Semester:1

Course:Physics and Chemistry Laboratory-[BS8161]
Upon completion of the course, the students will.../ will be able to... CO1 : Determine different modulii of elasticity used in day to day engineering applications CO2 : Estimate the optical parameters of visible and laser sources along with their applications in various fields CO3 : Calculate the band gap of semiconducting materials. CO4 : Determine the water quality parameters (DO, Chloride, Cu content, Alkalinity and hardness) of the given water sample. CO5 : Analyse quantitatively the metals (Fe, Na and Cu) in the given sample using potentiometer, flame photometer and Understand how conductometric titrations are better than volumetric titrations and the skill to do the experiment.
Course:Engineering Chemistry-[CY8151]
Upon completion of the course, the students will.../ will be able to... CO1 :   Describe the methods of water purification CO2 :   Define the terms in phase rule and adsorption CO3 :   Explain the types of Energy resources. CO4 :   Determine the composition and characteristics of fuels and alloys CO5 :   Classify the types of water, fuels and alloys
Course:Problem Solving and Python Programming-[GE8151]
Upon completion of the course, the students will.../ will be able to... CO1 :Describe the concepts of algorithm, data types, operators, conditional statements and files. CO2 :Write and execute simple Python programs. CO3 :Develop Python programs for complex problems. CO4 :Apply basic and compound data types, functions and files to implement Python programs CO5 :Design and analyse algorithms, modules and packages.
Course:Engineering Graphics-[GE8152]
Upon completion of the course, the students will.../ will be able to... CO1 :   Understand the fundamentals and standards of Engineering graphics CO2 :   Apply freehand sketching of basic geometrical constructions and multiple views of objects. CO3 :   Analyze orthographic projections of lines and plane surfaces. CO4 :   Analyze projections and solids and development of surfaces. CO5 :   Analyze isometric and perspective sections of simple solids.
Course:Problem Solving and Python Programming Laboratory-[GE8161]
Upon completion of the course, the students will.../ will be able to... CO1 : Write, test and debug simple Python Programs CO2 : Implement Python Programs with conditionals and looping statements CO3 : Develope Python Programs using functions CO4 : Use Python lists,tuples ,dictionaries for representing compound data

CO5 : Read and write data from/to files and write programs using python packages

Course:Communicative English-[HS8151]

Upon completion of the course, the students will.../ will be able to...

CO1 : Learn vocabulary, skim and scan passages and share information related to one/oneself/ family and friends

CO2 : Improve their telephonic conversation skills, general reading and free writing skills and language skills through preposition and conjunction.

CO3 : Acquire language skills through degrees of comparison, pronouns and direct indirect questions, comprehend short and long passages, describe products and express opinions.

CO4 : Improve their language skills through reading, draft e-mails and personal letters ans use correct tenses in the language usage.

CO5 : Write short essays and dialogues and participate in group activities.

Course:Engineering Mathematics - I-[MA8151]

Upon completion of the course, the students will.../ will be able to...

CO1 : Explain the representation of a function, limit and continuity of a function.
CO2 : Describe the techniques of differentiation, partial differentiation, integration and D.E.
CO3 : Solve maxima and minima of one variable and two variables
CO4 : Compute proper integral, improper integral and multiple integrals
CO5 : Apply various techniques in solving differential equations.

Course:Engineering Physics-[PH8151]

Upon completion of the course, the students will.../ will be able to...

CO1 : describe the basics of Properties of matter, Waves, Laser, Optical fibers and Thermal behavior of materials to improve their engineering knowledge

CO2 : mention the Advanced Physics concepts of quantum theory and the Characteristics of crystalline materials

CO3 : illustrate Bending of beams, Oscillations, Thermal expansion joints and Fiber optic sensors to assess societal and safety issues

CO4 : summarize the Types of optical fibers and losses associated with them, Wave equations, Crystal growth techniques and imperfections of crystals

CO5 : determine the Moduli of elasticity of different materials, Eigen value and Eigen function of particles, Working of thermal devices

Semester:2

Course:Basic Electrical,Electronics and Measurement Engineering-[BE8255]

Upon completion of the course, the students will.../ will be able to...

CO1 : Solve the electric circuits by applying basic laws and theorems.
CO2 : Explain the construction, principle and performance of electrical machines.
CO3 : Describe the different renewable sources, batteries and protective devices.
CO4 : Discuss the basic electronics circuits using diode, transistor and op-amps.
CO5 : Outline the operation of various measuring instruments and transducers.

Course:Programming in C-[CS8251]

Upon completion of the course, the students will.../ will be able to...

CO1 : Develop simple applications in C using basic constructs
CO2 : Design and implement applications using arrays and strings
CO3 : Develop and implement applications in C using functions and pointers

CO4 :   Develop applications in C using structures
CO5 :   Design applications using sequential and random access file processing

Course:C Programming Laboratory-[CS8261]

Upon completion of the course, the students will.../ will be able to...
CO1 : Develop C programs for simple applications by making use of basic constructs
CO2 : Develop C programs using arrays and strings
CO3 : Develop C programs involving functions, recursion, pointers, and structures
CO4 : Design applications using sequential and random access file processing
CO5 : Create a mini project for an application

Course:Engineering Practices Laboratory-[GE8261]

Upon completion of the course, the students will.../ will be able to...
CO1 : Understand wiring procedures practically
CO2 : Understand all the fundamental concepts involving electrical Engineering
CO3 : Handle basic electrical and electronics equipments
CO4 : Understand all the fundamental concepts involving Electronics Engineering
CO5 : Assemble basic electronic Components

Course:Environmental Science and Engineering-[GE8291]

Upon completion of the course, the students will.../ will be able to...
CO1 :   Outline the importance of Environmental education and ecosystem
CO2 :   Explain the environmental problems and its prevention
CO3 :   Discuss the conservation of natural resources
CO4 :   Categorize social and social and environmental problems
CO5 :   Summarize the need to control population for sustainble development

Course:Technical English-[HS8251]

Upon completion of the course, the students will.../ will be able to...
CO1 : Read technical texts and write area specific texts effortlessly
CO2 : Listen and comprehend lectures and talks in their area of specialization successfully.
CO3 : speak appropriately and effectively in varied formal and informal contexts.
CO4 : Write reports and winning job applications.
CO5 : participate in Group Discussions.

Course:Engineering Mathematics II-[MA8251]

Upon completion of the course, the students will.../ will be able to...
CO1 :   Define the basic concepts of matrices, vectors, analytic function and Laplace transform.
CO2 :   Explain the properties of matrices and vector differential operators.
CO3 :   Understand the basics of Laplace transform for elementary functions and   line integral of analytic functions.
CO4 :   Apply diagonalization of matrices in quadratic form and Laplace transform in differential equations.
CO5 :   Evaluate analytic function, vector and complex integration using various methods.

Course:Physics for Information Sciences-[PH8252]

Upon completion of the course, the students will.../ will be able to...
CO1 :   Mention the concepts of classical and quantum electron theories, and energy band structures
CO2 :   Summarize the basics of Semiconductor Physics and their applications in various devices

CO3 : Describe the magnetic properties of materials and their applications in data storage
CO4 : Illustrate the functioning of optical materials for optoelectronics
CO5 : Describe various quantum structures and their applications in carbon electronics.

Course:Engineering Mathematics II-[MA8251]

Upon completion of the course, the students will.../ will be able to...

CO1 : Define the basic concepts of matrices, vectors, analytic function and Laplace transform.

CO2 : Explain the properties of matrices and vector differential operators.

CO3 : Understand the basics of Laplace transform for elementary functions and line integral of analytic functions.

CO4 : Apply diagonalization of matrices in quadratic form and Laplace transform in differential equations.

CO5 : Evaluate analytic function, vector and complex integration using various methods.

Semester:3

Course:Digital Principles and System Design-[CS8351]

Upon completion of the course, the students will.../ will be able to...

CO1 :   Simplify Boolean functions using KMap.
CO2 :   Design and Analyze Combinational Circuits.
CO3 :   Design and Analyze Sequential Circuits.
CO4 :   Implement designs using Programmable Logic Devices.
CO5 :   Write HDL code for combinational and Sequential Circuits.

Course:Data Structures Laboratory-[CS8381]

Upon completion of the course, the students will.../ will be able to...

CO1 : Write functions to implement linear and non-linear data structure operations

CO2 : Suggest appropriate linear / non-linear data structure operations for solving a given problem

CO3 : Appropriately use the linear / non-linear data structure operations for a given problem

CO4 : Apply appropriate hash functions that result in a collision free scenario for data storage and retrieval

CO5 : Identify and use a suitable data structure and algorithm to solve a real world problem

Course:Object Oriented Programming Laboratory-[CS8383]

Upon completion of the course, the students will.../ will be able to...

CO1 : Develop and implement Java programs for simple applications that make use of classes, packages and interfaces

CO2 : Develop and implement Java programs with array list and exception handling

CO3 : Develop and implement Java programs with multithreading.

CO4 : Design applications using file processing and generic programming.

CO5 : Design applications using swings and event handling.

Course:Data Structures-[CS8391]

Upon completion of the course, the students will.../ will be able to...

CO1 : Implement the list ADT and apply for complex engineering issues.

CO2 : Implement the stack and queue ADT for having a high level of understanding.

CO3 : Have a good knowledge of heap, search tree data structures and implement tree ADT

CO4 : Analyse and implement graph data structures.

CO5 : Apply searching, sorting and hashing techniques.

Course:Object Oriented Programming-[CS8392]

Upon completion of the course, the students will.../ will be able to...
CO1 :   Understand the basic concepts of OOP and fundamentals in Java.
CO2 :   Write simple programs in Java and analyze the OOP concepts.
CO3 :   Build Java applications using exceptions and I/O streams.
CO4 :   Develop Java applications with threads and generics classes.
CO5 :   Design interactive Java programs using swings.

Course:Communication Engineering-[EC8395]

Upon completion of the course, the students will.../ will be able to...
CO1 : Summarize the analog communication techniques and its effects on communication receiver.
CO2 : Evaluate the performance of PCM, DPCM, DM in digital Communication systems.
CO3 : Compute the probability error in digital modulated signals.
CO4 : Analyze different source coding and channel coding schemes for the given communication system
CO5 : Identify the multiple access method for data transmission depending on channel model.

Course:Interpersonal Skills / Listening and Speaking-[HS8381]

Upon completion of the course, the students will.../ will be able to...
CO1 : Listen and respond appropriately
CO2 : Participate in group discussions
CO3 : Make effective presentations
CO4 : Speak clearly with proper stress and intonation
CO5 : Participate confidently and appropriately in conversations both formal and informal

Course:Discrete Mathematics-[MA8351]

Upon completion of the course, the students will.../ will be able to...
CO1 : Have knowledge of the concepts needed to test the logic of a program
CO2 : Be aware of the counting principles
CO3 : Be aware of a class of functions which transform a finite set into another   finite set which relates to input and output functions in computer science
CO4 : Be exposed to concepts and properties of algebraic structures such as groups, rings and fields
CO5 : Have an understanding in identifying structures on   many levels and being exposed to concepts and properties of algebraic structures such as groups, rings and fields

Course:Digital Systems Laboratory-[CS8382]

Upon completion of the course, the students will.../ will be able to...
CO1 :   To understand the various basic logic gates
CO2 :   Implement simplified combinational circuits using basic logic gates
CO3 :   Implement combinational circuits using MSI devices
CO4 :   Implement sequential circuits like registers and counters
CO5 :   Simulate combinational and sequential circuits using HDL

Semester:4

Course:Operating Systems Laboratory-[CS8461]
Upon completion of the course, the students will.../ will be able to...
CO1 : Compare the performance of CPU scheduling algorithms and understand the usage of UNIX command and shell programming
CO2 : Implement deadlock avoidance and detection algorithms
CO3 : Implement semaphores and IPC
CO4 : Analyze the performance of the various page replacement algorithms
CO5 : Implement file organization and file allocation strategies
Course:Database Management Systems Laboratory-[CS8481]
Upon completion of the course, the students will.../ will be able to...
CO1 : Make use of typical data definitions and manipulation commands
CO2 : Analyse the database using queries to retrieve records
CO3 : Applying PL/SQL for processing database
CO4 : Analyse front end tools to design forms ,reports and menus
CO5 : Develop solutions using databae concepts for real time requirements
Course:Computer Architecture-[CS8491]
Upon completion of the course, the students will.../ will be able to...
CO1 : Describe the basic structure and operations of digital computer
CO2 : Design of arithmetic and logical unit.
CO3 : Design and Analysis of pipelined control units
CO4 : Evaluate the concepts of parallel processing architecture
CO5 : Classify the organization of different memory systems and I/O communication.
Course:Database Management Systems-[CS8492]
Upon completion of the course, the students will.../ will be able to...
CO1 : Classify the modern and futuristic database applications based on size and complexity
CO2 : Map ER model to Relational model to perform database design effectively
CO3 : Write queries using normalization criteria and optimize queries
CO4 : Compare and contrast various indexing strategies in different database systems
CO5 : Appraise how advanced databases differ from traditional databases
Course:Operating Systems-[CS8493]
Upon completion of the course, the students will.../ will be able to...
CO1 : Describe the structure and functions of OS
CO2 : Apply scheduling algorithms, deadlock prevention and avoidance algorithm
CO3 : Compare and Analyze memory management schemes
CO4 : Outline the IO systems and file systems
CO5 : Perform administrative tasks on Linux servers and create a virtual machines
Course:Software Engineering-[CS8494]
Upon completion of the course, the students will.../ will be able to...
CO1 : Identify the Key activities in managing a Software Project.
CO2 : Summarize the concepts of requirements analysis and Analysis Modeling
CO3 : Apply systematic procedure for software design and deployment
CO4 : Compare and contrast the various testing and maintenance.
CO5 : Manage project Schedule, Estimate project cost and Effort Required
Course:Advanced Reading and Writing-[HS8461]

Upon completion of the course, the students will.../ will be able to...
CO1 :   Read and comprehend texts.
CO2 :   Read and evaluate texts critically.
CO3 :   Write different types of essays.
CO4 :   Write winning job applications.
CO5 :   Display critical thinking in various professional contexts.

Course:Probability and Queueing Theory-[MA8402]

Upon completion of the course, the students will.../ will be able to...

CO1 : know the concept of probability, random variables, random processes and queueing models.

CO2 : Classify the mgf, distributions, transformation of random variable and random processes.

CO3 : understand the ideas of single and multiple server queueing models and P-K formula.

CO4 : Apply discrete and continuous random variable, markov and Poisson processes.

CO5 : Apply queueing models with finite and infinite capacity, series and open Jackson Networks.

Semester:5

Course:Theory of Computation-[CS8501]

Upon completion of the course, the students will.../ will be able to...

CO1 : Demonstrate the basic concepts of Mathematical proof, Automata theory, Context free grammar, Push down automata, Turing machine and Undecidable Problem.

CO2 : Design Finite Automata, Push down automata and Turing machines.

CO3 : Distinguish the computing languages and classify their respective Types.

CO4 : Propose computation solutions using Turing machines.

CO5 : Prove the decidability and intractability of computational problems.

Course:Networks Laboratory-[CS8581]

Upon completion of the course, the students will.../ will be able to...

CO1 : Explain the basic network commands and to implement various applications using TCP and UDP sockets.

CO2 : Simulate datalink layer protocols.

CO3 : Use simulation tools to analyze the performance of various network protocols.

CO4 : Analyse various routing algorithms

CO5 : Implement error correction codes.

Course:Object Oriented Analysis and Design Laboratory-[CS8582]

Upon completion of the course, the students will.../ will be able to...

CO1 : Perform OO analysis and design for a given problem specification.

CO2 : Identify and map basic software requirements in UML mapping.

CO3 : Design by applying appropriate design patterns.

CO4 : Improve the software quality using design patterns and to explain the rationale behind applying specific design pattern

CO5 : Test the compliance of the software with the SRS

Course:Computer Networks-[CS8591]

Upon completion of the course, the students will.../ will be able to...

CO1 : describe the basic layers and its function in computer networks

CO2 : evaluate the performance of a network.

CO3 : analyze routing algorithms.
CO4 : outline the functions of transport layer protocols
CO5 : interpret the working of various application layer protocols.

Course:Object Oriented Analysis and Design-[CS8592]

Upon completion of the course, the students will.../ will be able to...
CO1 : Design and implement projects using OO   concepts
CO2 : Use the UML analysis and design diagrams.
CO3 : Apply appropriate design patterns
CO4 : Create code from design
CO5 : Compare and contrast various testingtechniques

Course:Microprocessors and Microcontrollers-[EC8691]

Upon completion of the course, the students will.../ will be able to...
CO1 : Understand programs based on 8086 microprocessor
CO2 : Describe the Memory Interfacing circuits
CO3 : Interface Input/output circuits
CO4 : Realize architecture and programming language of 8051 microcontroller.
CO5 : Design 8051 microcontroller based systems

Course:Air Pollution and Control Engineering-[OCE551]

Upon completion of the course, the students will.../ will be able to...
CO1 : Describe the nature and characteristics of air pollution,noise pollution and basic concepts of air quality management
CO2 : explain and solve air and noise pollution problems
CO3 : design stack and particulate air pollution control devices
CO4 : detect air pollution control equipments
CO5 : design indoor air pollution control devices

Course:Microprocessors and Microcontrollers Laboratory-[EC8681]

Upon completion of the course, the students will.../ will be able to...
CO1 : Write ALP Programmes for fixed and Floating Point and Arithmetic operations
CO2 : Interface different I/Os with processor
CO3 : Generate waveforms using Microprocessors
CO4 : Execute Programs in 8051
CO5 : Explain the difference between simulator and Emulator

Course:Algebra and Number Theory-[MA8551]

Upon completion of the course, the students will.../ will be able to...
CO1 : Describe the efficient use of advanced algebraic techniques and Number theory.
CO2 : Prove simple theorems about the statements proven by the text in advanced algebraic techniques and Number theory
CO3 : Explain the fundamental concepts of advanced algebra and their role in modern   mathematics and applied contexts
CO4 : Apply the basic notions of groups, rings, fields which will then be used to solve   related problems
CO5 : Apply integrated approach to number theory and abstract algebra, and provide a firm   basis for further reading and study in the subject.

Semester:6

Course:Data Warehousing and Data Mining-[CS8075]
Upon completion of the course, the students will.../ will be able to...
CO1 : Describe the techniques and methods of data warehousing and mining.
CO2 : Analyze the reporting and querying tools for data visualization
CO3 : Apply data mining tools to discover the knowledge in data warehouse.
CO4 : Apply appropriate classification and clustering techniques for data analysis
CO5 : Apply data mining tools to discover the knowledge in data warehouse.

Course:Mobile Computing-[CS8601]
Upon completion of the course, the students will.../ will be able to...
CO1 : Understand the basics of mobile telecommunication systems.
CO2 : Illustrate the generations of telecommunication systems in wireless networks.
CO3 : Determine the functionality of MAC, network layer and identify a routing protocol for a given Ad hoc network.
CO4 : Explain the functionality of Transport and Application layers.
CO5 : Develop a mobile application using android/blackberry/iOS/Windows SDK.

Course:Compiler Design-[CS8602]
Upon completion of the course, the students will.../ will be able to...
CO1 : Understand the different phases of compiler.
CO2 : Design a lexical analyzer for a sample language.
CO3 : Apply different parsing algorithms to develop the parsers for a given grammar.
CO4 : Understand syntax-directed translation and run-time environment.
CO5 : Learn to implement code optimization techniques and a simple code generator.

Course:Distributed Systems-[CS8603]
Upon completion of the course, the students will.../ will be able to...
CO1 : Elucidate the foundations and issues of distributed systems
CO2 : Understand the various synchronization issues and global state for distributed systems
CO3 : Comprehend the Mutual Exclusion and Deadlock detection algorithms in distributed systems
CO4 : Show the use of agreement protocols and fault tolerance mechanisms in distributed systems.
CO5 : Relate the features of peer-to-peer and distributed shared memory systems and Interpret the real-time distributed system applications

Course:Internet Programming-[CS8651]
Upon completion of the course, the students will.../ will be able to...
CO1 : Construct a basic website using HTML and Cascading Style Sheets.
CO2 : Design dynamic web page with validation using JavaScript objects.
CO3 : Develop server-side programs using Servlets and JSP.
CO4 : Implement simple web page in PHP, and to present data in XML format.
CO5 : Develop rich client presentation using AJAX and Web Service Applications.

Course:Internet Programming Laboratory-[CS8661]
Upon completion of the course, the students will.../ will be able to...
CO1 : Construct Web pages using HTML/XML and style sheets.
CO2 : Build dynamic web pages with validation using Java Script objects and by applying different event handling mechanisms.

CO3 : Develop dynamic web pages using server side scripting.
CO4 : Develop web applications using PHP programming.
CO5 : Construct web applications using AJAX and web services.

Course:Mobile Application Development Laboratory-[CS8662]

Upon completion of the course, the students will.../ will be able to...
CO1 : Develop mobile applications using GUI and Layouts.
CO2 : Develop mobile applications using Event Listener.
CO3 : Develop mobile applications using Databases.
CO4 : Develop mobile applications using RSS Feed, Internal/External Storage, SMS, Multi-threading and GPS.
CO5 : Analyze and discover own mobile app for simple needs.

Course:Artificial Intelligence-[CS8691]

Upon completion of the course, the students will.../ will be able to...
CO1 : Demonstrate the basic concepts and use appropriate search algorithms for Artificial Intelligent problems
CO2 : Represent a problem using first order and predicate logic
CO3 : Provide the apt agent strategy to solve a given problem
CO4 : Design software agents to solve a problem
CO5 : Design applications for Natural Language Processing that use Artificial Intelligence.

Course:Intellectual Property Rights-[GE8075]

Upon completion of the course, the students will.../ will be able to...
CO1 : Understand the basic concepts of IPR and history of IPR policy
CO2 : Understand and apply registration process of IPRs
CO3 : Learn various policies and principles of IPR
CO4 : Analyze IP laws in cyber security domains
CO5 : Apply the knowledge and evaluate the IP infringement and enforcement measure

Course:Professional Communication-[HS8581]

Upon completion of the course, the students will.../ will be able to...
CO1 : Make effective presentations
CO2 : Participate confidently in group discussion
CO3 : Attend job interviews and be successful in them
CO4 : Develop adequate Soft Skills required for the workplace
CO5 : Develop a long term career plan- making career changes

Course:Mini Project-[CS8611]

Upon completion of the course, the students will.../ will be able to...
CO1 : Identify and Finalize problem statement by surveying variety of domains.
CO2 : Perform requirement analysis and identify design methodologies
CO3 : Apply advanced programming techniques to develop solutions to the problem
CO4 : Test the quality of the proposed method by evaluation metrics
CO5 : Present technical report by applying different visualization tools.

Semester:7

Course:Human Computer Interaction-[CS8079]
Upon completion of the course, the students will.../ will be able to...
CO1 :Design effective dialog for HCI
CO2 : Design effective HCI for individuals and persons with disabilities
CO3 :Assess the importance of user feedback
CO4 :Explain the HCI implications for designing multimedia/ ecommerce/ elearning Web sites
CO5 :Develop meaningful user interface

Course:Cloud Computing Laboratory-[CS8711]
Upon completion of the course, the students will.../ will be able to...
CO1 : Configure various virtualization tools such as Virtual Box, VMware workstation.
CO2 : Design and deploy a web application in a PaaS environment.
CO3 : Learn how to simulate a cloud environment to implement new schedulers.
CO4 : Demonstrate generic cloud environment that can be used as a private cloud
CO5 : Manipulate large data sets in a parallel environment.

Course:Cloud Computing-[CS8791]
Upon completion of the course, the students will.../ will be able to...
CO1 : Explore the main concepts, key enabling technologies, strengths and limitations of cloud computing.
CO2 : Develop the ability to understand and use the architecture of compute and storage cloud, service and delivery models.
CO3 : Understand the core issues of cloud computing such as resource management and security.
CO4 : Design and use current cloud technologies.
CO5 : Analyse and choose the appropriate technologies, algorithms and approaches for implementation and use of cloud.

Course:Cryptography and Network Security-[CS8792]
Upon completion of the course, the students will.../ will be able to...
CO1 : Understand the fundamentals of networks security, security architecture, threats and vulnerabilities
CO2 : Apply the different cryptographic operations of symmetric cryptographic algorithms
CO3 : Apply the different cryptographic operations of public key cryptography
CO4 : Apply the various Authentication schemes to simulate different applications.
CO5 : Understand various Security practices and System security standards

Course:Total Quality Management-[GE8077]
Upon completion of the course, the students will.../ will be able to...
CO1 : Able to understand quality management philosophies, frameworks and able to evaluate the strategies for customer satisfaction also.
CO2 : Able to analyze the various principles of TQM viz. leadership, employee involvement, supplier partnership with an in-depth understanding of people and relationships, approaches and measures.
CO3 : Able to apply the tools and techniques like traditional tools, new management tools, Six-sigma, Benckmarking, Failure mode and Effect Analysis etc in both production and service industries including IT.
CO4 : Able to apply the tools and techniques like Quality Control Circles, Quality Cost, Quality Function Deployment, Taguchi Quality Lost Function, Total Productive Maintenance,

	Performance Measure etc in both manufacturing and service processes.
CO5 :	Being familiar with the knowledge of environment & quality management standards and able to implement, prepare documents for evidence and evaluate using auditing.

Course:Security Laboratory-[IT8761]

Upon completion of the course, the students will.../ will be able to...

CO1 : Build cryptosystems by applying symmetric key encryption algorithms
CO2 : Build cryptosystems by applying public key encryption algorithms.
CO3 : Construct code for authentication algorithms.
CO4 : Develop a signature scheme using Digital signature standard.
CO5 : Demonstrate the network System using open source tool

Course:Systems Engineering-[OME753]

Upon completion of the course, the students will.../ will be able to...

CO1 : Describe processes, methods, life cycle and practices of systems engineering.
CO2 : Apply fundamental methods and tools of systems engineering for developing simple, complex and real world projects.
CO3 : Analyze systems using systems engineering approaches to increase performance and to make decision for optimization.
CO4 : Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, ethical, health and safety, manufacturability, and sustainability
CO5 : Develop system or product using the techniques, skills, and modern engineering tools.

Course:Principles of Management-[MG8591]

Upon completion of the course, the students will.../ will be able to...

CO1 : Have clear understanding of managerial functions and have some basic knowledge on international aspect of management; able to describe the basic of management and its types, skills, management roles, types of business organization and current trends in business.
CO2 : Understand the planning process in the organization; able to explain the nature and purpose of planning, types, objectives of planning and decision process.
CO3 : Understand the concept of organization; able to compare the different organization structures, authorities and responsibilities, human resource management and training and development.
CO4 : Demonstrate directing, leadership and communicate effectively; estimate the individual and group behavior, motivation, job satisfaction types and theories of leadership, communication and IT.
CO5 : Analyze / isolate issues and formulate best control methods; apply the knowledge using the various system and process of controlling, budgetary and non-budgetary control techniques, use of computer and IT in management control, reporting.

Semester:8

Course:Project Work-[CS6811]

Upon completion of the course, the students will.../ will be able to...

CO1 : Identify and Finalize problem statement by surveying variety of domains
CO2 : Perform requirement analysis and identify design methodologies
CO3 : Apply advanced programming techniques to develop solutions to the problem
CO4 : Test the quality of the proposed method by evaluation metrics

CO5 : Present technical report by applying different visualization tools.	

Course:Green Computing-[CS8078]

Upon completion of the course, the students will.../ will be able to...

CO1 : Acquire knowledge to adopt green computing practices to minimize negative impacts on the environment.

CO2 : To understand green (power-efficient) technologies for components of one single computer, such as CPU, memory and disk

CO3 : Enhance the skill in energy saving practices in their use of hardware.

CO4 : Evaluate technology tools that can reduce paper waste and carbon footprint by the stakeholders.

CO5 : Understand the ways to minimize equipment disposal requirements.

Course:Professional Ethics in Engineering-[GE8076]

Upon completion of the course, the students will.../ will be able to...

CO1 : Apply the engineering ethics and human values in his personal and professional life

CO2 : Able to apply ethical principles for making moral judgments

CO3 : Understand the basic perception of profession, industrial standards, codes of ethics and role of professional ethics in engineering field

CO4 : Apply safety principles to avoid risk by being aware of their responsibilities and rights

CO5 : Acquire knowledge about various roles of engineers in variety of global issues and able to apply ethical principles to resolve situations that arise in their professional lives

Semester:1

Course:Advanced Computer Architecture-[CP5152]
Upon completion of the course, the students will.../ will be able to...
CO1 : Identify the limitations of ILP and point out how data level parallelism is exploited in architectures.
CO2 : Design hierarchal memory system and discuss the various techniques used for optimizing the cache performance
CO3 : Discuss the issues related to multiprocessing and suggest solutions
CO4 : Point out the salient features of different multicore architectures and how they exploit parallelism
CO5 : Know about the VECTOR,SIMD and GPU architectures
Course:Advanced Software Engineering-[CP5154]
Upon completion of the course, the students will.../ will be able to...
CO1 : Understand the advantages of various Software Development Lifecycle Models
CO2 : Gain knowledge on project management approaches and perform formal analysis on specifications
CO3 : Use UML diagrams for analysis and design
CO4 : Architect and design using architectural styles and design patterns
CO5 : Understand software testing approaches and Devops practices
Course:Operating System Internals-[CP5153]
Course Outcomes
Upon completion of the course, the students will.../ will be able to...
CO1 : To comprehend the internal algorithms and high level structures of operating system.
CO2 : To discuss the processes, threads, filesystems and the associated system calls.
CO3 : Outline memory management strategies and revise any algorithm present in a system or design a new algorithm to replace an existing one.
CO4 : To appropriately use and modify the data structures for different software system.
CO5 : To summarise the knowledge in the implementation of inter-process communication and executable files.

Semester:2

Course:Cloud Computing Technologies-[CP5092]
Upon completion of the course, the students will.../ will be able to...
CO1 : Demonstrate the concepts of storage virtualization, network virtualization and its management
CO2 : Apply the concept of virtualization in the cloud computing
CO3 : Identify the architecture, infrastructure and delivery models of cloud computing
CO4 : Develop services using Cloud computing
CO5 : Apply the security models in the grid and cloud environment

Course:Data Analytics Laboratory-[CP5261]
Upon completion of the course, the students will.../ will be able to...
CO1 : Implement Map Reduce programs for processing big data
CO2 : Realize storage of big data using H base, Mongo DB
CO3 : Analyse big data using linear models
CO4 : Analyse big data using machine learning techniques such as SVM
CO5 : analyse big data using machine learning techniques such as decision tree classification and clustering

Course:Term Paper Writing and Seminar-[CP5281]
Upon completion of the course, the students will.../ will be able to...
CO1 : Develop scientific and technical reading
CO2 : Develop writing skills
CO3 : Understand and construct research articles.
CO4 : Obtain information from a variety of sources and then place it in logically developed ideas.
CO5 : Prepare document and presented the paper.

Course:Internet of Things-[CP5292]
Upon completion of the course, the students will.../ will be able to...
CO1 : Outline the basics of IoT
CO2 : Comprehend the IoT architecture.
CO3 : Analyze various protocols for IoT
CO4 : Design a portable IoT using Rasperry Pi
CO5 : Deploy an IoT application and connect to the cloud.
CO6 : Analyze applications of IoT in real time scenario

Course:Big Data Analytics-[CP5293]
Upon completion of the course, the students will.../ will be able to...
CO1 : Analyze the Big Data Fundamentals, including the evolution of Big Data, the characteristics of Big Data and the challenges introduced.
CO2 : Analyze the HADOOP and Map Reduce technologies associated with big data analytics.
CO3 : Apply tools and techniques to analyze Big Data.
CO4 : Design efficient algorithms for mining the data from large volumes
CO5 : Explore on Big Data applications Using Pig and Hive.

Semester:3

Course:Software Quality Assurance and Testing-[CP5005]
Upon completion of the course, the students will.../ will be able to...
CO1 : Perform functional and nonfunctional tests in the life cycle of the software product.
CO2 : Understand system testing and test execution process
CO3 : Identify defect prevention techniques and software quality assurance metrics.
CO4 : Apply techniques of quality assurance for typical applications
CO5 : Apply the techniques for quality assurance

Course:Information Storage Management-[CP5076]
Upon completion of the course, the students will.../ will be able to...
CO1 : Select various storage technologies to suit for required application.
CO2 : Apply security measures to safeguard storage & farm.

CO3 :	Creating an own Storage and network storage architecture.
CO4 :	Integrate emerging technologies into professional practice.
CO5 :	Designing security and virtualization check list for datacenter

Semester:4

Course:Project Work Phase II-[CP5411]
Upon completion of the course, the students will.../ will be able to...
CO1 : Identify and describe the problem and scope of project
CO2 : Demonstrate a depth of knowledge of Computer Science and Engineering.
CO3 : Collect, analyze and present data into meaningful information using relevant tools
CO4 : Select, plan and execute a proper methodology in problem solving, work independently and ethically
CO5 : Present the results in written and in oral format to a panel of experts effectively.