SRKR ENGINEERING COLLEGE :: BHIMAVARAM

Department of Computer Science and Engineering

R17

COURSE OUTCOMES

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

COURSE	COURSE OUTCOMES	
ENGLISH – I B17 BS 1101	BS 1101.1	Understand the rudiments of LSRW Skills, comprehension and fluency of speech.
	BS 1101.2	Gain confidence and competency in vocabulary and grammar.
	BS 1101.3	Listen, speak, read and write effectively in both the academic and non- academic environment
	BS 1101.4	Extend his/her reading skills towards literature.
	BS 1101.5	Strengthen his/her analytical and compositional skills.
	BS 1101.6	Understand the rudiments of LSRW Skills, comprehension and fluency of speech.

Course Name: (MATHEMATICS-I)

COURSE	COURSE OUTCOMES	
MATHEMATICS – I B17 BS 1102	BS 1102.1	Solve linear ordinary differential equations of first order and first degree. Also will be able to apply the knowledge in simple applications such as Newton‟s law of cooling, orthogonal trajectories and simple electrical circuits...
	BS 1102.2	Solve linear ordinary differential equations of second order and higher order. Also will be able to apply the knowledge in simple applications such as LCR circuits and Simple harmonic motion.
	BS 1102.3	Determine Laplace transform and inverse Laplace transform of various functions
	BS 1102.4	Use Laplace transforms to solve a linear ODE
	BS 1102.5	Calculate total derivative, Jocobian and maxima/minima of functions of two variables.
	BS 1102.6	Form partial differential equations and solve some standard types of first order PDEs. Find complimentary function and particular integral of linear higher order homogeneous and non[1]homogeneous PDEs.

Course Name: (MATHEMATICS-II)

COURSE	COURSE OUTCOMES	
MATHEMATICS –II B17 BS 1103	BS 1103.1	Find a real root of algebraic and transcendental equations using different methods.
	BS 1103.2	Know the relation between the finite difference operators. Determine interpolation polynomial for a given data.
	BS 1103.3	Evaluate numerically certain definite integrals applying Trapezoidal and Simpson‟s rules
	BS 1103.4	Solve a first order ordinary differential equation by Euler and RK methods
	BS 1103.5	Find Fourier series of a given function satisfying Dirichlet conditions. Find half range cosine and sine series for appropriate functions.
	BS 1103.6	Find Fourier transforms, Fourier cosine and sine transforms of appropriate functions and evaluate certain integrals using inverse transforms and Fourier integral.

Course Name: (ENGINEERING PHYSICS)

COURSE	COURSE OUTCOMES	
ENGINEERING PHYSICS B17 BS 1104	BS 1104.1	Learn the basic concepts of interference and diffraction of light and its applications..
	BS 1104.2	Understand the science of producing high intensity light beams for technological applications and also understand the propagation of light waves in optical fibers in various applications
	BS 1104.3	Understand the inter relationship of electric and magnetic fields and learn ultrasonic‟s as a tool for technological applications
	BS 1104.4	Learn the behavior of particles at the very microscopic level by using wave nature of particles and understand the behavior of materials and be able to classify them using the band theory of solids.
	BS 1104.5	Learn the basics of structures of solid materials and nano material preparation Techniques/methods.

Course Name: (COMPUTER PROGRAMMING USING C)

COURSE	COURSE OUTCOMES	
COMPUTER PROGRAMMING USING C B17 CS 1101	CS 1101.1	Understand the basic terminology used in computer programming
	CS 1101.2	Write, compile and debug programs in C language.
	CS 1101.3	Use different data types in a computer program. Design programs involving decision structures, loops and functions.
	CS 1101.4	Explain the difference between call by value and call by reference
	CS 1101.5	Understand the dynamics of memory by the use of pointers
	CS 1101.6	Use different data structures and create/update basic data files.

Course Name: (ENVIRONMENTAL STUDIES)

COURSE	COURSE OUTCOMES	
ENVIRONMENTAL STUDIES B17 CE 1101	CE 1101.1	To bring awareness among the students about the nature and natural ecosystems
	CE 1101.2	Sustainable utilization of natural resources like water, land, energy and air
	CE 1101.3	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
	CE 1101.4	Safe guard against industrial accidents particularly nuclear accidents
	CE 1101.5	Constitutional provisions for the protection of natural resources

Course Name: (ENGINEERING PHYSICS LAB)

COURSE	COURSE OUTCOMES	
ENGINEERING PHYSICS LAB B17 BS 1106	BS1106.1	Physics lab curriculum gives fundamental understanding of design of an instrument with targeted accuracy for physical measurementsindividually.
	BS1106.2	Students get hands on experience in setting up experiments and using the instruments/equipment
	BS1106.3	Get introduced to using new/ advanced technologies and understand their significance.

Course Name: (ENGLISH COMMUNICATIONSKILS LAB- I)

COURSE	COURSE OUTCOMES	
ENGLISH COMMUNICATION SKILS LAB- I B17 BS 1108	BS 1108.1	A study of the communicative items in the laboratory will help the students become successful in the competitive world.
	BS 1108.2	Students improve their speaking skills in real contexts.
	BS 1108.3	Students learn standard pronunciation and practice it daily discourse
	BS 1108.4	Students give up their communicative barriers.

Course Name: (C PROGRAMMING LAB& HARDWARE FUNDAMENTALS)

COURSE	COURSE OUTCOMES	
C PROGRAMMING LAB& HARDWARE FUNDAMENTALS Common to CSE & IT B17 CS 1102	CS 1102.1	Apply and practice logical ability to solve the problems.
	CS 1102.2	Understand C programming development environment, compiling, debugging, and linking and executing a program using the development environment.
	CS 1102.3	Analyzing the complexity of problems, Modularize the problems into small modules and then convert them into programs.
	CS 1102.4	Understand and apply the in-built functions and customized functions for solving the problems.
	CS 1102.5	Understand and apply the pointers, memory allocation techniques and use of files for dealing with variety of problems.
	CS 1102.6	Document and present the algorithms, flowcharts and programs in form of user manuals.
	CS 1102.7	Identification of various computer components, Installation of software

Course Name: (ENGINEERING PHYSICS VIRTUAL LABS – ASSIGNMENTS)

COURSE	COURSE OUTCOMES	
ENGINEERING PHYSICS VIRTUAL LABS – ASSIGNMENTS B17 BS 1110	CS 1102.1	Physics Virtual laboratory curriculum in the form of assignment ensures an engineering graduate prepares a /technical/mini-project/ experimental report with scientific temper.

SEMESTER: 2 **COURSE YEAR: 2017-2018**

Course Name: (ENGLISH – II)

COURSE	COURSE OUTCOMES	
ENGLISH – II B17BS 1201	BS 1201.1	To comprehend the speech of people belonging to different backgrounds and regions.
	BS 1201.2	Understand the importance of speaking and writing for personal and professional communication and practice it in real contexts.
	BS 1201.3	To express fluently and accurately in social discourse
	BS 1201.4	Participate in group activities like role-plays, discussions and debates.
	BS 1201.5	Identify the discourse features, and improve intensive and extensive reading skills.

Course Name: (MATHEMATICS–III)

COURSE	COURSE OUTCOMES	
MATHEMATICS–III B17 BS 1203	BS 1203.1	Determine rank, and solve a system of linear simultaneous equations numerically using various matrix methods.
	BS 1203.2	Determine Eigen values and Eigen vectors of a given matrix, Reduce a Quadratic form to its canonical form and classify
	BS 1203.3	Evaluate double integrals over a region and triple integral over a volume.
	BS 1203.4	Use the knowledge of Beta and Gamma functions in evaluation of different integrals.
	BS 1203.5	Find gradient of a scalar function, divergence and curl of a vector function. Use vector identities for solving problems.
	BS 1203.6	Evaluate line, surface and volume integrals by the use of Green‟s, Stokes‟ and Gauss divergence theorems.

Course Name: (ENGINEERING CHEMISTRY)

COURSE	COURSE OUTCOMES	
ENGINEERING CHEMISTRY B17 BS 1205	BS 1205.1	At the end of the course the students learn the advantages and limitations of plastic materials and their use in design.
	BS 1205.2	Fuels which are used commonly and their economics, advantages and limitations are discussed.
	BS 1205.3	Students gained Knowledge reasons for corrosion and some methods of corrosion control.
	BS 1205.4	Students understands the impurities present in raw water, problems associated with them and how to avoid them.
	BS 1205.5	Similarly students understand liquid crystals and semi conductors. Students can gain the building materials , solar materials, lubricants and energy storage devices.

Course Name: (ENGINEERING DRAWING)

COURSE	COURSE OUTCOMES	
ENGINEERING DRAWING B17 ME 1201	ME 1201.1	Apply principles of drawing to represent dimensions of an object.
	ME 1201.2	Construct polygons and engineering curves.
	ME 1201.3	Draw projections of points, lines, planes and solids.
	ME 1201.4	Represent the object in 3D view through isometric views
	ME 1201.5	Convert the isometric view to orthographic view and vice versa

Course Name: (OBJECT-ORIENTED PROGRAMMING THROUGH C++)

COURSE	COURSE OUTCOMES	
OBJECT-ORIENTED PROGRAMMING THROUGH C++ B17 CS 1202	CS 1202.1	Write, compile and debug programs in C++ language. Use different data types in a computer program.
	CS 1202.2	Design programs involving decision structures, loops and functions
	CS 1202.3	Explain classes and abstract classes and objects, abstraction and encapsulation, inheritance, polymorphism, constructors, access control and overloading
	CS 1202.4	Solve a given application problem by going through the basic steps of program specifications, analysis, design, implementation and testing within the context of the object oriented paradigm.

Course Name: (ELEMENTS OF ELECTRONICS ENGINEERING)

COURSE	COURSE OUTCOMES	
ELEMENTS OF ELECTRONICS ENGINEERING B17 EC 1201	EC 1201.1	Understand the basic concepts of transport of charge carriers in semiconductors, drift and diffusion currents, physical structure, operation, V-I characteristics of semiconductor diode. .
	EC 1201.2	Understand the basic concepts of special types of diodes like Zener Diode, LED, Photo Diode and tunnel diode, rectifier circuits with and without filters.
	EC 1201.3	Understand the physical structure, operation, input and output characteristics of BJT in CE,CB,CC circuit configurations.
	EC 1201.4	Understand the basic concepts of transistor biasing and thermal stabilization
	EC 1201.5	Understand the physical structure, operation, characteristics and circuit models of JFET‟s and MOSFET‟s.

Course Name: (ENGINEERING CHEMISTRY LAB)

COURSE	COURSE OUTCOMES	
ENGINEERING CHEMISTRY LAB B17 BS 1207	BS 1207.1	An understanding of Professional and develop confidence on recent trends.
	BS 1207.2	Able to gain technical knowledge of measuring, operating and testing of chemical instruments and equipments
	BS 1207.3	Acquire ability to apply knowledge of chemistry.
	BS 1207.4	Exposed to the real time working environment
	BS 1207.5	Demonstrate the ability to learn Principles, design and conduct experiments.
	BS 1207.6	Ability to work on laboratory and multidisciplinary tasks.

Course Name: (ENGLISH COMMUNICATION SKILS LAB- II)

COURSE	COURSE OUTCOMES	
ENGLISH COMMUNICATION SKILS LAB- II B17 BS 1208	BS 1208.1	A study of the communicative items in the laboratory will help the students become successful in the competitive world.
	BS 1208.2	Students enhance their presentation skills.
	BS 1208.3	Students participate in group discussions and improve their team skills.
	BS 1208.4	Students confidently face the interviews.

Course Name: (OBJECT ORIENTED PROGRAMMING LAB)

COURSE	COURSE OUTCOMES	
OBJECT-ORIENTED PROGRAMMING LAB B17 CS 1205	CS 1205.1	Explain what constitutes an object-oriented approach to programming and identify potential benefits of object-oriented programming over other approaches
	CS 1205.2	Apply an object-oriented approach to developing applications of varying complexities.

Course Name: (INNER ENGINEERING)

COURSE	COURSE OUTCOMES	
INNER ENGINEERING B17 BS 1212	BS 1212.1	To improve his concentration levels and improve his public speaking abilities.
	BS 1212.2	To balance his academic and non-academic activities (Work Life Balance).
	BS 1212.3	To widen his vision and increase his breadth of perspective in his journey of 4 years.
	BS 1212.4	To improve his communications skills, leadership, teamwork and decision-making abilities.
	BS 1212.5	To inculcate creativity & innovation, planning & organizing as part of their life.
	BS 1212.6	Taking responsibility for themselves and people around them.
	BS 1212.7	To make their journey more fun and enjoyable.

SEMESTER: 3 **COURSE YEAR: 2018-2019**

Course Name: (DATA STRUCTURES)

COURSE	COURSE OUTCOMES	
DATA STRUCTURES B17 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 [ABET (a)].
	CS 2101.3	Compare alternative implementations of data structures with respect to performance [ABET (a, b, c)].
	CS 2101.4	Compare and contrast the benefits of dynamic and static data structures implementations [ABET (a, b, c)].
	CS 2101.5	Describe the concept of recursion, give examples of its use, describe how it can be implemented using a stack [ABET (a, c)].
	CS 2101.6	Discuss the computational efficiency of the principal algorithms for sorting, searching.

Course Name: (PROBABILITY, STATISITICS & QUEUING THEORY)

COURSE	COURSE OUTCOMES	
PROBABILITY, STATISITICS & QUEUING THEORY B17 BS 2102	BS 2102.1	Identify the random variable as discrete/continuous and analyse it.
	BS 2102.2	Predict the distribution suitable for the given data from its moments.
	BS 2102.3	Measure the intensity of association between the variables.
	BS 2102.4	Fit a best suitable Curve for the given data.
	BS 2102.5	Decide the test applicable for giving inference about Population Parameter based on Sample statistic.
	BS 2102.6	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: (COMPUTER GRAPHICS)

COURSE	COURSE OUTCOMES	
COMPUTER GRAPHICS B17CS2102	CS 2102.1	Summarize the application areas of computer graphics
	CS 2102.2	Implement algorithms for scan converting graphic primitives in a graphic package
	CS 2102.3	Apply direct and indirect methods for two-dimensional transformations using matrices.
	CS 2102.4	Construct three-dimensional geometric transformations using matrices.
	CS 2102.5	Visualize two-dimensional viewing transformations
	CS 2102.6	Produce views of three-dimensional scenes.
	CS 2102.7	Visualize the working of I/O devices

Course Name: (DIGITAL LOGIC DESIGN)

COURSE	COURSE OUTCOMES	
DIGITAL LOGIC DESIGN B17CS 2103	CS 2103.1	An Ability to define different number systems, binary addition and subtraction, 2`s complement representation and operations with his representation.
	CS 2103.2	An Ability to understand different Boolean Algebra theorems and apply them for logic functions.
	CS 2103.3	An Ability to design 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 registers.
	CS 2103.6	An ability to understand memories like RAM and ROM, Programmable Logic Devices

Course Name: (DATA ANALYSIS AND VISUALIZATION USING PYTHON)

COURSE	COURSE OUTCOMES	
DATA ANALYSIS AND VISUALIZATION USING PYTHON B17 CS 2104	CS 2104.1	Acquire knowledge on Basics of Python
	CS 2104.2	Acquire knowledge on OOP of Python
	CS 2104.3	Acquire knowledge on NumPy and Basics of Statistics
	CS 2104.4	Use library such as Pandas
	CS 2104.5	Acquire knowledge on Graph Visualizations in Python
	CS 2104.6	Acquire knowledge on Data analysis

Course Name: (DATA STRUCTURES LAB)

COURSE	COURSE OUTCOMES	
DATA STRUCTURES LAB B17 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: (DATA ANALYSIS AND VISUALIZATION USING R AND PYTHON LAB)

COURSE	COURSE OUTCOMES	
DATA ANALYSIS AND VISUALIZATION USING R AND PYTHON LAB B17 CS 2106	CS 2106.1	Acquire Programming knowledge on Basics of Python
	CS 2106.2	Acquire Programming knowledge on Searching and sorting using Python
	CS 2106.3	Acquire Programming knowledge on Text and File Handling
	CS 2106.4	Develop Python Programs to Mean, Median, Mode, Correlation, Regression and Probability distributions
	CS 2106.5	Acquire Programming knowledge on NumPy, Pandas Library
	CS 2106.6	Acquire Programming knowledge on Graph Visualizations in Python and Data for Analysis

Course Name: (INDUSTRY ORIENTED TRAINING (R Programming Lab))

COURSE	COURSE OUTCOMES	
INDUSTRY ORIENTED TRAINING (R Programming Lab) B17 CS 2107	CS 2107.1	Install and find documentation for R functions and libraries. Search for and find domain [1]specific R packages.
	CS 2107.2	Use and understand the R data types (vectors, matrices, dataframes, strings)
	CS 2107.3	Reshape data and use visual exploratory graphics. Practice good data management.
	CS 2107.4	Write their own functions in R and break a problem into a set of functions.
	CS 2107.5	Be fluent in programming concepts such aqs functional programming, code reuse, object [1]oriented programming, recursion, regular expressions, and split-transform-recombine data manipulation.
	CS 2107.6	Engage in good code and data organization practices and use a consistent programming style

Course Name: (ENGLISH PROFICIENCY-I)

COURSE	COURSE OUTCOMES	
ENGLISH PROFICIENCY-I B17 BS 2107	BS 2107.1	Improve speaking skills.
	BS 2107.2	Enhance their listening capabilities.
	BS 2107.3	Learn and practice the skills of composition writing.
	BS 2107.4	Enhance their reading and understanding of different texts.
	BS 2107.5	Improve their inter-personal communication skills.
	BS 2107.6	Be confident in presentation skills.

SEMESTER: 4 **COURSE YEAR: 2018-2019**

Course Name: (COMPUTER ORGANIZATION)

COURSE	COURSE OUTCOMES	
COMPUTER ORGANIZATION B17 CS 2201	CS 2201.1	Knowledge about major components of a computer such as processor, memory and I/O modules along with their interconnections internally with outside world.
	CS 2201.2	Detailed idea about architecture of central processing unit, functions of control unit, memory, I/O devices and their issues.
	CS 2201.3	Simple and multiple processor organization and their issues.

Course Name: (OPERATING SYSTEMS)

COURSE	COURSE OUTCOMES	
OPERATING SYSTEMS B17CS 2202	CS 2202.1	The student understands OS evolution, its structure and services provided by it.
	CS 2202.2	Learn process life cycle, process scheduling objectives, policies and mechanisms, process synchronization, inter process communication, deadlocks and other process subsystem related concepts.
	CS 2202.3	Learn memory hierarchy, allocation, de-allocation policies and mechanism for main and auxiliary memory, file system design and implementation issues.
	CS 2202.3	Investigate UNIX/ LINUX and Windows OS platforms w.r.t similarities and differences in design paradigms.

Course Name: (MICROPROCESSORS)

COURSE	COURSE OUTCOMES	
MICRO PROCESSORS B17 CS 2203	CS 2203.1	Students can able to understand The 8085A µP. Architecture
	CS 2203.2	Students can learn about 8085 Instruction Set
	CS 2203.3	The Student Develops The Skill Of Writing 8085 Microprocessor Programming
	CS 2203.4	Ability to design semiconductor memories
	CS 2203.5	Students can learn Parallel I/O Interface - 8255
	CS 2203.6	Students can learn Keyboard/Display Interface - 8279
	CS 2203.7	Students can able to understand The 8086 µP. Architecture
	CS 2203.8	Students can learn about 8086 Instruction Set
	CS 2203.9	The Student Develops The Skill Of Writing 80865 Microprocessor Programming

Course Name: (DATA COMMUNICATIONS)

COURSE	COURSE OUTCOMES	
DATA COMMUNICATIONS B17CS2204	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 B17 CS 2205	CS 2205.1	Ability to understand various hashing techniques.
	CS 2205.2	Ability to write programs to implement sorting techniques
	CS 2205.3	Ability to understand concepts related to graph theory.

Course Name: C226 (OPERATIONS RESEARCH)

COURSE	COURSE OUTCOMES	
OPERATIONS RESEARCH B17 ME 2207	ME 2207.1	Ability to solve LPP problems using various methods.
	ME 2207.2	Ability to solve transportation and assignment problems using several methods.
	ME 2207.3	Analyze the PERT and CPM charts.
	ME 2207.4	Ability to solve replacement problems and game theory problems.

Course Name: (OPERATING SYSTEMS AND UNIX PROGRAMMING LAB)

COURSE	COURSE OUTCOMES	
OPERATING SYSTEMS AND UNIX PROGRAMMING LAB B17 CS 2206	CS 2206.1	The student practices UNIX commands, Vi editor, shell commands.
	CS 2206.2	The student develops skill in writing C programs using system calls for process management, inter process communication and memory management aspects.
	CS 2206.3	The student learns shell programming and develops skill for writing scripts for batch level tasks.

Course Name: C228 (Digital Electronics & Microprocessor lab)

COURSE	COURSE OUTCOMES	
Digital Electronics & Microprocessor lab B17 CS 2207	CS 2207.1	The student understands the logic gates, half adders, full adders and flip-flops to design a circuit.
	CS 2207.2	The student develops the skill of writing microprocessor programming.
	CS 2207.3	The student understands the interfacing of microprocessor with stepper motor, R-2R ladder

Course Name: (COMPETETIVE PROGRAMMING LAB)

COURSE	COURSE OUTCOMES	
Competitive Programming Lab B17CS 2208	CS 2208.1	Write programs using python programming
	CS 2208.2	Write algorithms
	CS 2208.3	Implement various data Structures
	CS 2208.4	To apply object oriented mechanisms
	CS 2208.5	To Implement various Advance data Structures like AVL trees, B-Trees, Splay trees etc

Course Name: (PROFESSIONAL ETHICS & HUMAN VALUES)

COURSE	COURSE OUTCOMES	
PROFESSIONAL ETHICS & HUMAN VALUES B17 BS 2204	BS 2204.1	By the end of the course student should be able to understand the importance of ethics and values in life and society.

Course Name: (ENGLISH PROFICIENCY-II)

COURSE	COURSE OUTCOMES	
ENGLISH PROFICIENCY - II B17 BS 2206	BS 2206.1	Develop the skills of taking and making notes
	BS 2206.2	Interpret the pictures appropriately and effectively.
	BS 2206.3	Read, comprehend and infer a given piece of writing effectively.
	BS 2206.4	Learn and practice the skills of Research writing.
	BS 2206.5	Communicate well through various forms of writing.
	BS 2206.6	Be confident in giving presentations and dealing with people.

SEMESTER: 5 **COURSE YEAR: 2019-2020**

Course Name: (COMPUTER NETWORKS)

COURSE	COURSE OUTCOMES	
COMPUTER NETWORKS B17 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 B17 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 LANGUAGE AND AUTOMATA THEORY)

COURSE	COURSE OUTCOMES	
FORMAL LANGUAGES AND AUTOMATA THEORY B17 CS 3103	CS 3103.1	Ability to classify machines by their power to recognize languages,
	CS 3103.2	Ability to explain finite state machines to solve problems in computing,
	CS 3103.3	Ability to explain deterministic and non-deterministic machines,
	CS 3103.4	Ability to explain the concepts of Turing Machines, Undecidability, church thesis.

Course Name: (DATABASE MANAGMENT SYSTEMS)

COURSE	COURSE OUTCOMES	
DATABASE MANAGEMENT SYSTEMS B17 CS 3104	CS 3104.1	Generalize the basic concepts of DBMS and RDBMS.
	CS 3104.2	Prepare SQL commands for defining, constructing and manipulating databases.
	CS 3104.3	Apply conceptual and logical database design using data models.
	CS 3104.4	Apply normalization to tables.
	CS3104.5	Manage concurrent transactions. Apply databases Recovery Techniques.

Course Name: (APPLICATION DEVELOPMENT USING JAVA)

COURSE	COURSE OUTCOMES	
APPLICATION DEVELOPMENT USING JAVA B17 CS 3105	CS 3105.1	Able to do projects for web based and internet applications.
	CS 3105.2	Understand multitasking and multiprogramming development
	CS 3105.3	Able to do network programming.
	CS 3105.4	Able to Construct Web application using Java Server Pages

Course Name: (EMBEDDED SYSTEMS)

COURSE	COURSE OUTCOMES	
EMBEDDED SYSTEMS B17 CS 3106	CS 3106.1	To describe the differences between general computing system and Embedded System.
	CS 3106.2	To recognize the classification of Embedded System. .
	CS 3106.3	To understand various architectures of Embedded System.
	CS 3106.4	To design Real Time Embedded System using the concepts of RTOS.
	CS 3106.5	To load embedded software on Host machine.
	CS 3106.6	To test Host machine

Course Name: (CYBER SECURITY)

COURSE	COURSE OUTCOMES	
CYBER SECURITY B17 CS 3107	CS 3107.1	Cyber Security architecture principles
	CS 3107.2	Identifying System and application security threats and vulnerabilities
	CS 3107.3	Identifying different classes of attacks
	CS 3107.4	Cyber Security incidents to apply appropriate response
	CS 3107.5	Describing risk management processes and practices
	CS 3107.6	Evaluation of decision making outcomes of Cyber Security scenarios

Course Name: (DIGITAL SIGNAL PROCESSING)

COURSE	COURSE OUTCOMES	
DIGITAL SIGNAL PROCESSING B17 EC 3109	EC 3109.1	Describe the DSP fundamental theory and components, Develop an understanding of DSP advantages, limitations and fundamental trade offs. Carry-out LTI system analysis using convolution & Z-transform
	EC 3109.2	Carryout data analysis &spectrum analysis using FFT
	EC 3109.3	Design of IIR digital filters to meet specifications
	EC 3109.4	Design of FIR digital filters to meet specifications
	EC 3109.5	Knows multi-rate signal processing aspects & DSP applications

Course Name: (INDUSTRIAL ROBOTICS)

COURSE	COURSE OUTCOMES	
INDUSTRIAL ROBOTICS B17 ME 3110	ME 3110.1	Distinguish between fixed automation and programmable automation.
	ME 3110.2	Identify various components of robot.
	ME 3110.3	Select appropriate type of actuator for a joint.
	ME 3110.4	Illustrate robot applications in manufacturing.
	ME 3110.5	Analyze kinematics of a robot.

Course Name: (DATABASE MANAGEMENT SYSTEMS LAB)

COURSE	COURSE OUTCOMES	
DATABASE MANAGEMENT SYSTEMS LAB B17CS3108	CS 3108.1	The student is exposed to a commercial RDBMS environment such as ORACLE.
	CS 3108.2	The student will learn SQL commands for data definition and manipulation.
	CS 3108.3	The student applies conceptual design.
	CS 3108.4	The student applies Logical data base design.
	CS 3108.5	The student takes up a case study and applies the design steps.

Course Name: (APPLIATION DEVELOPMENT LAB)

COURSE	COURSE OUTCOMES	
APPLIATION DEVELOPMENT LAB B17 CS 3109	CS 3109.1	Compare and Contrast HTML, DHTML, CSS, JavaScript and other Web technologies.
	CS 3109.2	Implement JavaScript Language to perform functionalities at client side validations.
	CS 3109.3	Assess and evaluate the role of "WEBSERVERS" for the management and delivery of electronic information.
	CS 3109.4	Develop Web based applications by PHP to have an interactive applications such as Client Server Architecture.

Course Name: (PROBLEM SOLVING & LINGUISTIC COMPETENCE)

COURSE	COURSE OUTCOMES	
PROBLEM SOLVING & LINGUISTIC COMPETENCE B17BS3101		Part-A: Verbal and Soft Skills-I
	BS 3101.1	Detect grammatical errors in the text/sentences and rectify them while answering their competitive/ company specific tests and frame grammatically correct sentences while writing.
	BS 3101.2	Answer questions on synonyms, antonyms and other vocabulary based exercises while attempting CAT, GRE, GATE and other related tests.
	BS 3101.3	Use their logical thinking ability and solve questions related to analogy, syllogisms and other reasoning based exercises.
	BS 3101.4	Choose the appropriate word/s/phrases suitable to the given context in order to make the sentence/paragraph coherent.
	BS 3101.5	Apply soft skills in the work place and build better personal and professional relationships making informed decisions.
		Part-B: Quantitative Aptitude -I
	BS 3101.6	The students will be able to perform well in calculating on number problems and various units of ratio concepts.
	BS 3101.7	Accurate solving problems on time and distance and units related solutions.
	BS 3101.8	The students will become adept in solving problems related to profit and loss, in specific, quantitative ability.
	BS 3101.9	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.
	BS 3101.10	The students will learn to apply Logical thinking to the problems of syllogisms and be able to effectively attempt competitive examinations like CAT, GRE, GATE for further studies.

Course Name: (ADVANCED CODING)

COURSE	COURSE OUTCOMES	
ADVANCED CODING B17BS3103	BS 3103.1	Acquire coding knowledge on essential of modular programming
	BS 3103.2	Acquire Programming knowledge on linked lists
	BS 3103.3	Acquire coding knowledge on ADT
	BS 3103.4	Acquire knowledge on time complexities of different methods
	BS 3103.5	Acquire Programming skill on Java libraries and Collections

SEMESTER: 6 **COURSE YEAR: 2019-2020**

Course Name: (DATA WAREHOUSING AND DATA MINING)

COURSE	COURSE OUTCOMES	
DATA WAREHOUSING & DATA MINING B17 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 B17 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 B17 CS 3203	CS 3203.1	Students will be able to Argue the correctness of algorithms using inductive proofs and invariants and Analyze 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: (ARTIFICIAL INTELLIGENCE)

COURSE	COURSE OUTCOMES	
ARTIFICIAL INTELLIGENCE B17 CS 3204	CS 3204.1	The Student understands AI problem characteristics, state space approach for solving AI problem, Production System framework.
	CS 3204.2	The student learns several optimal search strategies and the use of heuristics.
	CS 3204.3	The student learns relational, inferential, inheritable and procedural knowledge and the corresponding knowledge representation approaches.
	CS 3204.4	The student is introduced to applying AI problem solving approaches to natural language processing, planning and expert systems

Course Name: (COMPILER DESIGN)

COURSE	COURSE OUTCOMES	
COMPILER DESIGN B17 CS 3205	CS 3205.1	Acquire knowledge in different phases and passes of Compiler, and specifying different types of tokens by lexical analyzer, and also able to understand the Compiler tools like LEX, YACC, etc.
	CS 3205.2	Ability to describe the different types of parsers. i.e. Top-down, Bottom-up parsers, Construction of SLR, CLR and LALR parse table.
	CS 3205.3	Ability to explain Syntax directed translation, synthesized and inherited attributes.
	CS 3205.4	Ability to explain code optimization techniques and code generation techniques to improve the performance of a program in terms of speed & space

Course Name: (CLOUD COMPUTING)

COURSE	COURSE OUTCOMES	
CLOUD COMPUTING B17 CS 3206	CS 3206.1	Define basic networking concepts for distributed and cloud computing.
	CS 3206.2	Understand the importance of Virtualization concept in cloud computing.
	CS 3206.3	Explain the architecture of Cloud platform.
	CS 3206.4	Make use of some important cloud computing driven commercial systems such as Google Apps, Microsoft Azure and Amazon Web Services and other cloud software environments.
	CS 3206.5	Utilize infrastructure, storage and tools to access the cloud to develop cloud application

Course Name:(MOBILE COMPUTING)

COURSE	COURSE OUTCOMES	
MOBILE COMPUTING B17 CS 3207	CS 3207.1	A working understanding of the characteristics and limitations of mobile hardware devices including their user-interface modalities
	CS 3207.2	The ability to develop applications that are mobile-device specific and demonstrate current practice in mobile computing contexts.
	CS 3207.3	A comprehension and appreciation of the design and development of context-aware solutions for mobile devices. .
	CS 3207.4	A student will be able to understand various protocols for mobile computing
	CS 3207.5	A student will be able to understand various platforms for mobile computing
	CS 3207.6	A student will be able to understand various routing algorithm

Course Name: (DISTRIBUTED SYSTEMS)

COURSE	COURSE OUTCOMES	
DISTRIBUTED SYSTEMS B17 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: (INFORMATION RETRIEVAL SYSTEMS)

COURSE	COURSE OUTCOMES	
INFORMATION RETRIEVAL SYSTEMS B17CS3209	CS 3209.1	Identify basic theories in information retrieval systems
	CS 3209.2	Identify the analysis tools as they apply to information retrieval systems
	CS 3209.3	Understands the problems solved in current IR systems
	CS 3209.4	Describes the advantages of current IR systems
	CS 3209.5	Understand the difficulty of representing and retrieving documents.
	CS3209.6	Understand the latest technologies for linking, describing and searching the web

Course Name:(NETWORK PROGRAMMING LAB)

COURSE	COURSE OUTCOMES	
NETWORK PROGRAMMING LAB B17 CS 3211	CS 3211.1	Students will be able to write Socket based Network application programs
	CS 3211.2	Students will be able to design and develop Client Server applications using Java
	CS 3211.3	Students will be able to write network applications like One-One chat , Broadcasting and Multicasting
	CS 3211.4	Students will be able to understand e-mail programming (SMTP, POP).

Course Name: (EMPLOYABILITY SKILLS)

COURSE	COURSE OUTCOMES	
EMPLOYABILITY SKILLS B17BS3201	BS 3201.1	Construct coherent, cohesive and unambiguous verbal expressions in both oral and written discourses.
	BS 3201.2	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
	BS 3201.3	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).
	BS 3201.4	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.
	BS 3201.5	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.
		Part-B: Quantitative Aptitude-II
	BS 3201.6	The students will be able to perform well in calculating different types of data interpretation problems.
	BS 3201.7	The students will perform efficaciously on analytical and logical problems using various methods.
	BS 3201.8	Students will find the angle measurements of clock problems with the knowledge of calendars and clock.
	BS 3201.9	The students will skillfully solve the puzzle problems like arrangement of different positions.
	BS 3201.10	The students will become good at solving the problems of lines, triangulars, volume of cone, cylinder and so on

Course Name: (COMPETITIVE CODING)

COURSE	COURSE OUTCOMES	
COMPETITIVE CODING B17BS3204	BS 3204.1	Acquire coding knowledge on essential of competitive coding
	BS 3204.2	Acquire Programming knowledge on time & space complexities
	BS 3204.3	Acquire coding knowledge on dynamic Arrays, Set & Map structures and sorting
	BS 3204.4	Acquire knowledge on time complexities of different methods
	BS 3204.5	Acquire Programming skill on String, Tree, Graph Theory algorithms

Course Name: (IPR& PATENTS)

COURSE	COURSE OUTCOMES	
IPR& PATENTS B17BS3206	BS 3206.1	Identify various types of intangible property that an engineering professional could generate in the course of his career.
	BS 3206.2	Distinguish between various types of protection granted to Intellectual Property such as Patents, Copy Rights, Trademarks etc.,
	BS 3206.3	List the steps involved in getting protection over various types of intellectual property and maintaining them.
	BS 3206.4	Take precautions in writing scientific and technical reports without plagiarism.
	BS 3206.5	Help micro, small and medium entrepreneurs in protecting their IP and respecting others IP as part of their business processes.

SEMESTER: 7 **COURSE YEAR: 2020-2021**

Course Name: (BIG DATA ANALYTICS)

COURSE	COURSE OUTCOMES	
BIG DATA ANALYTICS B17 CS 4101	CS 4101.1	Identify characteristics of big data and its application areas.
	CS 4101.2	Build HDFS and Map Reduce to store and process the big data..
	CS 4101.3	Apply advanced map reduce applications on big data.
	CS 4101.4	Identify the need-based tools, viz., Pig and Hive to handle

Course Name: (INTERNET OF THINGS)

COURSE	COURSE OUTCOMES	
INTERNET OF THINGS B17 CS 4102	CS 4102.1	Distinguish between various IoT architectures
	CS 4102.2	Apply various communication protocols in IoT
	CS 4102.3	Use various sensors and Actuators in IoT applications
	CS 4102.4	Implement IoT applications using Arduino and Raspberry pi.
	CS 4102.5	Analyse data in IoT applications using cloud services
	CS 4102.6	Know various security issues in IoT

Course Name: (MACHINE LEARNING)

COURSE	COURSE OUTCOMES	
MACHINE LEARNING B17 CS 4103	CS 4103.1	Formulate the concepts of ingredients and preliminaries of machine learning
	CS 4103.2	Apply tree models, linear models and distance based models
	CS 4103.3	Demonstrate the concepts of dimensionality reduction techniques, model evaluation and selection techniques
	CS 4103.4	Identify and construct features and ensemble models
	CS 4103.5	Formulate the concepts of artificial neural networks, reinforcement learning

Course Name:(Managerial Economics And Financial Accountancy)

COURSE	COURSE OUTCOMES	
Managerial Economics And Financial Accountancy B17BS 4101	BS 4101.1	The Learner is equipped with the knowledge of estimating the Demand and demand elasticities for a product.
	BS 4101.2	The knowledge of understanding Cost and its types and ability to calculate BEP
	BS 4101.3	The pupil is also ready to understand the nature of different markets
	BS 4101.4	The Learner is able to understand Pricing Practices prevailing in

		today's business world

	BS 4101.5	The Learner is able to prepare Financial Statements and know how to calculate Profit & Loss for a firm
	BS 4101.6	The Learner can able to know Types of capital and their sources and know how to calculate Depreciation

Course Name:(SOFTWARE PROJECT MANAGEMENT)

COURSE	COURSE OUTCOMES	
SOFTWARE PROJECT MANAGEMENT B17 CS 4105	CS 4105.1	To match organizational needs to the most effective software development model
	CS 4105.2	To understand the basic concepts and issues of software project management
	CS 4105.3	To effectively Planning the software projects
	CS 4105.4	To implement the project plans through managing people, communications and change
	CS 4105.5	To select and employ mechanisms for tracking the software projects
	CS 4105.6	To conduct activities necessary to successfully complete and close the Software projects
	CS 4105.7	To develop the skills for tracking and controlling software deliverables
	CS 4105.8	To create project plans that address real-world management challenges

Course Name: (SCRIPTING LANGUAGES)

COURSE	COURSE OUTCOMES	
SCRIPTING LANGUAGES B17CS 4106	CS 4106.1	To master the theory behind scripting and its relationship to classic programming.
	CS 4106.2	To survey many of the modern and way cool language features that show up frequently in scripting languages.
	CS 4106.3	To gain some fluency programming in Ruby, JavaScript, Perl, Python, and related languages.
	CS 4106.4	To design and implement one's own scripting language.

Course Name: (BIG DATA ANALYTICS LAB)

COURSE	COURSE OUTCOMES	
BIG DATA ANALYTICS LAB B17 CS 4107	CS 4107.1	Build Hadoop environment.
	CS 4107.2	Develop a solution for a given problem using map reduce

Course Name: (INTERNET OF THINGS LAB)

COURSE	COURSE OUTCOMES	
INTERNET OF THINGS LAB B17 CS 4108	CS 4108.1	Use sensors, actuators, Arduino and Raspberry pi in IoT applications
	CS 4108.2	Design and Develop various IoT applications..

SEMESTER: 8 **COURSE YEAR: 2020-2021**

Course Name: (MANAGEMENT AND ORGANISATIONAL BEHAVIOUR)

COURSE	COURSE OUTCOMES	
MANAGEMENT AND ORGANISATIONAL BEHAVIOUR B17 BS 4201	BS 4201.1	Explain management functions and principles
	BS 4201.2	Will be able to describe the concepts of functional management that is HRM and Marketing functions
	BS 4201.3	Will be able to get discuss about vision, mission, goal, objective and a strategy based on which the corporate planning depends
	BS 4201.4	The learner is able to recognise strategically contemporary management practices and describe corporate planning process
	BS 4201.5	The learner can discuss about individual behaviour and motivational theories
	BS 4201.6	The student can explain about ways in managing conflicts and stress

Course Name: (DEEP LEARNING)

COURSE	COURSE OUTCOMES	
DEEP LEARNING B17 CS 4201	CS 4201.1	The students able to outline the basic concept of Machine learning
	CS 4201.2	The students able to express the concepts of deep feed forward networks.
	CS 4201.3	The students able to explain the CNN model
	CS 4201.4	The students able to explain and apply optimization techniques and auto encoders.
	CS 4201.5	The students able to learn about different DNN models and apply that knowledge to different applications

Course Name: (CONCURRENT AND PARALLEL PROGRAMMING)

COURSE	COURSE OUTCOMES	
CONCURRENT AND PARALLEL PROGRAMMING B17 CS 4202	CS 4202.1	Understanding improvement of CPP concepts presented
	CS 4202.2	The number of reinforcement–exercises assigned
	CS 4202.3	The time required for the resolution of exercises
	CS 4202.4	Compliance level with the new model of theoretical teaching

Course Name: (ARTIFICIAL NEURAL NETWORKS)

COURSE	COURSE OUTCOMES	
ARTIFICIAL NEURAL NETWORKS B17 CS 4203	CS 4203.1	This course has been designed to offer as a graduate-level/ final year undergraduate level elective subject to the students of any branch of engineering/ science, having basic foundations of matrix algebra, calculus and preferably (not essential) with a basic knowledge of optimization.
	CS 4203.2	Students and researchers desirous of working on pattern recognition and classification, regression and interpolation from sparse observations; control and optimization are expected to find this course useful. The course covers theories and usage of artificial neural networks (ANN) for problems pertaining to classification (supervised/ unsupervised) and regression.
	CS 4203.3	The course starts with some mathematical foundations and the structures of artificial neurons, which mimics biological neurons in a grossly scaled down version. It offers mathematical basis of learning mechanisms through ANN. The course introduces perceptrons, discusses its capabilities and limitations as a pattern classifier and later develops concepts of multilayer perceptrons with back propagation learning

Course Name: (MACHINE LEARNING LAB)

COURSE	COURSE OUTCOMES	
MACHINE LEARNING LAB B17 CS 4204	CS 4204.1	Design Preprocessing model for their own data sets
	CS 4204.2	Apply dimensional reduction techniques for their own datasets
	CS 4204.3	Develop different clustering & classification techniques
	CS 4204.4	Design simple FNN
	CS 4204.5	Design CNN, RNN and LSTM networks for image classification and sentiment analysis

Course Name: C421 (PROJECT WORK)

COURSE	COURSE OUTCOMES	
PROJECT WORK B17 CE 4206	CE 4206.1	Identify a current problem through literature/field/case studies
	CE 4206.2	Identify the background objectives and methodology for solving the same.
	CE 4206.3	Design a technology/ process for solving the problem.
	CE 4206.4	Develop a technology/ process for solving the problem.
	CE 4206.5	Evaluate that technology/ process at the laboratory level.