and huge possibilities in the field of AI.
- Ability to express ideas in AI research and programming language related toemerging technology.

Course Title:-CSDT114: Web Services (Choice Based Optional Paper)
Course Outcomes:
- To understand the details of web services technologies like WSDL, UDDI, SOAP.
- Ability to learn how to implement and deploy web service client and server.
- Learn how to explore interoperability between different frameworks.
- Understand architectural elements of a RESTful system.

Course Title:-CSUP115: PPL and Database Technologies Practical
Course Outcomes:
- Apply the knowledge of Scala to develop web-based applications
- Provides knowledge of code optimization
- To understand the concept of interoperability.
- Able to build and maintain database handling in real-life applications and daily needs.
- Able to perform hands-onNoSql database lab assignments that will allow students to use

the four NoSQL database types via products such as Cassandra, MongoDB,Neo4J, and Riak.

Semester – II

Course Title:-CSUT121: Advanced Operating System

Course Outcomes:

- To design and understand different OS components: System calls, Schedulers, Memory management systems, Virtual Memory, and Paging systems.
- Toevaluate, and compare OS components through instrumentation for performance analysis.
- To analyze the various device and resource management techniques for timesharing and distributed systems.
- To develop and analyze simple concurrent programs using transactional memory and message passing, and to understand the trade-offs and implementation decisions.

Course Title:-CSUT122: Mobile Technologies

Course Outcomes:

- To gain knowledge of installing Android Studio and Cross-Platform Integrated Development Environment.
- Develop an ability to use the techniques, skills, and modern technology.
- To develop the different applications that mobile computing offers to people, employees, and businesses.
- To develop high levels of technical competence in the field of mobile technology.

Course Title:-CSUT123: Software Project Management

Course Outcomes:

- To identify the impact of IT projects on the performance of the organizations
- To understand, manage and develop IT infrastructure in different projects
- To develop strategies to calculate risk factors involved in IT projects
- To use project management software to control the design, implementation,closure, and evaluation of IT projects
- To estimate, plan, calculate, and adjust project variables.
- Apply project management practices to launch new programs, initiatives, products, services, and events relative to the needs of stakeholders.

Course Title:-CSDT124: Project (Choice Based Optional Paper)

Course Outcomes:

- Ability to design solutions to complex real-world problems
- Gain a deep knowledge of all phases of the project development life cycle.

- Able to develop a sound technical knowledge of the selected platform for the project.
- Able to know how to work in a group.

Course Title:-CSDT124: Human-Computer Interaction (Choice Based Optional Paper)
Course Outcomes:
- Apply an interactive design process and universal design principles to designing HCI systems.
- To analyze and discuss HCI issues in groupware, ubiquitous computing, virtual reality, multimedia, and Word Wide Web-related environments.
- Explain the importance of iteration, evaluation, and prototyping in interaction design
- To analyze and identify user models, user support, socio-organizational issues, and stakeholder requirements of HCI systems.

Course Title:-CSDT124: Soft Computing (Choice Based Optional Paper)
Course Outcomes:
- To discuss the ideas of fuzzy sets, fuzzy logic, and the use of heuristics based on human experience
- To relate with neural networks that can learn from available examples and generalize to form appropriate rules for inference systems
- To describe with genetic algorithms and other random search procedures useful while seeking global optimum in self-learning situations.

Course Title:-CSUP125: Practical on Advanced OS & Mobile Technologies
Course Outcomes:
- Ability to understand internal structure and operations of OS along with various processes including threading, inter-process communication, and synchronization with I/O operations.
- Awareness of computational issues, resources in a distributed environment.
- To develop mobile computing applications by analyzing their characteristics and requirements, selecting the appropriate computing models and software architectures, and applying standard programming languages and tools.
- To understand how the underlying wireless and mobile communication networks work, their technical features, and what kinds of applications they can support.

Semester - III

Course Title:-CS 301: Software Metrics & Project Management
Course Outcomes:
- Acquire a good knowledge of the issues and challenges faced while doing the Software project Management.

- To understand why the majority of the software projects fail and how that failure probability can be reduced effectively.
- To do the Project Scheduling, tracking, Risk analysis, Quality management, and Project Cost estimation using different techniques.
- Students will learn good communication skills, improve presentation and team forming ability.

Course Title:-CS 302: Mobile Computing
Course Outcomes:
- Get familiar with various generations of mobile communications.
- Understand the concept of cellular communication
- Understand the basics of wireless communication
- Get Knowledge of GSM mobile communication standards, their architecture, logical channels, advantages, and limitations.
- Develop the ability to develop Android Applications.

Course Title:-CS 303: Soft Computing
Course Outcomes:
- Understand the basic areas of Soft Computing including Artificial Neural Networks, Fuzzy Logic, and Genetic Algorithms
- Provide the mathematical background for carrying out the optimization associated with neural network learning.
- Familiar with current research problems and research methods in Soft Computing by working on a research or design project.
- Comprehend the fuzzy logic and the concept of fuzziness involved in various systems and fuzzy set theory.

Course Title:-CS-304: Project (Elective)
Course Outcomes:
- Demonstrate a sound technical knowledge of their selected project topic.
- Undertake problem identification, formulation, and solution.
- Design engineering solutions to complex problems utilizing a systems approach.
- Conduct an engineering project
- Communicate with engineers and the community at large in written or oral forms.
- Demonstrate the knowledge, skills, and attitudes of a professional engineer.
- Project-based learning connects students to the real world.
- Prepares students to accept and meet challenges in the real world, mirroring what professionals do every day.

Course Title:-CS -305: Web Services (Elective)
Course Outcomes:
- Understand Web Services and implementation model for SOA (Service Oriented Architecture)
- Understand cloud computing as a web service.
- Implement concepts of virtualization and data in the cloud.
- Understand the use of web services in B2C and B2B applications.
- Will be able to implement an application that uses multiple web services in a realistic business scenario.

Course Title:-CS -306:Database and System Administration (Elective)
Course Outcomes:
- Establish a basic understanding of the process of DatabaseDevelopment and Administration using MySQL.
- The student will be able to implement the concepts of both Operating Systems & Database Administration skills.
- Retrieve any type of information from a database by formulating complex queries in MySQL
- Describe the important role of the Linux operating system.

Semester – IV

Course Title: -CS-401: Industrial Training
Course Outcomes:
- Capability to acquire and apply fundamental principles of engineering.
- Become a master in specialized technology.
- Become updated with all the latest changes in the technological world.
- Ability to communicate efficiently.
- Ability to be a multi-skilled engineer with good technical knowledge, management, leadership, and entrepreneurship skills.
- Ability to identify, formulate, and model problems and find engineering solutions based on a systems approach.
- Capability and enthusiasm for self-improvement through continuous professional development and life-long learning.
- Awareness of the social, cultural, global, and environmental responsibility of an engineer.