SRKR ENGINEERING COLLEGE::BHIMAVARAM

Department of Computer Science and Engineering

R16

COURSE OUTCOMES

Program Name: B.Tech (Computer Science and Engineering)
Course Name: (ENGLISH)

COURSE	COURSE OUTCOMES	
ENGLISH B16 ENG 1101	ENG 1101.1	The overall performance of the students will be enhanced after the course; they will be in a position to make presentations on topics of current interests – politics, famous personalities, science and technology, tourism, work and business environment, with increased public speaking skills.
	ENG 1101.2	Students will be able to read, listen, speak and write effectively in both academic and non-academic environment.
	ENG 1101.3	The students will be updated with certain real life situations, which they can handle when come face to face.

Course Name: (MATHEMATICS-I)

COURSE	COURSE OUTCOMES	
MATHEMATICS-I B16 ENG 1102	ENG 1102.1	Find partial derivatives, expand a function of more than one variable in a Taylor series and utilize them for errors and approximations, maxima and minima.
	ENG 1102.2	Solve a first order ODE and also find orthogonal trajectories and solve problems related to simple applications.
	ENG 1102.3	Solve a given higher order ODE, an equation with constant coefficients, a Cauchy‟s equation or a Legendre‟s equation.
	ENG 1102.4	Utilize knowledge of Fourier series for solving partial differential equations and also in understanding courses like Signals & Systems

Course Name: (MATHEMATICS – II)

COURSE	COURSE OUTCOMES	
MATHEMATICS – II B16 ENG 1103	ENG 1103.1	Utilizing the knowledge of matrices for solving linear simultaneous equations, find Eigen values and Eigen vectors and handle quadratic forms
	ENG 1103.2	Utilizing the knowledge of Laplace Transforms to find transforms of important functions that arise in applications and also solve ODE
	ENG 1103.3	Also utilizing the knowledge of Laplace Transforms in courses like Net Works, Signals & Systems and Control Systems
	ENG 1103.4	Utilizing the knowledge of difference equations and Z-transforms in understanding courses like Discrete Mathematical Structures and also Signals & Systems

Course Name: (CHEMISTRY)

COURSE	COURSE OUTCOMES	
CHEMISTRY B16 ENG 1104	ENG 1104.1	Students learn in-depth about the topics of desalination of sea water, CNG, LPG Biogas, Semiconductors, Liquid crystals, Conducting polymers, fiber reinforced plastics, building materials.
	ENG 1104.2	Students understand the basic and advanced applied concepts.
	ENG 1104.3	Students learn to interrelate the theory and with the relevant experiment.
	ENG 1104.4	Students learn experimental techniques and understand the theory about experiments.

Course Name: (COMPUTER PROGRAMMING USING C & NUMERICAL METHODS)

COURSE	COURSE OUTCOMES	
COMPUTER PROGRAMMING USING C & NUMERICAL METHODS B16 ENG 1106	ENG 1106.1	Student can understand basic terminology used in C programming.
	ENG 1106.2	Student can write programs by applying elementary algorithms to solve problems in C language.
	ENG 1106.3	Student can write, compile and debug programs in C language.
	ENG 1106.4	Student can Write programs to solve numerical methods
	ENG 1106.5	Student can be familiar with finite precision computation.

Course Name: (HISTORY OF SCIENCE AND TECHNOLOGY)

COURSE	COURSE OUTCOMES	
HISTORY OF SCIENCE AND TECHNOLOGY B16 ENG 1108	ENG 1108.1	By the end of this course the students should be able to understand the contribution of Scientific and Technological developments for the benefit of society at large.

SEMESTER: 2 **COURSE YEAR: 2016-2017**

Course Name: (MATHEMATICS-III)

COURSE	COURSE OUTCOMES	
MATHEMATICS-III B16 ENG 1201	ENG 1201.1	Utilize knowledge of line, sphere etc. in his engineering subjects
	ENG 1201.2	Utilize the knowledge of Beta and Gamma functions and multiple integrals to evaluate the integrals they come across in their applications
	ENG 1201.3	Utilize the knowledge of Fourier Transform in courses like Signals and Systems and in the solution of partial differential equations at a later stage

Course Name: (PHYSICS)

COURSE	COURSE OUTCOMES	
PHYSICS B16 ENG 1202	ENG 1202.1	Students learn in depth about the topics of Lasers, fiber optics, quantum mechanical Theory and classical theories of thermodynamics and electromagnetism.
	ENG 1202.2	Students understand the classical and modern concepts.

Course Name: (ENGINEERING GRAPHICS)

COURSE	COURSE OUTCOMES	
ENGINEERING GRAPHICS B16 ENG 1204	ENG 1204.1	Apply principles of drawing to represent dimensions of an object.
	ENG 1204.2	Construct polygons and engineering curves.
	ENG 1204.3	Draw projections of points, lines, planes and solids.
	ENG 1204.4	Represent sectional views of solids.
	ENG 1204.5	Develop the surfaces of regular solids.
	ENG 1204.6	Draw the isometric views of solids and combination of solids.

Course Name: (PROFESSIONAL ETHICS AND MORAL VALUES)

COURSE	COURSE OUTCOMES	
PROFESSIONAL ETHICS AND MORAL VALUES B16 ENG 1206	ENG 1206.1	By the end of the course student should be able to understand the importance of ethics and values in life and society.

Course Name: (PROBABILITY, STATISTICS AND QUEUING THEORY)

COURSE	COURSE OUTCOMES	
PROBABILITY, STATISTICS AND QUEUING THEORY B16 CE 1208	CE 1208.1	Handle the situation of uncertainty in decision making in our day-to-day life.
	CE 1208.2	Identify the random variable as discrete/continuous and analyse it.
	CE 1208.3	Predict the distribution suitable for the given data from its moments.
	CE 1208.4	Measure the intensity of association between the variables and to fit a best suitable Curve for the given data.
	CE 1208.5	Decide the test applicable for giving inference about Population Parameter based on Sample statistic.
	CE 1208.6	Make business decisions about the resources needed to provide a service in day-to-day life applications including telecommunication, traffic engineering, computing and the design of factories, shops, offices and hospitals.

Course Name: (WORKSHOP)

COURSE	COURSE OUTCOMES	
WORKSHOP B16 ENG 1211	ENG 1211.1	Use various tools to prepare basic carpentry and fitting joints
	ENG 1211.2	Fabricate simple components using tin smithy.

Course Name: (ENGLISH LANGUAGE LAB)

COURSE	COURSE OUTCOMES	
ENGLISH LANGUAGE LAB B16 ENG 1213	ENG 1213.1	Students will be sensitized towards recognition of English sound pattern.
	ENG 1213.2	The fluency in speech will be enhanced.

SEMESTER: 3 **COURSE YEAR: 2017-2018**

Course Name: (DATA STRUCTURES)

COURSE	COURSE OUTCOMES	
DATA STRUCTURES B16 CS 2101	CS 2101.1	Describe how arrays, records, linked structures, stacks, queues, trees, and graphs are represented in memory and used by algorithms.
	CS 2101.2	Describe common applications for arrays, records, linked structures, stacks, queues, trees, and graphs. Write programs that use arrays, records, linked structures, stacks, queues, trees, and graphs Demonstrate different methods for traversing trees.
	CS 2101.3	Compare alternative implementations of data structures with respect to performance
	CS 2101.4	Compare and contrast the benefits of dynamic and static data structures implementations
	CS 2101.5	Describe the concept of recursion, give examples of its use, describe how it can be implemented using a stack
	CS 2101.6	Discuss the computational efficiency of the principal algorithms for sorting, searching.

Course Name: (ELEMENTS OF ELECTRONICS ENGINEERING)

COURSE	COURSE OUTCOMES	
ELEMENTS OF ELECTRONICS ENGINEERING B16 EC 2103	EC 2103	Understand the physical structure, principles of operation, electrical characteristics and circuit models of diodes, BJTs and FETs
	EC 2103	Use this knowledge to analyze and design basic electronic application circuits.
	EC 2103	Extend the understanding of how electronic circuits and their functions fit into larger electronic systems.

Course Name: C213 (DISCRETE MATHEMATICAL STRUCTURES)

COURSE	COURSE OUTCOMES	
DISCRETE MATHEMATICAL STRUCTURES B16 ENG 2102	ENG 2102.1	Rewrite the mathematical arguments using logical connectives and quantifiers and verify the validity of the arguments using propositional and predicate logic.
	ENG 2102.2	Solve different counting problems.
	ENG 2102.3	Solve the recurrence relations which occur in many fields.
	ENG 2102.4	Identify and give examples of various types of relations and describe various properties of relations.
	ENG 2102.5	Determine isomorphism of graphs and utilize the concepts in graphs & trees in their fields.
	ENG 2102.6	Understand the importance of Groups, lattice structures and their diagrammatic representations and also the importance of Boolean algebra in computer science.

Course Name: (OBJECT ORIENTED PROGRAMMING)

COURSE	COURSE OUTCOMES	
OBJECT ORIENTED PROGRAMMING B16 CS 2102	CS 2102.1	Students will be able to handle I/O streams and Run time errors.
	CS 2102.2	Students will be able to construct applications and Identify where data structures are appearing in them

Course Name: (DIGITAL LOGIC DESIGN)

COURSE	COURSE OUTCOMES	
DIGITAL LOGIC DESIGN B16 CS 2103	CS 2103.1	An ability to define different number systems, binary addition and subtraction, 2"s complement representation and operations with this representation.
	CS 2103.2	An ability to understand the different Boolean algebra theorems and apply them for logic functions.
	CS 2103.3	An ability to define the Karnaugh map for a few variables and perform an algorithmic reduction of logic functions.

	CS 2103.4	An ability to define the following combinational circuits: multiplexer, de-multiplexers encoders/decoders, comparators, arithmetic-logic units; and to be able to build simple circuits.
	CS 2103.5	An ability to understand asynchronous and synchronous sequential circuits, like counters and shift registers.
	CS 2103.6	An ability to understand memories like RAM and ROM, Programmable Logic Array and Programmable Array Logic.

Course Name: (ENVIRONMENTAL STUDIES)

COURSE	COURSE OUTCOMES	
ENVIRONMENTAL STUDIES B16 ENG 2103	ENG 2103.1	Get awareness among the students about the nature and natural ecosystems.
	ENG 2103.2	Learn sustainable utilization of natural resources like water, land, minerals, air.
	ENG 2103.3	Learn resource pollution and over exploitation of land, water, air and catastrophic (events) impacts of climate change, global warming, ozone layer depletion, marine, radioactive pollution etc to inculcate the students about environmental awareness and safe transfer of our mother earth and its natural resources to the next generation
	ENG 2103.4	Safe guard against industrial accidents particularly nuclear accidents.
	ENG 2103.5	Learn Constitutional provisions for the protection of natural resources.

Course Name: (DATA STRUCTURES LAB)

COURSE	COURSE OUTCOMES	
DATA STRUCTURES LAB B16 CS 2105	CS 2105.1	Student will be able to write programs to implement stacks and queues.
	CS 2105.2	Ability to implement various searching and sorting techniques
	CS 2105.3	Ability to implement programs using trees and graphs.

Course Name: (OBJECT ORIENTED PROGRAMMING LAB)

COURSE	COURSE OUTCOMES	
OBJECT ORIENTED PROGRAMMING LAB B16 CS 2106	CS 2106.1	Student will be able to use OOPs concepts
	CS 2106.2	Ability to apply Inheritance concepts to several problems.
	CS 2106.3	Ability to use Exception Handling concepts.

Course Name: (ENGLISH PROFICIENCY)

COURSE	COURSE OUTCOMES	
ENGLISH PROFICIENCY B16 ENG 2104	ENG 2104.1	Students enhance their vocabulary and use it in the relevant contexts .
	ENG 2104.2	They improve speaking skills.
	ENG 2104.3	They learn and practice the skills of composition writing.
	ENG 2104.4	They enhance their reading and understanding of different texts.
	ENG 2104.5	They enrich their communication both in formal and informal contexts.
	ENG 2104.6	They strengthen their confidence in presentation skills.

Course Name: (INDUSTRY ORIENTED TRAINING)

COURSE	COURSE OUTCOMES	
INDUSTRY ORIENTED TRAINING B16 ENG 2105	ENG 2105.1	Design and develop basic web pages using HTML
	ENG 2105.2	Apply cascading style sheets to web pages in order to separate form from content.
	ENG 2105.3	Understand & Apply basic control of elements with JavaScript.
	ENG 2105.4	Understand the basic concepts of PHP scripting
	ENG 2105.5	Able to design & complete a project by applying above all the concepts.

SEMESTER: 4 **COURSE YEAR: 2017-2018**

Course Name: (OPERATING SYSTEMS)

COURSE	COURSE OUTCOMES	
OPERATING SYSTEMS B16 CS 2201	CS 2201.1	The student understands OS evolution, its structure and services provided by it.
	CS 2201.2	Learn process life cycle, process scheduling objectives, policies and mechanisms, process synchronization; inter process communication, deadlocks and other process subsystem related concepts.
	CS 2201.3	Learn memory hierarchy, allocation, de-allocation policies and mechanism for main and auxiliary memory, file system design and implementation issues.

Course Name: (COMPUTER ORGANIZATION)

COURSE	COURSE OUTCOMES	
COMPUTER ORGANIZATION B16 CS 2202	CS 2202.1	Apply the basic knowledge about Digital logic to the Functional components of computer.
	CS 2202.2	Students will be able to Describe the major components of a computer.
	CS 2202.3	Students will be able to classify different Computer Instructions.
	CS 2202.4	Students will be able to Describe Instruction set architecture.
	CS 2202.5	Recognize the importance of peripheral devices.
	CS 2202.6	Students should be able to classify Computer memories

Course Name: (MICROPROCESSORS)

COURSE	COURSE OUTCOMES	
MICROPROCESSORS B16 CS 2203	CS 2203.1	Understand the basic architectures of 8085 and 8086 microprocessors.
	CS 2203.2	Ability to write ALP programs using instruction sets of 8085 & 8086.
	CS 2203.3	Understand the various interfacing concepts.

Course Name: (DATA COMMUNICATIONS)

COURSE	COURSE OUTCOMES	
DATA COMMUNICATIONS B16 CS 2204	CS 2204.1	Students will have the ability to use Data Communications and Networking Protocols and protocol architectures
	CS 2204.2	Students will have the ability to develop communication models for providing data transmission facility
	CS 2204.3	Students will have the ability to outline Data Communication terminology
	CS 2204.4	Students will have the ability to classify various transmission media
	CS 2204.5	Students will have the ability to discriminate various types of signals for data transmission and ability to describe data encoding techniques
	CS 2204.6	Students will have the ability to describe data communications interface
	CS 2204.7	Students will have the ability to apply various flow control , error control techniques of data link control protocols
	CS 2204.8	Students will have the ability to use various data communication terminals and processing hardware
	CS 2204.9	Students will have the ability to demonstrate multiplexing techniques

Course Name: (ADVANCED DATA STRUCTURES)

COURSE	COURSE OUTCOMES	
ADVANCED DATA STRUCTURES B16 CS 2205	CS 2205.1	Student will be able to write programs to implement various trees.
	CS 2205.2	Ability to understand various hashing techniques.
	CS 2205.3	Ability to write programs to implement sorting techniques.
	CS 2205.4	Ability to understand concepts related to graph theory.

Course Name: (COMPUTER GRAPHICS)

COURSE	COURSE OUTCOMES	
COMPUTER GRAPHICS B16 CS 2206	CS 2206.1	Summarize the application areas of computer graphics
	CS 2206.2	Implement algorithms for scan converting graphic primitives in a graphic package.
	CS 2206.3	Apply direct and indirect methods for two-dimensional transformations using matrices.
	CS 2206.4	Construct three-dimensional geometric transformations using matrices.
	CS 2206.5	Visualize two-dimensional viewing transformations
	CS 2206.6	Produce views of three-dimensional scenes.
	CS 2206.7	Visualize the working of I/O devices

Course Name: (OPERATING SYSTEMS AND UNIX PROGRAMMING LAB)

COURSE	COURSE OUTCOMES	
OPERATING SYSTEMS AND UNIX PROGRAMMING LAB B16 CS 2207	CS 2207.1	The student practices UNIX commands, Vi editor, shell commands.
	CS 2207.2	The student develops skill in writing C programs using system calls for process management; inter process communication and memory management aspects.
	CS 2207.3	The student learns shell programming and develops skill for writing scripts for batch level tasks.

Course Name: (DIGITAL ELECTRONICS AND MICRO PROCESSORS LAB)

COURSE	COURSE OUTCOMES	
DIGITAL ELECTRONICS AND MICRO PROCESSORS LAB B16 CS 2208	CS 2208.1	The student understands the logic gates, half adders, full adders and flip-flops to design a circuit.
	CS 2208.2	The student develops the skill of writing microprocessor programming.
	CS 2208.3	The student understands the interfacing of microprocessor with stepper motor, R-2R ladder

Course Name: (COMPETETIVE PROGRAMMING)

COURSE	COURSE OUTCOMES	
COMPETETIVE PROGRAMMING B16 CS 2209	CS 2209.1	Write programs using python programming
	CS 2209.2	Write algorithms
	CS 2209.3	Implement various data Structures
	CS 2209.4	To apply object oriented mechanisms
	CS 2209.5	To Implement various Advance data Structures like AVL trees, B-Trees, Splay trees etc

Course Name: (INDUSTRY ORIENTED TRAINING)

COURSE	COURSE OUTCOMES	
INDUSTRY ORIENTED TRAINING B16 ENG 2203	ENG 2203.1	Implement the linked lists in real time applications.
	ENG 2203.2	Apply the file handling operations.
	ENG 2203.3	Apply the Searching & Sorting algorithms.
	ENG 2203.4	Implement Stack & Queue operations.
	ENG 2203.5	Implement the concepts and applications of Trees and Graphs.

SEMESTER: 5 **COURSE YEAR: 2018-2019**

Course Name: (COMPUTER NETWORKS)

COURSE	COURSE OUTCOMES	
COMPUTER NETWORKS B16 CS 3101	CS 3101.1	Distinguish between Circuit Switching and Packet Switching approaches
	CS 3101.2	Apply various concepts of ATM networks
	CS 3101.3	Distinguish between various types of Networks
	CS 3101.4	Apply various Congestion Control Techniques
	CS 3101.5	Know Internetwork Operation.
	CS 3101.6	Know various Connection Oriented Transport Control Mechanisms.

Course Name: (WEB TECHNOLOGIES)

COURSE	COURSE OUTCOMES	
WEB TECHNOLOGIES B16 CS 3102	CS 3102.1	Students will be able to construct web based applications and Identify where data structures are appearing in them.
	CS 3102.2	Students will be able to connect java programs to different databases.
	CS 3102.3	Students will be able to develop EJB programs

Course Name: (FORMAL LANGUAGES AND AUTOMATA THEORY)

COURSE	COURSE OUTCOMES	
FORMAL LANGUAGES AND AUTOMATA THEORY B16 CS 3103	CS 3103.1	Ability to identify analytically and intuitively for problem- solving situations in related areas of theory in computer science by using Finite-State Machines, Deterministic Finite- State Automata, Nondeterministic Finite-State Automata.
	CS 3103.2	Ability to describe the language accepted by an automata or generated by a regular expression or a context-free grammar.
	CS 3103.3	Ability to describe the functioning of Pushdown Automata.
	CS 3103.4	Ability to describe the functioning of Turing Machines.

Course Name: (DATABASE MANAGEMENT SYSTEMS)

COURSE	COURSE OUTCOMES	
DATABASE MANAGEMENT SYSTEMS B16 CS 3104	CS 3104.1	Generalize the basic concepts of DBMS
	CS 3104.2	Discover the relational model and formal query languages
	CS 3104.3	Prepare SQL commands for definition, constructing and manipulation of databases
	CS 3104.4	Apply conceptual and logical database design
	CS 3104.5	Apply normalization on tables
	CS 3104.6	Schedule concurrent transactions using locking protocols and protocols without locking
	CS 3104.7	Recover transactions
	CS 3104.8	Examine database connection techniques

Course Name: (EMBEDDED SYSTEMS)

COURSE	COURSE OUTCOMES	
EMBEDDED SYSTEMS B16 CS 3105	CS 3105.1	To describe the differences between general computing system and Embedded System.
	CS 3105.2	To recognize the classification of Embedded System.
	CS 3105.3	To understand various architectures of Embedded System.
	CS 3105.4	To design Real Time Embedded System using the concepts of RTOS.
	CS 3105.5	To load embedded software on Host machine.
	CS 3105.6	To test Host machine

Course Name: (BIO-INFORMATICS)

COURSE	COURSE OUTCOMES	
BIO-INFORMATICS B16 CS 3106	CS 3106.1	Remember various bio-informatic terminology and Biological sequences.
	CS 3106.2	Use various Genome and Protein databases.
	CS 3106.3	Analyse various DNA sequences.
	CS 3106.4	Use various tools for Sequence analysis.

Course Name: (IMAGE PROCESSING)

COURSE	COURSE OUTCOMES	
IMAGE PROCESSING B16 CS 3107	CS 3107.1	Ability to develop algorithms for fundamental concepts in Image processing.
	CS 3107.2	Ability to perform image enhancement , image compression and image segmentation using various methods.
	CS 3107.3	Ability to implement Image transformation techniques

Course Name: (APPLICATION DEVELOPMENT USING JAVA)

COURSE	COURSE OUTCOMES	
APPLICATION DEVELOPMENT USING JAVA B16 CS 3108	CS 3108.1	Able to do projects for web based and internet applications.
	CS 3108.2	Understand multitasking and multiprogramming development
	CS 3108.3	Able to do network programming.
	CS 3108.4	Able to Construct Web application using Java Server Pages

Course Name: (DATABASE MANAGEMENT SYSTEMS LAB)

COURSE	COURSE OUTCOMES	
DATABASE MANAGEMENT SYSTEMS LAB B16 CS 3110	CS 3110.1	The student is exposed to a commercial RDBMS environment such as ORACLE.
	CS 3110.2	The student will learn SQL commands for data definition and manipulation.
	CS 3110.2	The student applies conceptual design.
	CS 3110.3	The student applies Logical data base design.
	CS 3110.4	The student takes up a case study and applies the design steps.

Course Name: (APPLIATION DEVELOPMENT LAB)

COURSE	COURSE OUTCOMES	
APPLIATION DEVELOPMENT LAB B16 CS 3111	CS 3111.1	Students will be able to create sophisticated applications to Manipulate Window Interfaces Using Swing Objects, Graphics Objects and working with Streams and File Input /Output.
	CS 3111.2	Develop Swing-based GUI.
	CS 3111.3	Develop client/server applications and TCP/IP socket programming.
	CS 3111.4	Update and retrieve the data from the databases using SQL.

Course Name: (VERBAL & QUANTITATIVE APTITUDE – I)

COURSE	COURSE OUTCOMES	
VERBAL & QUANTITATIVE APTITUDE – I B16 ENG 3102	ENG 3102.1	Detect grammatical errors in the text/sentences and rectify them while answering their competitive/ company specific tests and frame grammatically correct sentences while writing.
	ENG 3102.2	Answer questions on synonyms, antonyms and other vocabulary based exercises while attempting CAT, GRE, GATE and other related tests.
	ENG 3102.3	Use their logical thinking ability and solve questions related to analogy, syllogisms and other reasoning based exercises.
	ENG 3102.4	Choose the appropriate word/s/phrases suitable to the given context in order to make the sentence/paragraph coherent.

	ENG 3102.5	Apply soft skills in the work place and build better personal and professional relationships making informed decisions.
	ENG 3102.6	The students will be able to perform well in calculating on number problems and various units of ratio concepts.
	ENG 3102.7	Accurate solving problems on time and distance and units related solutions.
	ENG 3102.8	The students will become adept in solving problems related to profit and loss, in specific, quantitative ability.
	ENG 3102.9	The students will present themselves well in the recruitment process using analytical and logical skills which he or she developed during the course as they are very important for any person to be placed in the industry.
	ENG 3102.10	The students will learn to apply Logical thinking to the problems of syllogisms andbe able to effectively attempt competitive examinations like CAT, GRE, GATE for further studies.

Course Name: (ADVANCED CODING)

COURSE	COURSE OUTCOMES	
ADVANCED CODING B16 ENG 3104	ENG 3104.1	Acquire coding knowledge on essential of modular programming
	ENG 3104.2	Acquire Programming knowledge on linked lists
	ENG 3104.3	Acquire coding knowledge on ADT
	ENG 3104.4	Acquire knowledge on time complexities of different methods
	ENG 3104.5	Acquire Programming skill on Java libraries and Collections

SEMESTER: 6 **COURSE YEAR: 2018-2019**

Course Name: (DATA WAREHOUSING & DATA MINING)

COURSE	COURSE OUTCOMES	
DATA WAREHOUSING & DATA MINING B16 CS 3201	CS 3201.1	The student understands the differences between OLTP and OLAP.
	CS 3201.2	The student learns how data cube technology supports structuring and querying high dimensional data.
	CS 3201.3	The student is introduced to similarity, distance, information gain and other performance and error metrics used for data mining.
	CS 3201.4	The student is introduced to association rule mining , supervised and unsupervised learning and the corresponding classification and clustering approaches involving decision trees, Bayesian approaches, model based and agglomerative approaches.

Course Name: (OBJECT ORIENTED SOFTWARE ENGINEERING)

COURSE	COURSE OUTCOMES	
OBJECT ORIENTED SOFTWARE ENGINEERING B16 CS 3202	CS 3202.1	Ability to define a problem and perform Requirements Engineering.
	CS 3202.2	Ability to draw UML diagrams for the requirements gathered.
	CS 3202.3	Ability to design various aspects of the system.
	CS 3202.4	Ability to implement the designed problem in Object Oriented Programming Language and test whether all the requirements specified have been achieved or not.
	CS 3202.5	Able to apply various testing approaches to test the system.
	CS 3202.6	Able to use various Process management activities.

Course Name: (DESIGN AND ANALYSIS OF ALGORITHMS)

COURSE	COURSE OUTCOMES	
DESIGN AND ANALYSIS OF ALGORITHMS B16 CS 3203	CS 3203.1	Students will be able to Argue the correctness of algorithms using inductive proofs and invariants and analyse worst-case running times of algorithms using asymptotic analysis.
	CS 3203.2	Describe the various paradigms of design when an algorithmic design situation calls for it. Recite algorithms that employ this paradigm and synthesize them .
	CS 3203.3	Students will be able to Compare between different data structures. Pick an appropriate data structure for a design situation.

Course Name: (COMPILER DESIGN)

COURSE	COURSE OUTCOMES	
COMPILER DESIGN B16 CS 3204	CS 3204.1	Ability to describe the lexical analyzer, and different types of parsers.
	CS 3204.2	Ability to describe the Intermediate Code generation in compiler.
	CS 3204.3	Ability to explain code optimization techniques to improve the performance of a program in terms of speed & space.
	CS 3204.4	Ability to explain code generation, symbol table and runtime storage administration.

Course Name: (ARTIFICIAL INTELLIGENCE)

COURSE	COURSE OUTCOMES	
ARTIFICIAL INTELLIGENCE B16 CS 3205	CS 3205.1	The Student understands AI problem characteristics, state space approach for solving AI problem, Production System framework.
	CS 3205.2	The student learns several optimal search strategies and the use of heuristics.
	CS 3205.3	The student learns relational, inferential, inheritable and procedural knowledge and the corresponding knowledge representation approaches.
	CS 3205.4	The student is introduced to applying AI problem solving approaches to natural language processing, planning and expert systems

Course Name: (CLOUD COMPUTING)

COURSE	COURSE OUTCOMES	
CLOUD COMPUTING B16 CS 3206	CS 3206.1	Define basic networking concepts for distributed and cloud computing.
	CS 3205.2	Identify Virtual machine concept.
	CS 3205.3	Explain the architecture of Cloud platform.
	CS 3205.4	Practice cloud programming.
	CS 3205.5	Explain the concepts regarding accessing the cloud and cloud storage.
	CS 3205.6	Develop cloud applications.

Course Name: (MOBILE COMPUTING)

COURSE	COURSE OUTCOMES	
MOBILE COMPUTING B16 CS 3207	CS 3207.1	To understand the mobile Technologies.
	CS 3207.2	To understand the various issues in mobile devices.
	CS 3207.3	To study the various generations of cellular networks.
	CS 3207.4	To study various applications like SMS,MMS,Mobile IP

Course Name: (DISTRIBUTED SYSTEMS)

COURSE	COURSE OUTCOMES	
DISTRIBUTED SYSTEMS B16 CS 3208	CS 3208.1	Scale as the number of entities in the system increase.
	CS 3208.2	Can sustain failures and recover from them.
	CS 3208.3	Work with distributed, fault tolerant file systems .
	CS 3208.4	Can handle and process large data volumes.
	CS 3208.5	Are secure and handle certain classes of distributed denial of service attacks .
	CS 3208.6	Are Loosely coupled, transactional and eventually stable

Course Name: (ADVANCED COMPUTER ARCHITECTURE)

COURSE	COURSE OUTCOMES	
ADVANCED COMPUTER ARCHITECTURE B16 CS 3209	CS 3209.1	Detailed idea about parallel computing models.
	CS 3209.2	Knowledge on hand about advanced processing, pipelining and super scalar techniques, Parallel, multi vector and multithreaded architectures.
	CS 3209.3	Knowing about parallel programming software's.

Course Name: (SOFTWARE ENGINEERING MINI PROJECT LAB)

COURSE	COURSE OUTCOMES	
SOFTWARE ENGINEERING MINI PROJECT LAB B16 CS 3213	CS 3213.1	Identify various phases of Software Development
	CS 3213.2	Use various Software engineering tools
	CS 3213.3	Develop small projects

Course Name: (NETWORK PROGRAMMING LAB)

COURSE	COURSE OUTCOMES	
NETWORK PROGRAMMING LAB B16 CS 3214	CS 3214.1	Students will be able to write Socket based Network application programs
	CS 3214.2	Students will be able to design and develop Client Server applications using Java
	CS 3214.3	Students will be able to write network applications like One-One chat ,Broadcasting and Multicasting
	CS 3214.4	Students will be able to understand e-mail programming (SMTP, POP).

Course Name: (VERBAL & QUANTITATIVE APTITUDE – II)

COURSE	COURSE OUTCOMES	
VERBAL & QUANTITATIVE APTITUDE – II B16 ENG 3202	ENG 3202.1	Construct coherent, cohesive and unambiguous verbal expressions in both oral and written discourses.
	ENG 3202.2	Analyze the given data/text and find out the correct responses to the questions asked based on the reading exercises; identify relationships or patterns within groups of words or sentences
	ENG 3202.3	Write paragraphs on a particular topic, essays (issues and arguments), e mails, summaries of group discussions, reports, make notes, statement of purpose(for admission into foreign universities), letters of recommendation(for professional and educational purposes).
	ENG 3202.4	Converse with ease during interactive sessions/seminars in their classrooms, compete in literary activities like elocution, debates etc., raise doubts in class, participate in JAM sessions/versant tests with confidence and convey oral information in a professional manner.
	ENG 3202.5	Participate in group discussions/group activities, exhibit team spirit, use language effectively according to the situation, respond to their interviewer/employer with a positive mind, tailor make answers to the questions asked during their technical/personal interviews, exhibit skills required for the different kinds of interviews (stress, technical, HR) that they would face during the course of their recruitment process.
	ENG 3202.6	The students will be able to perform well in calculating different types of data interpretation problems.
	ENG 3202.7	The students will perform efficaciously on analytical and logical problems using various methods.
	ENG 3202.8	Students will find the angle measurements of clock problems with the knowledge of calendars and clock.
	ENG 3202.9	The students will skillfully solve the puzzle problems like arrangement of different positions.
	ENG 3202.10	The students will become good at solving the problems of lines, triangulars, volume of cone, cylinder and so on.

Course Name: (COMPETETIVE CODING)

COURSE	COURSE OUTCOMES	
COMPETETIVE CODING B16 ENG 3205	ENG 3205.1	Acquire coding knowledge on essential of competitive coding
	ENG 3205.2	Acquire Programming knowledge on time & space complexities
	ENG 3205.3	Acquire coding knowledge on dynamic Arrays, Set & Map structures and sorting
	ENG 3205.4	Acquire knowledge on time complexities of different methods
	ENG 3205.5	Acquire Programming skill on String, Tree, Graph Theory algorithms

Course Name: (ANGULAR JS)

COURSE	COURSE OUTCOMES	
ANGULAR JS B16 CS 3215A	CS 3215A.1	The main objective of AngularJS is to reduce the code to build user interface application
	CS 3215A.2	To create single page applications
	CS 3215A.3	To restore data from back-end server and manipulate it easily

Course Name: (ASP.NET)

COURSE	COURSE OUTCOMES	
ASP.NET B16 CS 3215B	CS 3215B.1	To successfully build database-driven Web applications and Web Sites.
	CS 3215B.2	To build web-based enterprise applications using ASP.NET and Visual Studio.
	CS 3215B.3	It is easy to develop the Web Services using .Net framework in Service-oriented Architectures.

Course Name: (C#.NET & VB.NET)

COURSE	COURSE OUTCOMES	
C#.NET & VB.NET B16 CS 3215C	CS 3215C.1	Understand .NET Framework and describe some of the major enhancements to the new version of Visual Basic.
	CS 3215C.2	Describe the basic structure of a Visual Basic.NET project and use main features of the integrated development environment (IDE)
	CS 3215C.3	Create applications using Microsoft Windows Forms Create applications that use ADO. NET

SEMESTER: 7 **COURSE YEAR: 2019-2020**

Course Name: (MACHINE LEARNING)

COURSE	COURSE OUTCOMES	
MACHINE LEARNING B16 CS 4101	CS 4101.1	Identify the characteristics of machine learning that make it useful toreal-world problems.
	CS 4101.2	Classify machine learning algorithms as supervised, unsupervised
	CS 4101.3	Construct different tree models and rule models.
	CS 4101.4	Be able to demonstrate linear and distance based models.
	CS 4101.5	Be able to identify and construct features and ensemble models
	CS 4101.6	Infer the concept of artificial neural networks, reinforcement learning

Course Name: (BIG DATA ANALYTICS)

COURSE	COURSE OUTCOMES	
BIG DATA ANALYTICS B16 CS 4102	CS 4102.1	Gain conceptual understanding of analytics concepts, algorithms and statistical tests
	CS 4102.2	Students will be able to look at the core projects used for both batch and real time data processing such as Hadoop
	CS 4102.3	Students will be able to look at wider range of problems and data science based solutions

Course Name: (PRINCIPLES OF ECONOMICS & MANAGEMENT)

COURSE	COURSE OUTCOMES	
PRINCIPLES OF ECONOMICS & MANAGEMENT B16 ENG 4101	ENG 4101.1	Understand the links between production costs and the economic models of supply.
	ENG 4101.2	Represent supply, in graphical form, including the upward slope of the supply curve and what shifts the supply curve.
	ENG 4101.3	Understand the efficiency and equity implications of market interference, including government policy.
	ENG 4101.4	Understand how different degrees of competition in a market affect pricing and output.
	ENG 4101.5	Apply economic reasoning to individual and firm behavior.

Course Name: (KNOWLEDGE ENGINEERING LAB)

COURSE	COURSE OUTCOMES	
KNOWLEDGE ENGINEERIN G LAB B16 CS 4101	CS 4101.1	Student will be able to write R programs to perform several data analytics operations on datasets
	CS 4101.2	Ability to extract patterns by applying appropriate data mining techniques from different types of datasets using WEKA.
	CS 4101.3	Ability to apply knowledge represented in the form of rules to draw conclusions using either forward or backward chaining using CLIPS /PROLOG

Course Name: (BIG DATA ANALYTICS LAB)

COURSE	COURSE OUTCOMES	
BIG DATA ANALYTICS LAB B16 CS 4105	CS 4105.1	Applying data modeling techniques to large data sets.
	CS 4105.2	Creating applications for Big Data analytics.
	CS 4105.3	Building a complete business data analytic solution

Course Name: (PROJECT PHASE-I)

COURSE	COURSE OUTCOMES	
PROJECT PHASE-I B16 CS 4106	CS 4106.1	Identify a current problem through literature/field/case studies and define the background objectives and methodology for solving the same.
	CS 4106.2	Write report and present it effectively.

SEMESTER: 8 **COURSE YEAR: 2019-2020**

Course Name: (INTERNET OF THINGS)

COURSE	COURSE OUTCOMES	
INTERNET OF THINGS B16 CS 4201	CS 4201.1	Able to understand the application areas of IOT ·
	CS 4201.2	Able to realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks ·
	CS 4201.3	Able to understand building blocks of Internet of Things and characteristics.

Course Name: (CRYPTOGRAPHY AND NETWORK SECURITY)

COURSE	COURSE OUTCOMES	
CRYPTOGRAPHY AND NETWORK SECURITY B16 CS 4202	CS 4202.1	Realize the need and importance of network and data security in the Internet and in the distributed environments.
	CS 4202.2	Identify the different types of network security issues and their remedies.
	CS 4202.3	Application various cryptographic tools and techniques in different contexts and as per need of security levels.
	CS 4202.4	Implementation of some Internet security protocols and standards

Course Name: (OPERATIONS RESEARCH)

COURSE	COURSE OUTCOMES	
OPERATIONS RESEARCH B16 CS 4203	CS 4203.1	Describe the basic Operations Research models, and formulate and solve Linear Programming problems.
	CS 4203.2	Formulate and solve engineering and managerial situations as Transportation and Assignment problems.
	CS 4203.3	Determine the optimal solutions for various Job Sequencing and Replacement models
	CS 4203.4	Understand Games theory and Apply them to various competitive situations.
	CS 4203.5	Describe and illustrate various Inventory models. Discuss & schedule various project management problems by CPM & PERT.

Course Name: (INTERNET OF THINGS LAB)

COURSE	COURSE OUTCOMES	
INTERNET OF THINGS LAB B16 CS 4204	CS 4204.1	Able to understand and design the application areas of IOT ·
	CS 4204.2	Able to realize and design the revolution of Internet in Mobile Devices, Cloud & Sensor Networks ·
	CS 4204.3	Able to understand and design building blocks of Internet of Things and characteristics.

Course Name: (PROJECT PHASE-II)

COURSE	COURSE OUTCOMES	
PROJECT PHASE-II B16 CS 4205	CS 4205.1	Identify a current problem through literature/field/case studies and define the background objectives and methodology for solving the same.
	CS 4205.2	Analyze, design and develop a technology/ process.
	CS 4205.3	Implement and evaluate the technology at the laboratory level.
	CS 4205.4	Write report and present it effectively.