PG-M.Tech (SCS) 2022-Scheme COs

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING	
COURSE CODE	**22SCS11-MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE**
CO1	Understand vector spaces and related topics arising in magnification and rotation of images.
CO2	Compute orthogonal and orthonormal basis vectors required to analyze image and signal L2& L3 Processing problems
CO3	Apply the technique of singular value decomposition for data compression, least square L2 &L3 approximation in solving in consistent linear systems
CO4	Understand probabilistic concepts required to test the hypothesis and take decision using. Analysis of variance.
CO5	Understand one and two dimensional Fourier transform
COURSE CODE	**22SCS12-FUNDAMENTALS OF DATA SCIENCES**
CO1	Explain and programme Data Science, Big data and fitting model.
CO2	Explore Data Analysis, Data Science Process and R Programs for the algorithms.
CO3	Analyze the Feature Selection algorithms and Recommendation Systems
CO4	Design Map Reduce Solutions
COURSE CODE	**22SCS13-ADVANCES IN COMPUTER NETWORKS**
CO1	List and classify network services, protocols and architectures, explain why they are layered.
CO2	Choose key Internet applications and their protocols and apply to develop their own applications (e.g. Client Server applications, Web Services) using the sockets API.
CO3	Develop effective communication mechanisms using techniques like connection establishment, queuing theory, recovery Etc
COURSE CODE	**22SCS14-INTERNET OF THINGS AND APPLICATIONS**
CO1	Develop schemes for the applications of IOT in real time scenarios
CO2	Manage the Internet resources
CO3	Model the Internet of things to business
CO4	Interpret data sets received through IoT devices and tools used for analysis
COURSE CODE	**22SCS15-ADVANCED ALGORITHMS**
CO1	Apply iterative and recursive algorithms
CO2	Work optimization algorithms in specific applications
CO3	Choose appropriately shared objects and concurrent objects for applications.
COURSE CODE	**22RMI16-RESEARCH METHODOLOGY AND IPR**
CO1	Conduct research independently
CO2	Choose research designs, sampling designs, measurement and scaling techniques and also different methods of data collections
CO3	Statistically interpret the data and draw inferences
COURSE CODE	**22SCS17-INTERNET OF THINGS LABORATORY**
CO1	Apply key Internet applications and their protocols, and ability to develop their own applications (e.g. Client Server applications, Web Services) using the sockets API.
CO2	Design and evaluate application layer protocol
CO3	Analyze the vulnerabilities in any computing system and hence be able to design a security solution.
CO4	Identify the security issues in the network and resolve it
CO5	Evaluate security mechanisms using rigorous approaches, including theoretical
COURSE CODE	**22SCS21-BIG DATA ANALYTICS**
CO1	Interpret managing big data using Hadoop and SPARK technologies
CO2	Explain HDFS and MapReduce concepts
CO3	Install, configure, and run Hadoop and HDFS

CO4	Perform map-reduce analytics using Hadoop and related tools
CO5	Explain SPARK concepts
COURSE CODE	**22SCS22-ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING**
CO1	Define Artificial intelligence and identify problems for AI. Characterize the searchtechniques to solve problems and recognize the scope of classical search techniques
CO2	Define knowledge and its role in AI. Demonstrate the use of Logic in solving AI problems
CO3	Demonstrate handling of uncertain knowledge and reasoning in probability theory.
COURSE CODE	**22SCS231-WIRELESS NETWORKS & MOBILE COMPUTING**
CO1	Explain state of art techniques in wireless communication
CO2	Discover CDMA, GSM. Mobile IP, WiMAX
CO3	Demonstrate program for CLDC, MIDP let model and security concerns
COURSE CODE	**22SCS232-MOBILE APPLICATION DEVELOPMENT**
CO1	Describe the requirements for mobile applications
CO2	Explain the challenges in mobile application design and development
CO3	Deploy mobile applications in Android and iPone marketplace for distribution
COURSE CODE	**22SCS233-NATURAL LANGUAGE PROCESSING**
CO1	Analyze the natural language text.
CO2	Generate the natural language.
CO3	Demonstrate Text mining.
COURSE CODE	**22SCS234-CYBER SECURITY AND CYBER LAW**
CO1	Demonstrate cyber security cybercrime and forensics
CO2	Demonstrate tools and methods used in cybercrime and security
CO3	Illustrate evidence collection and legal challenges
COURSE CODE	**22SCS235-DECISION SUPPORT SYSTEM**
CO1	Appraise issues related to the development of DSS
CO2	Select appropriate modeling techniques
CO3	Analyze, design and implement a DSS
COURSE CODE	**22SCS241-DIGITAL IMAGE PROCESSING**
CO1	Explain the basics and fundamentals of digital image processing, such asdigitization sampling, quantization, and 2D-transforms
CO2	Operate on images using the techniques of smoothing, sharpening and enhancement
CO3	Interpret the basics of segmentation, features extraction, compression and recognition methods for color models
COURSE CODE	**22SCS24-OBJECT ORIENTED DESIGN**
CO1	Identify the heuristics of the object-oriented programming
CO2	Explain the fundamentals of OOP
CO3	Examine fine object-oriented relations
CO4	Explain the role of Physical Object-Oriented Design,
CO5	Make use of Heuristics in The Use of Heuristics in Object-Oriented Design
COURSE CODE	**22SCS243-MULTIMEDIA COMMUNICATIONS**
CO1	Deploy the right multimedia communication models
CO2	Apply QoS to multimedia network applications with efficient routing techniques
CO3	Solve the security threats in the multimedia networks
CO4	Work on real-time multimedia network applications
COURSE CODE	**22SCS244-AGILE TECHNOLOGIES**
CO1	Define XP Lifecycle, XP Concepts, Adopting XP
CO2	Examine on Pair Programming, Root-Cause Analysis, Retrospectives, Planning, Incremental Requirements, Customer Tests
CO3	Demonstrate concepts to Eliminate Waste
COURSE CODE	**22SCS24-NOSQL DATABASE**
CO1	Explain NoSQL Key/Value databases using riak.
CO2	Apply Nosql Development tools with suitable usecase
CO3	Explain the detailed architecture and performance tune of Graph NoSQL databases

COURSE CODE	22SCSL2-BIG DATA ANALYTICS LABORATORY
CO1	Professional Skills: The ability to understand, analyze and develop computer programs in the areas related to algorithms, system software, multimedia, web design, big data analytics, and networking for efficient design of computer-basedsystems of varying complexity
CO2	Problem-Solving Skills: The ability to apply standard practices and strategies insoftware project development using open-ended programming environments to deliver a quality product for business success
CO3	Successful Career and Entrepreneurship: The ability to employ modern computer languages, environments, and platforms in creating innovative career paths to bean entrepreneur, and a zest for higher studies
COURSE CODE	22SCS321-CLOUD SECURITY
CO1	Demonstrate the growth of Cloud computing, architecture and different modules of implementation
CO2	Explain the different types of cloud solutions among IaaS, PaaS, SaaS
CO3	Access the security implementation flow, actions and responsibilities of stake holders.
CO4	Compare the Data Centre operations, encryption methods and deployment details
CO5	Provide recommendations for using and managing the customer's identity and choose the type of virtualization to be used
COURSE CODE	22SCS322-CYBER FORENSICS
CO1	Explain the basics of computer forensics
CO2	Apply a number of different computer forensic tools to a given scenario
CO3	Analyze and validate forensics data
CO4	Identify the vulnerabilities in a given network infrastructure
CO5	Implement real-world hacking techniques to test system security
COURSE CODE	22SCS323-SOFT AND EVOLUTIONARY COMPUTING
CO1	Demonstrate the working of soft computing techniques
CO2	Apply the learned techniques to solve realistic problems
CO3	Differentiate soft computing with hard computing techniques
COURSE CODE	ADVANCES IN STORAGE AREA NETWORK
CO1	Identify the need for performance evaluation and the metrics used for it
CO2	Apply the techniques used for data maintenance.
CO3	Realize strong virtualization concepts
CO4	Illustrate RAID concepts, policies for LUN masking, file systems
COURSE CODE	22SCS325-BUSINESS INTELLIGENCE AND ITS APPLICATIONS
CO1	Explain the complete life cycle of BI/Analytical development
CO2	Illustrate technology and processes associated with Business Intelligence framework
CO3	Demonstrate a business scenario, identify the metrics, indicators and make L2 recommendations to achieve the business goa
COURSE CODE	22SCS331-MANAGING BIG DATA
CO1	Managing big data using Hadoop and SPARK technologies
CO2	Explain HDFS and MapReduce concepts
CO3	Install, configure, and run Hadoop and HDFS
CO4	Apply Big Data Solutions using Hadoop Eco System
COURSE CODE	22SCS332-PATTERN RECOGNITION
CO1	Choose appropriate algorithms for Pattern Recognition.
CO2	Apply nearest neighbour classifier.
CO3	Apply Decision tree and clustering techniques to various applications
CO4	Get acquainted with recent developments in pattern recognition and itsapplications
COURSE CODE	22SCS333-COMPUTER VISION
CO1	Implement fundamental image processing techniques required for computer vision.
CO2	Perform shape analysis
CO3	Implement boundary tracking techniques
CO4	Apply chain codes and other region descriptors
COURSE CODE	22SCS334-DEEP LEARNING
CO1	Identify the deep learning algorithms which are more appropriate for various types of learning tasks in various domains.
CO2	Implement deep learning algorithms and solve real-world problems.

CO3	Execute performance metrics of Deep Learning Techniques.
CO4	Compare modeling aspects of various neural network architectures
COURSE CODE	**22SCS335-BLOCKCHAIN TECHNOLOGY**
CO1	Explore the emerging abstract models for Blockchain Technology and to familiarise with the functional/operational concepts
CO2	Analyze the various consensus mechanisms, applications, research challenges and future directions
CO3	Practical implementation of Blockchain operations and solutions using Ethereum
COURSE CODE	**22SCS34-PROJECT WORK PHASE – 1**
CO1	Demonstrate a sound technical knowledge of their selected project topic
CO2	Undertake problem identification, formulation, and solution
CO3	Design engineering solutions to complex problems utilising a systems approach
CO4	Communicate with engineers and the community at large in written an oral forms
CO5	Demonstrate the knowledge, skills and attitudes of a professional engineer
COURSE CODE	**22SCS35-SOCIETAL PROJECT**
CO1	Build creative solutions for development problems of current scenario in the Society
CO2	Utilize the skills developed in the curriculum to solve real life problems
CO3	Improve understanding and develop methodology for solving complex issues
COURSE CODE	**22SCS36-INTERNSHIP / PROFESSIONAL PRACTICE**
CO1	Gain practical experience within industry in which the internship is done
CO2	Acquire knowledge of the industry in which the internship is done.
CO3	Apply knowledge and skills learned to classroom work
COURSE CODE	**22SCS41-PROJECT WORK PHASE -2**
CO1	Present the project and be able to defend it
CO2	Make links across different areas of knowledge and to generate, develop and evaluate ideas and information so as to apply these skills to the project task
CO3	Habituated to critical thinking and use problem solving skills
CO4	Communicate effectively and to present ideas clearly and coherently in both thewritten and ora forms
CO5	Work in a team to achieve common goal.
CO6	Learn on their own, reflect on their learning and take appropriate actions to improve it