MEENAKSHI COLLEGE OF ENGINEERING
No-12,Vembuli Amman Koil Street,WestK.KNagar,
Chennai-600078

DEPARTMENT OF INFORMATION TECHNOLOGY
REGULATION-2017
COURSE OUTCOMES
SEMESTER-1

Course Name: HS8151/COMMUNICATIVE ENGLISH

CO1	UnderstandthebasicsofLSRWskillsandwillbeabletoparticipateeffectively in conversations, to exchange Personal information and to express opinions in English.
CO2	Comprehendreadingandlisteningtasksandalsotodescribeasimpleprocesswitha right Choice of vocabulary.
CO3	Articulateideascoherentlyandwriteongeneralandcreativetopicsusinggrammatically correct sentences.
CO4	Read, comprehend and interpret-articles of a general kind in magazines and newspapers and aalso write in form a all letters and e-mails in English employing Grammatically correct sentences.
CO5	Speak clearly, confidently and comprehensively usingcommunicativestrategiesandwriteparagraphsandshortessayscohesivelyandco herently.

Course Name: MA8151/ENGINEERING MATHEMATICS-1

CO1	Applyvarioustechniquesinsolvingdifferentialequationswithconstantandvariablecoeffi cients.
CO2	Gain knowledge on limits, continuity an rules of differentiation and apply them to find the derivative of various functions.
CO4	Evaluate integrals using both Riemann sums, fundamental theorem of Calculus andvariousintegrationtechniquesanddeterminetheconvergenceanddivergence of improper integrals.
CO5	Apply various integration techniques to compute multiple integrals and find the area and volume using double and triple integrals respectively

Course Name: PH8151/ENGINEERING PHYSICS

CO1	Understand the basics of properties of matter and its applications.
CO2	Acquire knowledge on the concepts of waves and optical devices and their applications in fiber optics
CO3	Evaluate the concepts of thermal properties of materials and their applications in expansion joints and heat exchanges
CO4	Get knowledge on advanced physics concepts of quantum theory and its applications in tunneling microscopes
CO5	Understand the basics of crystals, their structure sand different crystal growth techniques

Course Name: CY8151/ENGINEERING CHEMISTRY

CO1	Identifytheoriginofwaterresourcesanddevelopinnovativemethodstoproduce soft water for industrial use and potable water at cheaper cost.
CO2	Explore the fundamental concepts in surface chemistry and their application in the field of catalysis.
CO3	Gain knowledge about phase diagrams and their applications of Heterogeneous equilibrium Emphasis on heat treatment of alloy sand applications.
CO4	Understand the chemistry of fuels and combustion and its application in Various levels.
CO5	Acquire the basics of non-conventional sources of energy and understand the principles and the reaction mechanism of batteries and fuel cells.

Course Name: GE8151/PROBLEM SOLVING AND PYTHON PROGRAMMING

CO1	Understand the syntax of python program statements.
CO2	Illustrate simple python programs using branching statements
CO3	Illustrate python programs using List,Tuples,dictionaries.
CO4	Compare different programming's structures of python.
CO5	Develop a python program for a given problem.

Course Name: GE8152/ ENGINEERING GRAPHICS

CO1	Communicate thoughts and ideas graphically in a neat fashion and ability to perform free hand sketching of basic geometrical constructions, curves used in engineering practices, multiple views of objects.
CO2	Understand the concepts of orthographic projection from lines and plane surfaces
CO3	Acquire the knowledge of Orthographic projection in three dimensions from solids of basic shapes using change of position and change of reference line method
CO4	Understand the interior shapes of machine elements and structures through Sections of solids and development of lateral surfaces.
CO5	Understand the three dimensional view of an object using isometric and Perspective projections.

PRATICALS

Course Name: GE8161/PROBLEM SOLVING AND PYTHON PROGRAMMING LAB

CO1	Write, test and debugs impel Python programs.
CO2	Implement Python programs with conditionals and loops.
CO3	Develop the Python programs step-wise by defining functions and calling hem
CO4	Use Python lists, tuples, dictionaries for representing compound data.
CO5	Read and write data from/to files in Python.

Course Name: BS8161/PHYSICSAND CHEMISTRYLAB

CO1	Understand the basic knowledge of elasticity
CO2	Know the practical applications of thermal physics
CO3	Acquire practical skills in the determination of water quality parameters through volumetric method
CO4	Understand the practical knowledge on pH and conduct to metric transitions
CO5	Apply the principles of Laser for engineering applications

SEMESTER-2

Course Name: HS8251/ TECHNICALENGLISH

CO1	Read, identify the transition in texts and comprehend scientific and technical contexts in an enhanced way.
CO2	Read and interpret data from graphical representations and charts in an effective way.
CO3	Writereportseffectivelyusingappropriatevocabularyandaccuratespellingand grammar.
CO4	Draft job application letters with Resume and e-mails in a convincing Manner.
CO5	Describe processes; participate in formal and informal conversations, Group Discussions and make technical presentations effectively.

Course Name: MA8251/ ENGINEERINGMATHEMATICS–II

CO1	Evaluate Eigen values and Eigen vectors and apply them in diagonalization of matrices.
CO2	Acquire knowledge in the fundamentals and basic concepts in vector calculus.
CO3	Apply the concept of analytically in complex functions and evaluate complex derivatives.
CO4	Recognize the nature of singularities, evaluate residues and contour Integrals.
CO5	Understand the usage of Laplace transforms in mathematics and apply in relevant situations

Course Name: PH8252/ PHYSICSFORINFORMATIONSCIENCE

CO1	Gain knowledge on classical and quantum electron theories and energy b and structures
CO2	Acquire knowledge basics of semiconductor physics and its applications in various devices
CO3	Get knowledge on magnetic properties of materials and their Applications in data storage.
CO4	Have the necessary understanding on the functioning of optical material for optoelectronics
CO5	Understand the basics of quantum structures and their applications in carbon electronics.

Course Name: BE8255/ BASIC ELECTRICAL, ELECTRONICS ANDMEASUREMENTENGINEERING

CO1	Understand the basic concepts of electric circuits analysis
CO2	Learn the basic concepts of both AC and DC Machines
CO3	Familiaraboutheworkingofdifferenttypeoflampsandotherelectricalappliances.
CO4	Realize the basic electronic devices and its applications
CO5	AnalyzetheworkingofdifferenttypesofmeasuringinstrumentsandvariousTransducers.

Course Name: IT8201/ INFORMATION TECHNOLOGY ESSENTIALS

CO1	Design and deploy web-sites
CO2	Design and deploy simple web-applications
CO3	Create simple database applications
CO4	Develop information system
CO5	Describe the basics of networking and mobile communications

Course Name: CS8251/ PROGRAMMING IN C

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

PRATICALS

Course Name: GE8261/ ENGINEERING PRACTICES LAB

CO1	Elaborate on the components, gates, soldering practices.Calculate electrical parameters such as voltage, current, and resistance and power.
CO2	Measuretheelectricalenergybysinglephaseandthreephaseenergymeters.
CO3	Prepare the carpentry and plumbing joints.
CO4	Perform different types of welding joints and sheet metal works
CO5	Perform different machining operations in lathe and drilling

Course Name: CS8261/ C PROGRAMMING LAB

CO1	Develop C programs for simple applications making use of basic constructs, array
CO2	Develop C programs involving Strings & functions.
CO3	Develop C programs involving recursion & pointers.
CO4	Design applications using Structures.
CO5	Design applications using file Concepts.

Course Name: IT8211/ INFORMATION TECHNOLOGY ESSENTIALS LAB

CO1	Acquire knowledge in testing the logic of a program
CO2	Evaluate problems using the counting principles
CO3	Understand the concepts of graphs, connected graphs, Euler and Hamilton graphs.
CO4	Understand properties of algebraic structures such as groups, rings and Fields.
CO5	Analyze the class of functions which transform a finite set into another finite set which relates to input and output functions in computer science.

SEMESTER-3

Course Name: MA8351/DISCRETEMATHEMATICS

CO1	Acquire knowledge in testing the logic of a program
CO2	Evaluate problems using the counting principles
CO3	Understand the concepts of graphs, connected graphs, Euler and Hamilton graphs.
CO4	Understand properties of algebraic structures such as groups ,rings and Fields.
CO5	Analyze the class of functions which transform a finite set into another finite set which relates to input and output functions in computer science

Course Name: CS8351/ DIGITALPRINCIPLESANDSYSTEM DESIGN

CO1	Design digital circuits using simplified Boolean functions
CO2	Analyze and design combinational circuits
CO3	Analyze and design synchronous and asynchronous sequential circuits
CO4	Understand Programmable Logic Devices
CO5	Develop HDL code for combinational and sequential circuits

Course Name: CS8391/ DATA STRUCTURES

CO1	Understand the concept of abstract data type and its types.
CO2	AnalyzetheapplicationsoflineardatastructureusingStackandQueueimplementation.
CO3	Evaluate the expression using the Non-Linear Data Structure Trees.
CO4	Create and apply the basic concepts of the Non-Linear Data Structure-Graph in finding the shortest path.
CO5	Illustrate the various sorting algorithms and Hashing Techniques with examples

Course Name: CS8392/ OBJECTORIENTED PROGRAMMING

CO1	Comprehend Object Oriented Programming Concepts in Java
CO2	ApplytheObjectOrientedProgrammingConceptssuchasinheritanceandinterfaces to develop the reusable Applications
CO3	Illustrate the object oriented applications using Java Exceptions and I/O Streams
CO4	Understand Multi-threading and Generic Classes in Java
CO5	Apply AWT to develop simple Graphical User Interface Applications

Course Name: EC8394/ ANALOGANDDIGITALCOMMUNICATION

CO1	Apply analog communication techniques.
CO2	Use data and pulse communication techniques
CO3	Apply Digital communication techniques.
CO4	Analyze Source and Error control coding
CO5	Utilize multi-user radio communication.

PRATICALS

Course Name: CS8381/ DATASTRUCTURES LAB

CO1	Writefunctionstoimplementlinearandnon-lineardatastructureoperations
CO2	Implement the different operations of search trees.
CO3	Implement the Graph Travers l Algorithm.
CO4	Implement Various searching and Sorting Algorithm.
CO5	Apply appropriate hash functions that result in a collision free scenario for Data storage and retrieval.

Course Name: CS8383/ OBJECT ORIENTED PROGRAMMING LAB

CO1	Develop and implement Java programs for simple applications that make use of classes
CO2	Develop and implement Java programs for simple applications that make use of packages and interfaces
CO3	Develop and implement Java programs with array list, exception handling and multi threading
CO4	Design applications using file processing
CO5	Design applications using generic programming and event handling & Java Swing

Course Name: CS8382/ DIGITAL SYSTEMS LAB

CO1	UseBooleansimplificationtechniquestodesignacombinationalhardware circuit.
CO2	Design and implement combi-national and sequential circuits.
CO3	Analyze a given digital circuit-combi national and sequential.
CO4	Design the different functional units in a digital computer system
CO5	Design and implement a simple digital system.

Course Name: HS8381/ Interpersonal Skills/Listening & Speaking

CO1	Listen and respond appropriately.
CO2	Participate in group discussions
CO3	Make effective presentations
CO4	Involve confidently and appropriately in conversations both formal and informal
CO5	Understand the role of communication in personal& Professionalsuccess

SEMESTER-4

Course Name: MA8391/ PROBABILITY AND STATISTICS

CO1	Use basic counting techniques (multiplication rule, combinations and permutations) tocomputeprobabilityandodds.Computeconditionalprobabilitiesdirectlyandusing Bayes't heorem, and check for independence of events. Know basic properties of the binomial, Poisson, Gaussian and other distribution s and apply the min engineering and computer science applications. Determine the expectation and variance of a random variable from its distribution.
CO2	Use2-dimensionalrandomvectorstomodelexperimentswithtwosimultaneousoutcomesandcomputecorrelationandregressionoftwodimensional random variables. Understand the central limit theorem.
CO3	Learn how to formulate and test hypotheses about means, variances and proportions and to draw conclusions based on the results of statistical tests.
CO4	Understand how the analysis of variance procedures can be used to determine if means of more than two populations are equal
CO5	Understand the fundamentals of quality control and the methods used to Control systems and processes.

Course Name: CS8491/ COMPUTER ARCHITECTURE

CO1	Understand the basic structure, hardware-software interface and operation of digital computers.
CO2	Apply the fixed and floating point operations in arithmetic and logical unit.
CO3	Design and analyze the concepts and control units of pipe lining.
CO4	Understandandevaluatetheprocessingactivitiesofparallelprocessingarchitectures.
CO5	Evaluate performance of memory systems including cache and virtual memory with I/O device communications

Course Name: CS8492/ DATABASE MANAGEMENT SYSTEMS

CO1	To learn the fundamentals of data models and to represent a database system using ER diagrams.
CO2	To study SQL and relational database design.
CO3	Tounderstandtheinternalstoragestructuresusingdifferentfileandindexing techniques which will help in physical DB design.
CO4	To understand the fundamental concepts of transaction processing- Concurrency control techniques and recovery procedures.
CO5	TohaveanintroductoryknowledgeabouttheStorageandQueryprocessingTechniques

Course Name: CS8451/ DESIGN AND ANALYSIS OF ALGORITHMS

CO1	Analyze worst-case running times of algorithms using asymptotic analysisandarguethecorrectnessofalgorithmsusinginductiveproofsandinvariants.
CO2	Illustratehowcomputingproblemsaresolvedusingbruteforceanddivideand conquer methods
CO3	Demonstrate how problems are solved using dynamic programming and greedy techniques
CO4	Illustrate the iterative improvement method for problem solving
CO5	Findthelimitationsofalgorithmsandapplybacktrackingandbranchandbound techniques to solve the problems

Course Name: CS8493/ OPERATING SYSTEMS

CO1	Design various Scheduling algorithms.
CO2	Apply the principles of concurrency, Design deadlock, prevention and avoidance algorithms.
CO3	Compare and contrast various memory management schemes.
CO4	Design and Implement a prototype file systems.
CO5	Perform administrative tasks on Linux Servers, Compare iOS and Android-operating Systems.

Course Name: GE8291/ ENVIRONMENTAL SCIENCE AND ENGINEERING

CO1	UnderstandthebasicsofStructureandfunctionsofanecosystem,thevaluesofbiodiversity and conservation of biodiversity.
CO2	Understand the causes, effects and control measures of different pollution and disasters.
CO3	Remembertheimportanceofnaturalresourcesandtoknowtheroleofanindividual in conservation of natural resources and their case studies.
CO4	Gain knowledge about the concept of Sustainable development, EnvironmentalLawsandroleofGovernmentandNon-GovernmentalOrganizations (NGO) in Environmental Protection.
CO5	Learn the importance of family welfare programs, population explosion And Value education.

PRATICALS

Course Name: CS8481/ DATABASE MANAGEMENT SYSTEMS LAB

CO1	Use typical data definitions and manipulation commands
CO2	Design applications to test Nested and Join Queries
CO3	Implement simple applications that use Views
CO4	Implement applications that require a Front-end Tool
CO5	Critically analyze the use of Tables,Views,Functions and Procedures

Course Name: CS8461/ OPERATING SYSTEMS LAB

CO1	Learn the basic Unix commands and shell programming.
CO2	Be exposed to Programming in C using system calls
CO3	Be familiar with implementation of CPU scheduling Algorithm and file allocation and organization methods.
CO4	Implement Deadlock avoidance and Detection algorithms and various Page Replacement algorithms.
CO5	Create a process and implement an IPC and synchronization application.

Course Name: HS8461/ ADVANCED READING AND WRITING

CO1	Learn to Write different types of essays
CO2	Learn to Write winning job applications
CO3	Be familiar to Read and evaluate texts critically
CO4	Learn to Display critical thinking in various professional contexts

SEMESTER-V

Course Name: MA8551- Algebra and Number Theory

CO1	Know the fundamental definitions and results in group theory, ring theory, integral domain and fields.
CO2	State and establish elementary propositions relating irreducibility, roots and Factorization in polynomial rings over a field.
CO3	Define and interpret the concepts of divisibility, congruence, greatest common divisor, prime and prime-factorization.
CO4	Solve linear Diophantine equations and linear congruencies.
CO5	Solve polynomial congruence using Chinese remainder theorem.
CO6	Apply Euler-Fermat's theorem to prove relations involving prime Numbers.

Course Name: CS8591- Computer Networks

CO1	Understand the basic layers and its functions in computer networks
CO2	Evaluate the performance of a network
CO3	Understand the basics of how data flows from one node to another
CO4	Analyze and design routing algorithms.
CO5	Design protocols for various functions in the network
CO6	Understand the working of various application layer protocols

Course Name: EC8691- Microprocessors and Microcontrollers

CO1	Restate the architecture, memory organization of8086 and8051.
CO2	Identify the different ways of interfacing memory, I/Owith8086and8051
CO3	ApplytheprogrammingusingALPin8086and8051forarithmeticlogical and real time applications.
CO4	Analyze the interfacing concept of different programmable interfacing Devices.
CO5	Developing programming concepts for various applications.
CO6	Design microprocessor and microcontroller based applications.

Course Name: IT8501- Web technology

CO1	Describe the fundamental concepts to develop web pages.
CO2	Apply the various Client side scripting technologies to design interactive web pages.
CO3	Apply the various Server side scripting technologies to design interactive Web pages.
CO4	Analyze the Advanced web technologies.
CO5	Evaluate the web page using web technologies.
CO6	Review the web technologies.

Course Name: CS8494- Software engineering

CO1	Identify the key activities in managing a software project and understand the agile methodology
CO2	Analyze different process models and apply to real world problems
CO3	Understand the concepts of requirements engineering and Analysis Modeling.
CO4	Apply systematic procedure for software design and deployment.
CO5	Compare and contrast various testing and maintenance methods.
CO6	Interpret the project schedule, estimate project cost and effort required.

Course Name: OBT554- Principles of food preservation

CO1	Acquire knowledge about the basic concepts and principles of food preservation techniques.
CO2	Demonstrate the crop harvesting methods and basic food processing techniques for fish, meat, fruits and vegetables.
CO3	Illustrate the methods for freezing and packaging of raw and processed Foods.
CO4	Identify and apply the processing operations used food preservation including thermal processing methods.
CO5	Interpret the different types of dryers and freezers used in food storage.
CO6	Disseminate the non thermal methods of food preservation.

Course Name: OEC552- Soft computing

CO1	Describe various soft computing concepts for building practical applications.
CO2	Review the concepts of neural networks and its algorithms to address real-time problems.
CO3	Apply fuzzy rules and reasoning to develop decision making and expert system.
CO4	Classify the importance of optimization techniques and genetic Programming.
CO5	Evaluateandcomparedifferentsolutionsbyvarioussoftcomputingapproaches for a given problem.
CO6	Compose various hybrid soft computing techniques.

PRATICALS
Course Name: CS8581- Networks laboratory

CO1	Write ALP Programmers for fixed and Floating Point Arithmetic operations
CO2	Interface different /Os with processor
CO3	Generate waveforms using Microprocessors
CO4	Understand the working of MASM and execute programs in MASM
CO5	ExecutePrograms in 8051
CO6	Explain the difference between simulator and Emulator

Course Name: EC8681- Microprocessors and Microcontrollers Lab

CO1	Implement various protocols using TCP and UDP.
CO2	Compare the performance of different transport layer protocols.
CO3	Use simulation tools to analyze the performance of various network protocols.
CO4	Analyze various routing algorithms.
CO5	Implement error correction codes.
CO6	Experimenting to know the concept of data transfer between nodes.

Course Name: IT8511 –Web Technology Lab

CO1	Design and develop basic websites using Client side scripting.
CO2	Design and implement user interactive dynamic web based applications using server scripting.
CO3	Infer the information interchange formats of XML, contrast document parsing with SAX and DOM.
CO4	Learn the installation procedure of Apache Tomcat Server.
CO5	Develop web applications that interact with data bases
CO6	Examine client server communication using web services.

SEMESTER-VI

Course Name: IT8601-Computational intelligence

CO1	Discuss the fundamental concepts and Problem-solving through various searching techniques in Computational Intelligence
CO2	Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning.
CO3	Applythefuzzylogiccontroland-Neuro-fuzzyInferencetodesignthefuzzy control using genetic algorithm.
CO4	Review problem solving skills using the acquired knowledge in the areas of, reasoning, natural language , Expert systems **,**understanding, computer vision, prolog programming and machine learning
CO5	Demonstrate awareness and a fundamental understanding of various Applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models.
CO6	Evaluate real time problems on machine learning, information retrieval and Information extraction.

Course Name: CS8592- Object oriented analysis and Design

CO1	Understand the fundamentals of object-oriented method for analysis and design processes
CO2	Analyze the given problem domain and to design the solution using OOAD techniques / tools
CO3	Extract an Object Model and Dynamic Model of system functionality from the requirements
CO4	Design structured, robust, maintainable object-oriented systems across multiple platforms from the specifications developed
CO5	Evaluate and use various CASE tools for object-oriented software
CO6	Demonstrate various issues for object oriented testing

Course Name: IT8602- Mobile communication

CO1	Understand the principles and theories of mobile communication technologies.
CO2	Understand and Identify the GSM, GPRS and Bluetooth software model for mobile communication
CO3	Review the various Wireless and Medium Access Protocols and technologies.
CO4	Inspect the architectures of various wireless LAN technologies
CO5	Determine the functionality of network layer and Identify a routing protocol for a given Adhoc networks
CO6	Summarize the functionality of Transport and Application aye

Course Name: CS8091- Big Data Analytics

CO1	Discuss the concepts of big data, data storage, big data tools and techniques.
CO2	Recognize and apply various clustering and classification algorithms.
CO3	Execute different mining algorithms and evaluate them for different data sets.
CO4	Evaluate the various recommendation systems for real time problems.
CO5	To understand the concepts of data stream and stream analytics.
CO6	Appraise the merits of various NoSQL databases and their applications.

Course Name: CS8092 – Computer Graphics and Multimedia

CO1	Identify various Illumination and color models.(
CO2	Explain line drawing Algorithms, circle drawing Algorithms and ellipse drawing Algorithms.
CO3	Determine two dimensional transformations, clipping, viewing in Graphics. (K3)
CO4	Examine three dimensional transformations, clipping, viewing in Graphics.
CO5	Summarize different types of Multimedia File Format.
CO6	DesignBasic3dScenesusingBlender.

Course Name: IT8076– Software testing

CO1	Understand about the Software Testing Principles and Defect Classes
CO2	Designtestcasessuitableforasoftwaredevelopmentfordifferentdomains.
CO3	Identify suitable tests to be carried out.
CO4	Prepare test planning based on the document and document test plans
CO5	Use automatic testing tools.
CO6	Develop and validate a test plan.

Course Name: IT8001– Information storage and management

CO1	Understand the logical and the physical components of a Storage infrastructure with virtualization techniques.
CO2	Describe the different types of RAID implementations and Intelligent Storage System.
CO3	Evaluate the architecture of storage networking technologies such as DAS, SAN, IPSAN, NAS.
CO4	Analyze the various storage architectures and compare the key elements in classic and virtualized environments.
CO5	Assess the business continuity solutions with different backup and recovery Techniques.
CO6	Construct the Information Storage System Environment by applying various archives for managing fixed content and different replication technologies.

PRACTICALS:

Course Name: CS8662 – Mobile application development laboratory

CO1	Understand the principles and theories of mobile communication technologies.
CO2	Understand and Identify the GSM, GPRS and Bluetooth software model for mobile communication
CO3	Review the various Wireless and Medium Access Protocols and technologies.
CO4	Inspect the architectures of various wireless LAN technologies
CO5	Determine the functionality of network layer and Identify a routing protocol for a given Adhoc networks
CO6	Summarize the functionality of Transport and Application layer

Course Name: CS8582 – Object oriented analysis and design laboratory

CO1	Make use of object oriented analysis and design concepts to solve a given problem specifications
CO2	Identify and map basic software requirements in UML mapping.
CO3	Apply design patterns to improve the software quality
CO4	Test the compliance of the software with SRS
CO5	Map the object oriented design to the developed code
CO6	Apply object oriented design to develop software

Course Name: IT8611- Mini Project

CO1	State the technical importance of the problem and societal contribution
CO2	Identify and survey the relevant literature for getting exposed to related solutions
CO3	Build project plans with feasible requirements.
CO4	Analyze, design and develop adaptable and reusable solutions
CO5	Implement and test solutions to trace against the user requirements
CO6	Deploy and Demonstrate the solutions for future scope for improvement

Course Name: HS8581- Professional communication

CO1	Implement the employability and career skills relevant to engineering as a profession
CO2	Demonstrate a better understanding of the communication process by applying communication theories communication
CO3	Adapt the skills towards grooming as a professional
CO4	Execute and develop a planned approach towards building a career
CO5	Identify different types of personal interview skills through mock interviews and practices
CO6	Discuss and develop critical thinking ability and perform well in group discussions

SEMESTER-VII

Course Name: MG8591- Principles Of management

CO1	Clear understanding of managerial functions like planning, and have same basic knowledge on international aspect of management
CO2	To have a deep understanding about the organization and trends
CO3	To understand the planning process in the organization
CO4	To understand the concept of organization
CO5	Demonstrate the ability to directing ,leadership and communicate effectively
CO6	To analysis isolate issues and formulate best control methods.

Course Name: CS8792 – Cryptography and Network Security

CO1	Discuss the mechanisms, attacks and services in security using cryptography.
CO2	Apply basics of mathematics in encryption and authentication algorithms.
CO3	Review the System security standards in OSI Layers.
CO4	Evaluate the data integrity using Symmetric Encryption algorithms.
CO5	Evaluate the data integrity based on Asymmetric Encryption algorithms.
CO6	Apply Data authentications mechanism for a web based application.

Course Name: CS8791 - Cloud Computing

CO1	Articulate the main concepts, key technologies, strengths and limitations of cloud computing
CO2	Learn the key and enabling technologies that help in the development of cloud.
CO3	Develop the ability to understand and use the architecture of compute and storage cloud
CO4	Illustrate the core issues of cloud computing such as resource management and Security.
CO5	Evaluate and use current cloud technologies for the given scenario.
CO6	Build an cloud application by choosing the appropriate technologies, algorithms and approaches for implementation and use of cloud.

Course Name: OCY751 – Waste water treatment

CO1	Will have knowledge on water quality standards
CO2	Will gain knowledge on preliminary treatment of water.
CO3	Will gain knowledge on treatment of water for industrial standards
CO4	Will gain knowledge on conventional treatment methods
CO5	Will gain knowledge on waste water characteristics and treat men and treatment and handling of sludge
CO6	Will gain knowledge on advanced treatment processes

Course Name: OCH752 – Energy technology

CO1	Learn the basics of energy, energy scenario, various types of energy systems and energy conservation principles.
CO2	Apply engineering techniques to understand energy scenario, thermal, hydel, nuclear, solar, wind, ocean,tidal,biomass and energy conservation.
CO3	Choosing proper methodology to harvest energy from ther maland hydel energy systems.
CO4	Integrating the various methods of power generation using nuclear, solar, wind, Ocean, tidal energy systems and implementing them in real time usage.
CO5	Categorizing the implication of biomass energy systems.
CO6	Moderating of energy conservation systems.

Course Name: IT8075 – Software project management

CO1	Understand Project Management principles while developing software.
CO2	Gain extensive knowledge about the basic project management concepts, framework and the process models.
CO3	Obtain adequate knowledge about software process models and software effort estimation techniques
CO4	Applying the network planning models and estimate the risks involved in various project activities.
CO5	Define the checkpoints, project reporting structure, project progress and tracking mechanisms using project management principles.
CO6	Learn staff selection process and the issues related to people management

Course Name: CS8079– Human Computer Interaction

CO1	Explain the importance of HCI study and principles of user-centered design (UCD) approach.
CO2	Understanding of human factors in HCI design.
CO3	Examine and Discuss various models, paradigms and context of interactions.
CO4	Evaluate effective user-interfaces following a structured and organized user-centered design
CO5	Design mobile and web interfaces using tools by studying its concepts.
CO6	Illustrate the real time scenario with HCI concepts.

PRACTICALS:

Course Name: IT8711 – Foss and Cloud Computing Laboratory

CO1	Learn GCC and Version Control System
CO2	Configure various virtualization tools such as Virtual Box, VMware workstation.
CO3	Design and deploy a web application in a PaaS environment.
CO4	Learn how to simulate a cloud environment to implement new schedulers.
CO5	Install and use a generic cloud environment that can be used as a private Cloud.
CO6	Install and use Hadoop

Course Name: IT8761– Security laboratory

CO1	Implement the classical substitution and transposition techniques.
CO2	Build cryptosystems by applying symmetric Key Algorithms
CO3	Build cryptosystems by applying Asymmetric Key Algorithms
CO4	Evaluate security mechanisms using Hash Functions.
CO5	Implement different Digital signature algorithms.
CO6	Use different open source tools for network security and analysis

SEMESTER-VIII

Course Name: GE8076- Professional ethics In Engineering

CO1	Acquire the basic knowledge of human values, morals, ethics, industrial standards, code of ethics and role of professional ethics in the engineering field.(K2)
CO2	Understand professional rights and responsibilities of an engineer.
CO3	Understand the safety and risk benefit analysis.
CO4	Imbibe the various ethical theories developed and apply them for a professional and societal advancement.
CO5	Obtain adequate knowledge about the culture & the value system adopted by MNCs, local business houses and to create an ethical based work environment.
CO6	Learn to solve the employees' conflict & grievances in an amicable and ethical Way.

Course Name: IT8005 - Electronic Commerce

CO1	Learn the E- Commerce platform and the concepts of designing a website.
CO2	Design website using HTML, CSS and JSS.
CO3	Understanding the flow of building an E- Commerce website and Mobile apps.
CO4	Implement the various security measures in E-Commerce environment.
CO5	Analyze and evaluate the business concepts in Digital Marketing.
CO6	Create responsive website sto manage maintained support Web Apps.

Course Name: IT8811 – Project work

CO1	State technically and economically feasible problems.
CO2	Identify and survey the relevant literature for getting exposed to related solutions
CO3	Analyze, design, and develop adaptable solutions using modern tools.
CO4	Implement and integrate framed solutions of the problem.
CO5	Evaluate the solutions to trace against the user requirements.
CO6	Deploy and Demonstrate the solutions for future scope for improvement.

ELECTIVE SUBJECTS

Course Name: IT6004- Software Testing

CO1	Obtain an insight to software testing
CO2	Apply both black box testing and white box testing
CO3	Understand and apply multiple levels of testing
CO4	Understand the role of a tester as an individual and as a team member.
CO5	Apply software testing for large projects using automated testing tools
CO6	Maintain documentation on testing

Course Name: OME752- Supply Chain Management

CO1	Students will be able to understand the framework and scope of supply chain networks and functions.
CO2	Students will be able to design various supply chain and distribution for various industries
CO3	Students will be able to understand the Importance of logistics and knowledge of transportation decision making
CO4	Students will be able to enhance the collaboration of sourcing and analysis and strategic building analyze various manufacturing methods for Industry 4.0
CO5	Students will be able to Frame the supply chain strategy to IT industry and exploring the future of IT in supply chain.

Course Name: OCE551- Air Pollution and Control Engineering

CO1	Implement the employability and career skills relevant to engineering as profession
CO2	Demonstrate a better understanding of the communication process by applying communication theories communication
CO3	Adapt the skills towards grooming as a professional
CO4	Execute and develop a planned approach towards building a career
CO5	Identify different types of personal interview skills through mock interviews and practices
CO6	Discuss and develop critical thinking ability and perform well in group discussions

Course Name: 19CSPE703- Service Oriented Architecture

CO1	Able to build applications based on XML.
CO2	Know the service orientation concepts, benefits of SOA
CO3	Develop web services and WS standards
CO4	Use web services extensions to develop solutions
CO5	Apply service modeling, service oriented analysis and design for application development.

Course Name: GE8076- Professional Ethics

CO1	To enable the students to create an awareness on Engineering Ethics and Human Values to instill Moral and Social Values and Loyalty and to appreciate the rights of others.
CO2	Adapt the skills towards grooming as a professional
CO3	Execute and develop a planned approach towards building a career
CO4	Identify different types of personal interview skills through mock interviews and practices
CO5	Discuss and develop critical thinking ability and perform well in group discussions