

# **SRKR ENGINEERING COLLEGE::BHIMAVARAM** Department of Computer Science and Engineering

# R19

### **COURSE OUTCOMES**

#### Program Name: M.Tech (Computer Science and Technology) Course Name: (MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE)

COURSE	COURSE OUTCOMES	
	CST 1101.1	To understand the basic notions of discrete and continuous probability.
MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE M19 CST 1101	CST 1101.2	To understand the methods of statistical inference, and the role that sampling distributions play in those methods.
	CST 1101.3	To be able to perform correct and meaningful statistical analyses of simple to moderate complexity
	CST 1101.4	Fit a best suitable curve for the given data
	CST 1101.5	Utilize the concepts in graph theory in their field
	CST 1101.6	Solve different counting problems as well as recurrence relations.

### **Course Name: (ADVANCED DATA STRUCTURES)**

COURSE	COURSE OUTCOMES	
ADVANCED DATA STRUCTURES M19 CST 1102	CST 1102.1	Understand the implementation of symbol table using hashing techniques.
	CST 1102.2	Understand the implementation of skip lists and Need for Randomizing Data Structure
	CST 1102.3	Develop and analyze algorithms for red-black trees, B-trees and Splay trees
	CST 1102.4	Develop algorithms for text processing applications
	CST 1102.5	Identify suitable data structures and develop algorithms for computational geometry problems.

# Course Name: (ARTIFICIAL INTELLIGENCE)

COURSE	COURSE OUTCOMES	
ARTIFICIAL INTELLIGENCE M19 CST 1103	CST 1103.1	Demonstrate knowledge of the building blocks of AI as presented in terms of intelligent agents
	CS T 1103.2	Analyze and formalize the problem as a state space, graph, design heuristics and select amongst different search or game based techniques to solve them.
	CS T 1103.3	Develop intelligent algorithms for constraint satisfaction problems and also design intelligent systems for Game Playing
	CST 1103.4	Attain the capability to represent various real life problem domains using logic based techniques and use this to perform inference or planning
	CST 1103.5	Solve problems with uncertain information using Bayesian approaches

# Course Name: (CLOUD COMPUTING)

COURSE	COURSE OUTCOMES	
	CST 1104.1	Articulate the main concepts, key technologies, strengths, and limitations of cloud computing and the possible applications for state-of-the-art cloud computing.
CLOUD	CST 1104.2	Use and Examine different cloud computing services
M19 CST 1104	CST 1104.3	Identify the appropriate cloud platform and software environment for the given application.
	CST 1104.4	Explain the core issues of cloud computing such as security, privacy, and interoperability.

### Course Name: (DIGITAL IMAGE PROCESSING)

COURSE	COURSE OUTCOMES	
DIGITAL IMAGE PROCESSING M19 CST 1105	CST 1105.1	Students are able to develop software tools such as Games, Animation, and Recognition system.
	CST 1105.2	Key concepts, tools and approaches for pattern recognition on complex datasets.

#### Course Name: (ADVANCED OPERATING SYSTEMS)

COURSE	COURSE OUTCOMES	
ADVANCED	CST 1106.1	Knowledge about advanced concepts in OS
SYSTEMS	CST 1106.2	Ability to develop OS for distributed systems
M19 CST 1106	CST 1106.3	Ability to develop modules for mobile devices

# Course Name: (OPTIMIZATION TECHNIQUES)

COURSE	COURSE OUTCOMES	
OPTIMIZATION TECHNIQUES M19 CST 1107	CST 1107.1	Students should able to apply the dynamic programming to solve problems of discreet and continuous variables.
	CST 1107.2	Students should able to apply the concept of non-linear programming
	CST 1107.3	Students should able to carry out sensitivity analysis
	CST 1107.4	Student should able to model the real world problem and simulate it

### Course Name: (BIG DATA ANALYTICS)

COURSE		COURSE OUTCOMES	
BIG DATA ANALYTICS M19 CST 1108	CST1108.1	Understand the programming requirements viz., generic types and methods to perform data analysis	
	CST1108.2	Understand the existing technologies and the need of distributed files systems to analyze the big data	
	CST1108.3	To understand and analyze Map-Reduce programming model for better optimization	
	CST1108.4	Collect, manage, store, query, and analyze big data; and identify the need of interfaces to perform I/O operations in Hadoop	
	CST1108.5	Identify the need based tools, viz., Pig and Hive and to handle	
	CST1108.6	Formulate an effective strategy to implement a successful Data analytics project	

### Course Name: (APPLIED CRYPTOGRAPHY)

COURSE	COURSE OUTCOMES	
APPLIED CRYPTOGRAPHY M19 CST 1109	CST 1109.1	Demonstrate the basics of Cryptographic protocols
	CST 1109.2	Explain the concepts of Stream Ciphers and Public Key Encryption
	CST 1109.3	Demonstrate Number Theory for Symmetric and Asymmetric Ciphers and discuss various Ciphers
	CST 1109.4	Discuss Hashing Algorithms and Message Authentication Codes
	CST 1109.5	Discuss Key-Exchange algorithms and Real world Implementations

# Course Name: (ADVANCED COMPUTER NETWORKS)

COURSE	COURSE OUTCOMES	
ADVANCED COMPUTER NETWORKS M19 CST 1110	CST 1110.1	Illustrate reference models with layers, protocols and interfaces
	CST 1110.2	Describe Sub netting and Addressing of IP V4andIPV6.
	CST 1110.3	Describe and Analysis of basic protocols of computer networks, and how they can be used to assist in network design and implementation
	CST 1110.4	Discuss the concepts of congestion control and quality of service
	CST 1110.5	Demonstrate Data Communications System and its components.

### Course Name: (EMBEDDED COMPUTING)

COURSE	COURSE OUTCOMES	
EMBEDDED COMPUTING M19 CST 1111	CST 1111.1	Describes the differences between the general computing system and the embedded computing system.
	CST 1111.2	Summarizes various software development tools like GNU, GCC etc
	CST 1111.3	Develop interface modules for various types of sensors
	CST 1111.4	Write client server program using TCP and UDP sockets

# Course Name: (PARALLEL COMPUTER ARCHITECTURE)

COURSE	COURSE OUTCOMES	
PARALLEL	CST 1112.1	Students accustomed with the representation of data, addressing modes, and instructions sets
COMPUTER ARCHITECTURE M19 CST 1112	CST 1112.2	Students able to understand parallelism both in terms of a single processor and multiple processors Technical knowhow of parallel hardware constructs to include instruction-level parallelism for multi core processor design

# Course Name: (RESEARCH METHODOLOGY AND IPR)

COURSE	COURSE OUTCOMES	
	RD 1101.1	Analyze research related information
RESEARCH METHODOLOGY AND IPR M19 RD 1101	RD 1101.2	Formulate a Research Proposals and Publish papers with research ethics
	RD 1101.3	Award for Intellectual Property Rights like Patents, Trade and Copyrights
	RD 1101.4	Analyze Various Intellectual Property Rights
	RD 1101.5	Assess New Developments of IPRs in National and International level

# Course Name: (ADVANCED DATA STRUCTURES LAB)

COURSE	COURSE OUTCOMES	
ADVANCED DATA STRUCTURES LAB M19 CST 1113	CST 1113.1	Develop solutions for a range of problems using object oriented programming
	CST 1113.2	Implement complex problems using advanced data structures (like Dictionaries, Skip Lists and trees.)
	CST 1113.3	Implement operations like searching, insertion, and deletion, traversing mechanism etc. on various data structures.
	CST 1113.4	Utilize data structures in the applications such as binary search trees, AVL and B Trees

#### Course Name: (COMPUTING LAB)

COURSE	COURSE OUTCOMES	
COMPUTING LAB M19 CST 1114	CST 1114.1	Write programs using different python packages.
	CST 1114.2	Apply AI problem solving approaches to natural language processing. (Specialization 1)
	CST 1114.3	Organize Real time data processing using Hadoop. (Specialization 2)
	CST 1114.4	Develop different cryptography algorithms in java (Specialization 3)

### Course Name: (ENGLISH FOR RESEARCH PAPER WRITING)

COURSE	COURSE OUTCOMES	
ENGLISH FOR RESEARCH	AC0001.1	Understand that how to improve your writing skills and level of readability
PAPER WRITING	AC0001.2	Learn about what to write in each section
M19 AC 0001	AC0001.3	Understand the skills needed when writing a Title Ensure the good quality of paper at very first time submission

# Course Name: (SANSKRIT FOR TECHNICAL KNOWLEDGE)

COURSE	COURSE OUTCOMES	
SANSKRIT FOR	AC0003.1	Understanding basic Sanskrit language.
TECHNICAL KNOWLEDGE M19 AC 0003	AC0003.2	Ancient Sanskrit literature about science & technology can be understood.
	AC0003.3	Being a logical language will help to develop logic in students.

# **Course Name: (VALUE EDUCATION)**

COURSE	COURSE OUTCOMES	
VALUE	AC0004.1	Knowledge of self-development
EDUCATION M19 AC 0004	AC0004.2	Learn the importance of Human values
	AC0004.3	Developing the overall personality

# Course Name: (CONSTITUTION OF INDIA)

COURSE		COURSE OUTCOMES	
CONSTITUTION OF INDIA M19 AC 0005	AC0005.1	Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.	
	AC0005.2	Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.	
	AC0005.3	Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution.	
	AC0005.4	Discuss the passage of the Hindu Code Bill of 1956.	

# Course Name: (STRESS MANAGEMENT BY YOGA)

COURSE	COURSE OUTCOMES	
STRESS		Develop a healthy mind in a healthy body thus improving social health also.
MANAGEMENT	AC0007.1	
DVVOCA		
BYYUGA		
M19 AC 0007	AC0007.2	Improve efficiency

#### Course Name: (PERSONALITY DEVELOPMENT THROUGH LIFEENLIGHTENMENT SKILLS)

COURSE		COURSE OUTCOMES
PERSONALITY DEVELOPMENT	AC0008.1	Study of Shrimad-Bhagwad-Geeta will help the student in developing his personality and achieve the highest goal in life.
THROUGH LIFEENLIGHTENMENT SKILLS	AC00082	The person who has studied Geeta will lead the nation and mankind to peace and prosperity.
M19 AC 0008	AC0008.3	Study of Neetishatakam will help in developing versatile personality of students.

#### **SEMESTER: 2**

### Course Name: (ADVANCED ALGORITHMS)

COURSE	COURSE OUTCOMES	
	CST 1201.1	Analyze the complexity/performance of different algorithms.
ADVANCED ALGORITHMS M19 CST 1201	CST 1201.2	Determine the appropriate data structure for solving a particular set of problems.
	CST 1201.3	Categorize the different problems in various classes according to their complexity.
	CST 1201.4	Students should have an insight of recent activities in the field of the advanced data structure.

#### **Course Name: (MACHINE LEARNING)**

COURSE	COURSE OUTCOMES	
MACHINE	CST1202.1	Recognize the characteristics of machine learning algorithms and their applications to real world problems
LEARNING M19 CST 1202	CST1202.2	Able to write and evaluate hypothesis
	CST1202.3	Apply kernel methods to solve real world problems.

# Course Name: (SOFT COMPUTING)

COURSE	COURSE OUTCOMES	
	CST 1203.1	Comprehend the fuzzy logic and the concept of fuzziness involved in various systems and fuzzy set theory
SOFT COMPUTING M19 CST 1203	CST 1203.2	Understand the concepts of fuzzy sets, knowledge representation using fuzzy rules, approximate reasoning, fuzzy inference systems, and fuzzy logic
	CST 1203.3	To understand the fundamental theory and concepts of neural networks, Identify different neural network architectures, algorithms, applications and their limitations
	CST 1203.4	Understand appropriate learning paradigms and its applications rules for each of the architectures and learn several neural network
	CST 1203.5	Reveal different applications of these models to solve engineering and other problems.

### Course Name: (ADVANCED NETWORK PRINCIPLES AND PROTOCALS)

COURSE	COURSE OUTCOMES	
ADVANCED	CST 1204.1	Familiarization of the different layers of TCP/IP protocol stack
NETWORK		<i>, , , ,</i>
PRINCIPLES AND PROTOCALS M19 CST 1204	CST 1204.2	Understanding of the working principle of different protocols at different layers

# Course Name: (INTERNET OF THINGS)

COURSE	COURSE OUTCOMES	
INTERNET OF THINGS M19 CST 1205	CST 1205.1	Summarize on the term 'internet of things' in different contexts.
	CST 1205.2	Analyze various protocols for IoT.
	CST 1205.3	Design a PoC of an IoT system using Rasperry Pi/Arduino
	CST 1205.4	Apply data analytics and use cloud offerings related to IoT.
	CST 1205.5	Analyze applications of IoT in real time scenario

# Course Name: (OPEN SOURCE PROGRAMMING)

COURSE	COURSE OUTCOMES	
OPEN SOURCE PROGRAMMING M19 CST 1206	CST 1206.1	Develop codes in open source web applications
	CST 1206.2	Understand the risks associated with the open source codes
	CST 1206.3	Write secure CGI scripts

# Course Name: (PATTERN RECOGNITION)

COURSE	COURSE OUTCOMES	
PATTERN RECOGNITION M19 CST 1207	CST 1207.1	Design systems and algorithms for pattern recognition (signal classification), with focus on sequences of patterns that are analyzed using, e.g., hidden Markov models (HMM)
	CST 1207.2	Analyze classification problems probabilistically and estimate classifier performance
	CST 1207.3	Understand and analyze methods for automatic training of classification systems
	CST 1207.4	Apply Maximum-likelihood parameter estimation in relatively complex probabilistic models, such as mixture density models and hidden Markov models
	CST 1207.5	Understand the principles of Bayesian parameter estimation and apply them in relatively simple probabilistic models

# Course Name: (NATURAL LANGUAGE PROCESSING)

COURSE	COURSE OUTCOMES		
NATURAL LANGUAGE PROCESSING M19 CST 1208	CST 1208.1	Explain approaches to syntax and semantics in NLP.	
	CST 1208.2	Demonstrate approaches to discourse, generation, dialogue and summarization within NLP.	
	CST 1208.3	Explain current methods for statistical approaches to machine translation.	
	CST 1208.4	Identify machine learning techniques used in NLP, including hidden Markov models and probabilistic	
	CST 1208.5	Explain context-free grammars, clustering and unsupervised methods, log linear and discriminative	

# Course Name: (FULL STACK TECHNOLOGIES)

COURSE	COURSE OUTCOMES	
FULL STACK TECHNOLOGIES M19 CST 1209	CST 1209.1	Identify the Basic Concepts of Web & Mark-up Languages
	CST 1209.2	Develop web Applications using Scripting Languages & Frameworks
	CST 1209.3	Creating and running applications using PHP
	CST 1209.4	Creating Our First Controller Working with and Displaying in Angular Js and Nested Forms with ng-form
	CST 1209.5	Working with the Files in React JS and Constructing Elements with Data

#### **Course Name: (PARALLEL ALGORITHMS)**

OURSE	COURSE OUTCOMES	
PARALLEL ALGORITHMS M19 CST 1210	CST 1210.1	Understand fundamental concepts of parallelism- pipeline, Amdahl 'slaw.
	CST 1210.2	Know the physical limits of linear approach and solving problems in parallel.
	CST 1210.3	How to design & analyze parallel algorithms and implement them with parallel processors.
	CST 1210.4	Understand various approaches in parallel sorting and Searching.
	CST 1210.5	Gain knowledge on various parallel processor architectures and know how to embed one Architecture into another.

# **Course Name: (OBJECT ORIENTED SOFTWARE ENGINEERING)**

OURSE	COURSE OUTCOMES	
OBJECT ORIENTED SOFTWARE ENGINEERING M19 CST 1211	CST 1211.1	Apply object-oriented programming principles to real-time problems.
	CST 1211.2	Analyze of a formally specified problem statement with respect to its accuracy and completeness, to effective testing of the software product
	CST 1211.3	Examine the specialised knowledge, skill and judgement needed to develop complex software by formulating relevant responses at each stage of the software development life-cycle.
	CST 1211.4	Produce appropriate documentation accurately and to a professional standard
	CST 1211.5	Apply skills relevant for academic progression and career development within the sector.

#### **Course Name: (DISTRIBUTED DATABASES)**

OURSE	COURSE OUTCOMES	
DISTRIBUTED CS DATABASES M19 CST 1212 CS CS	CST 1212.1	Identify the introductory distributed database concepts and its structures.
	CST 1212.2	Describe terms related to distributed object database design and management.
	CST 1212.3	Produce the transaction management and query processing techniques in DDBMS.
	CST 1212.4	Relate the importance and application of emerging database technology.

#### Course Name: (ADVANCE ALGORITHMS LAB)

OURSE	COURSE OUTCOMES		
ADVANCE ALGORITHMS LAB M19 CST 1213	CST 1213.1	Identify classes, objects, members of a class and relationships among them needed for a specific problem.	
	CST 1213.2	Examine algorithms performance using Prior analysis and asymptotic notations.	
	CST 1213.3	Organize and apply to solve the complex problems using advanced data structures (like arrays, stacks, queues, linked lists, graphs and trees.)	
	CST 1213.4	Apply and analyze functions of Dictionary	

#### Course Name: (MACHINE LEARNING LAB)

OURSE	COURSE OUTCOMES	
MACHINE LEARNING LAB M19 CST 1214	CST 1214.1	Implement procedures for the machine learning algorithms
	CST 1214.2	Apply appropriate data sets to the Machine Learning algorithms
	CST 1214.3	Identify and apply Machine Learning algorithms to solve real world problems
	CST 1214.4	Design Python programs for various Learning algorithms

#### **SEMESTER: 3**

# Course Name:(DEEP LEARNING)

COURSE	COURSE OUTCOMES	
	CST 2101.1	Demonstrate the basic concepts fundamental learning techniques and layers.
DEEP LEARNING M19 CST 2101	CST 2101.2	Discuss the Neural Network training, various random models.
	CST 2101.3	Explain different types of deep learning network models.
	CST 2101.4	Classify the Probabilistic Neural Networks
	CST 2101.5	Implement tools on Deep Learning techniques

# Course Name: (ETHICAL HACKING)

COURSE	COURSE OUTCOMES	
ETHICAL HACKING M19 CST 2102	CST 2102.1	Remember various hacking methods, system security vulnerability testing.
	CST 2102.2	Apply system vulnerability attacks and demonstrate a security assessment report
	CST 2102.3	Understand various issues related to hacking