ANNA UNIVERSITY CHENNAI

KATHIR COLLEGE OF ENGINEERING, COIMBATORE

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R2017 REGULATION

PROGRAMME OUTCOMES (POs)

Students graduating from Computer Science & Engineering should be able to:

PO1.Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2.Problem analysis: Identity, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3.Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4.Conduct investigations of complex problems: Use research – based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5.Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and writeeffective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in self, and lifelong learning in the broadest context of technological change

PROGRAMME SPECIFIC OUTCOME (PSOs)

PSO1: Able to apply the knowledge gained during the course of the program to formulate and solve real life, complex software engineering problems faced in IT industries.

PSO2: To learn more techniques and update new skill sets as per the latest trend in software technology

PSO3: Able to apply the knowledge of ethical and management principles required to work in a team as well as to lead a team

PSO4: The Able to comprehend and write effective project reports in multidisciplinaryenvironment in the context of changing technologies

COURSE OUTCOMES

I - SEMESTER	
Course code	**C101**
Subject code	**HS8151**
Subject name	**Communicative English**
COURSE OUTCOMES	
CO1	Comprehend articles of a general kind in magazines and newspapers.
CO2	Classify the ideas logically using appropriate communicative strategies.
CO3	Express opinion in informal conversations effectively.
CO4	Comprehend conversations and short talks delivered in English.
CO5	Use the principles of writing for short essays, personal letters and emails in English.

Course code	C102
Subject code	MA8151
Subject name	Engineering Mathematics – I
COURSE OUTCOMES	
CO1	Express the function graphically, symbolically and numerically.
CO2	Compute the derivatives using the product rule, quotient rule, chain rule.
CO3	Use the calculus techniques in elementary problems of optimization for several variables..
CO4	Calculate simple definite and indefinite integral using the fundamental theorem of calculus.
CO5	Understand the concept of double and triple integrals.

Course code	C103
Subject code	PH8151
Subject name	Engineering Physics
COURSE OUTCOMES	
CO1	Knowledge on the basics of properties of matter and its applications
CO2	Knowledge on the concepts of waves and optical devices and their applications in fibre optics
CO3	Knowledge on the concepts of thermal properties of materials and their applications in expansion joints and heat exchangers
CO4	Knowledge on advanced physics concepts of quantum theory and its applications in tunneling microscopes
CO5	Understand the basics of crystals, their structures and different crystal growth techniques.

Course code	C104
Subject code	CY8151
Subject name	Engineering Chemistry
COURSE OUTCOMES	
CO1	Outline the boiler troubles and water softening methods.
CO2	Explain the fundamentals of surface reactions and catalytically process.
CO3	Summarize the characteristics and suitability of alloys under working conditions.
CO4	Compare phase diagram of one and two components systems.
CO5	Interpret the efficiency of solid, liquid and gaseous fuels in combustion process.

Course code	C105
Subject code	GE8151
Subject name	Problem Solving and Python Programming
COURSE OUTCOMES	
CO1	Explain algorithmic solutions to simple computational problems.
CO2	Illustrate programs using simple Python statements and expressions.
CO3	Apply control flow and functions concept in Python for solving problems.
CO4	Use Python script to perform operations on lists, tuples and dictionaries.
CO5	Explain files, exception, modules and packages in Python for solving problems.

Course code	C106
Subject code	GE8152
Subject name	ENGINEERING GRAPHICS
COURSE OUTCOMES	
CO1	Perform free hand sketching of basic geometrical constructions and multiple views of objects.
CO2	Do orthographic projection of lines and plane surfaces.
CO3	Draw projections and solids and development of surfaces.
CO4	Prepare isometric and perspective sections of simple solids.
CO5	Demonstrate computer aided drafting.

Course code	C107
Subject code	GE8161
Subject name	Problem Solving and Python Programming Laboratory
COURSE OUTCOMES	
CO1	Write, test, and debug simple Python programs.
CO2	Implement Python programs with conditionals and loops.
CO3	Develop Python programs step-wise by defining functions and calling them.
CO4	Use Python lists, tuples, dictionaries for representing compound data.
CO5	Read and write data from/to files in Python.

Course code	C108
Subject code	BS8161
Subject name	Physics and Chemistry Laboratory
COURSE OUTCOMES	
CO1	Apply physics principles of optics and thermal physics to evaluate engineering properties of materials.
CO2	Outfit with hands-on knowledge in the quantitative chemical analysis of water quality related parameters
CO3	Determine the DO content in water sample by winkler's method and molecular weight of polymer by Ostwald viscometer.
CO4	Find the strength of an acid using pH meter and conductometer
CO5	Estimate the amount of weak and strong acids in a mixture by conductometer

II - SEMESTER	
Course code	**C109**
Subject code	**HS8251**
Subject name	**Technical English**
COURSE OUTCOMES	
CO1	Articulate opinions in informal conversations effectively.
CO2	Comprehend articles of a general kind in magazines and newspapers.
CO3	Understand grammar rules for language development.
CO4	Use the principles of writing for personal letters and emails in English.
CO5	Identify logical ideas for developing essays.

Course code	**C110**
Subject code	**MA8251**
Subject name	**Engineering Mathematics – II**
COURSE OUTCOMES	
CO1	Calculate the Eigen values and Eigen vectors of a matrix and reduce quadratic form into its canonical form through linear and orthogonal transformation.
CO2	Compute the line, surface and volume integral by Green's ,stoke's and gauss divergence theorem.
CO3	Construct the analytic functions and bilinear transformations
CO4	Illustrate a contour integral with an integrand which have singularities in the closed region.
CO5	Apply the concept of Laplace transform to the solution of linear ordinary differential equations with constant coefficients.

Course code	C111
Subject code	PH8252
Subject name	Physics for Information Science
COURSE OUTCOMES	
CO1	Summarize the concepts of conducting materials by classical and quantum theories.
CO2	Categorize the semiconducting materials and their applications.
CO3	Distinguish the magnetic materials.
CO4	Illustrate the applications of magnetic in data storage.
CO5	Identify the functioning of optical materials for optoelectronics.

Course code	C112
Subject code	BE8255
Subject name	Basic Electrical, Electronics and Engineering
COURSE OUTCOMES	
CO1	Discuss the essentials of electric circuits and analysis.
CO2	Detail the basic operation of electric machines and transformers.
CO3	Summarize renewable sources and common domestics loads.
CO4	Illustrate the fundamentals of electronic circuit constructions.
CO5	Investigate various measurements and metering for electric circuits.

Course code	C113
Subject code	GE8291
Subject name	Environmental Science and Engineering
COURSE OUTCOMES	
CO1	Interpret the importance of natural environment and ecosystem concepts.
CO2	Infer the values and conservation of biodiversity.
CO3	Explain the causes, effects and control measures of various types of pollution.
CO4	Classify the various types of natural resources and its conservation methods.
CO5	Outline the social issues and environmental problems for sustainable development.

Course code	C114
Subject code	CS8251
Subject name	Programming in C
COURSE OUTCOMES	
CO1	Understand fundamental underlying principles of computer networking
CO2	Understand details and functionality of layered network architecture.
CO3	Apply mathematical foundations to solve computational problems in computer networking
CO4	Analyze performance of various communication protocols.
CO5	Compare routing algorithms

Course code	C115
Subject code	GE8261
Subject name	Engineering Practices Laboratory
COURSE OUTCOMES	
CO1	Fabricate carpentry components and pipe connections including plumbing works.
CO2	Use welding equipments to join the structures.
CO3	Carry out the basic machining operations.
CO4	Make the models using sheet metal works. Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundary and fittings.
CO5	Carry out basic home electrical works and appliances. Measure the electrical quantities. Elaborate on the components, gates, soldering practices.

Course code	C116
Subject code	CS8261
Subject name	C Programming Laboratory
COURSE OUTCOMES	
CO1	Develop simple C programs using Input/Output Statements, expressions and control statements.
CO2	Perform Sorting operations using arrays and strings.
CO3	Implement recursion and different types of function calling for C Programs.
CO4	Develop simple application using structures and pointers.
CO5	Implement data processing operations in files.

III - SEMESTER	
Course code	**C201**
Subject code	**MA8351**
Subject name	**Discrete Mathematics**
COURSE OUTCOMES	
CO1	Rewrite the mathematical statements into logical values.
CO2	Discuss the discrete structure of combinatorial objects.
CO3	Solve the recurrence relation with generating functions.
CO4	Elaborate the basic concepts of Graph theory.
CO5	Elaborate the concepts of Lattices and Boolean Algebra.

Course code	**C202**
Subject code	**CS8351**
Subject name	**Digital Principals and System Design**
COURSE OUTCOMES	
CO1	Apply various techniques to simplify the Boolean functions.
CO2	Construct different combinational logic circuits for the given specification and model the same using HDL.
CO3	Construct clocked sequential circuits for the given specification and obtain its HDL
CO4	Analyze asynchronous sequential circuitsusing state reduction techniques .
CO5	Explain the concept of semiconductor memory and programmable logic devices.

Course code	**C203**
Subject code	**CS8391**
Subject name	**Data Structures**
COURSE OUTCOMES	
CO1	Explain abstract data types for linked list and its applications.
CO2	Interpret the concepts of stack, queue and its applications.
CO3	Understand the types of nonlinear data structure tree
CO4	Interpret non linear data structure graph and its applications
CO5	Discuss various sorting and searching techniques in data structures and hashing techniques for Indexing.

Course code	C204
Subject code	CS8392
Subject name	Object Oriented Programming
COURSE OUTCOMES	
CO1	Explain the basic concepts of Object Oriented Programming and characteristics of Java.
CO2	Illustrate the concepts of Inheritance and Interface
CO3	Develop Java Applications using Exceptions and I/O Streams
CO4	Explain the concepts of Multithreading and Generic Programming
CO5	Develop Graphical User Interface applications using swings

Course code	C205
Subject code	EC8395
Subject name	Communication Engineering
COURSE OUTCOMES	
CO1	Understand the various concepts of analog modulation.
CO2	Understand the various concepts of pulse modulation techniques
CO3	Describe the concept of band pass transmission schemes
CO4	Analyze source coding and error control coding techniques
CO5	Understand the concept of spread spectrum and multiple access techniques

Course code	C206
Subject code	CS8381
Subject name	Data Structures Laboratory
COURSE OUTCOMES	
CO1	Implement Stack and Queue using array and Linked List ADT.
CO2	Implement the applications of stack and queue using C programming.
CO3	Experiment with various Graph algorithms to find shortest path.
CO4	Implement sorting and searching algorithms using C Programming.
CO5	Experiment the collision Technique using Hashing concepts.

Course code	C207
Subject code	CS8383
Subject name	Object Oriented Programming Laboratory
COURSE OUTCOMES	
CO1	Develop simple Java applications using classes and packages.
CO2	Develop Java programs using inheritance and interfaces.
CO3	Implement exception handling and file concepts.
CO4	Develop simple application using multithreading and generic programming.
CO5	Develop event driven programming and applications using java concepts.

Course code	C208
Subject code	CS8382
Subject name	Digital Systems Laboratory
COURSE OUTCOMES	
CO1	Exercise the implementation of Boolean theorems, simple combinational circuits using basic logic gates
CO2	Construct and implement combinational circuits using MSI devices.
CO3	Examine the operation of sequential circuits like shift register and counters.
CO4	Simulate the combinational and sequential circuits using HDL.
CO5	Design simple digital system and validate its performance.

Course code	C209
Subject code	HS8381
Subject name	Interpersonal Skills /Listening
COURSE OUTCOMES	
CO1	Demonstrate listening skill to give information as part of a simple explanation
CO2	Develop speaking skills to give personal information to express ability and ask for clarification to improve pronunciation.
CO3	Interpret information and ideas from multiple sources with reasonable accuracy over a wide range of everyday topics.
CO4	Participate confidently and appropriately in conversations both formal and informal.
CO5	Make effective presentations and participate in group discussions

IV - SEMESTER	
Course code	**C210**
Subject code	**MA8402**
Subject name	**Probability and Queuing Theory**
COURSE OUTCOMES	
CO1	Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon.
CO2	Understand the basic concepts of one and two dimensional random variables and apply in engineering applications.
CO3	Apply the concept of random processes in engineering disciplines.
CO4	Acquire skills in analyzing queueing models.
CO5	Understand and characterize phenomenon which evolve with respect to time in a probabilistic manner

Course code	**C211**
Subject code	**CS8491**
Subject name	**Computer Architecture**
COURSE OUTCOMES	
CO1	Understand the basics structure of computers, operations and instructions.
CO2	Design arithmetic and logic unit.
CO3	Understand pipelined execution and design control unit.
CO4	Understand parallel processing architectures.
CO5	Understand the various memory systems and I/O communication.

Course code	**C212**
Subject code	**CS8492**
Subject name	**Database Management Systems**
COURSE OUTCOMES	
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 code	C213
Subject code	CS8451
Subject name	Design and Analysis of Algorithm
COURSE OUTCOMES	
CO1	Design algorithms for various computing problems.
CO2	Analyze the time and space complexity of algorithms.
CO3	Critically analyze the different algorithm design techniques for a given problem.
CO4	Modify existing algorithms to improve efficiency.
CO5	Solve the problems using back tracking and branch and bound techniques.

Course code	C214
Subject code	CS8493
Subject name	Operating Systems
COURSE OUTCOMES	
CO1	Analyze various scheduling algorithms.
CO2	Understand deadlock, prevention and avoidance algorithms.
CO3	Understand the functionality of file systems.
CO4	Perform administrative tasks on Linux Servers.
CO5	Compare iOS and Android Operating Systems.

Course code	C215
Subject code	CS8494
Subject name	Software Engineering
COURSE OUTCOMES	
CO1	Identify the key activities in managing a software project and compare different process models.
CO2	Concepts of requirements engineering 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 code	C216
Subject code	CS8481
Subject name	Database Management Systems Laboratory
COURSE OUTCOMES	
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 code	C217
Subject code	CS8461
Subject name	Operating Systems Laboratory
COURSE OUTCOMES	
CO1	Compare the performance of various CPU Scheduling Algorithms
CO2	Implement Deadlock avoidance and Detection Algorithms
CO3	Create processes and implement IPC
CO4	Analyze the performance of the various Page Replacement Algorithms
CO5	Implement File Organization and File Allocation Strategies

Course code	C218
Subject code	HS8461
Subject name	Advanced Reading and Writing
COURSE OUTCOMES	
CO1	Identify different text types for enhanced reading comprehension.
CO2	Write a paragraph: topic sentence, supporting sentence, concluding sentence.
CO3	Writing descriptive, narrative, issue-based, argumentative and analytical types of essays.
CO4	Organize ideas for E-mail writing and Job application.
CO5	Apply critical reading and thinking skills.

V - SEMESTER	
Course code	**C301**
Subject code	**MA8551**
Subject name	**Algebra and Number Theory**
COURSE OUTCOMES	
CO1	Apply the basic notions of groups, rings, fields which will then be used to solve related problems.
CO2	Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts.
CO3	Demonstrate accurate and efficient use of advanced algebraic techniques.
CO4	Demonstrate their mastery by solving non - trivial problems related to the concepts, and by proving simple theorems about the, statements proven by the text.
CO5	Apply integrated approach to number theory and abstract algebra, and provide a firm basis for further reading and study in the subject.

Course code	**C302**
Subject code	**CS8591**
Subject name	**Computer Networks**
COURSE OUTCOMES	
CO1	Understand the basic layers and its functions in computer networks.
CO2	Understand the basics of how data flows from one node to another.
CO3	Analyze and design routing algorithms.
CO4	Design protocols for various functions in the network.
CO5	Understand the working of various application layer protocols.

Course code	**C303**
Subject code	**EC8691**
Subject name	**Micro Processor and Micro Controller**
COURSE OUTCOMES	
CO1	Understand the architecture of 8086 and impart the knowledge about the instruction set and addressing mode.
CO2	Develop assembly level programs and illustrate the system bus structures, multiprocessor configuration of 8086.
CO3	Illustrate the interfacing methods of various I/O modules for 8086.
CO4	Acquire knowledge about the architecture, programming of microcontroller 8051.

CO5	Apply programming and interfacing concepts for 8051 microcontroller based system design.
Course code	**C304**
Subject code	**CS8501**
Subject name	**Theory of Computation**
COURSE OUTCOMES	
CO1	Construct automata, regular expression for any pattern.
CO2	Write Context free grammar for any construct.
CO3	Design Turing machines for any language.
CO4	Propose computation solutions using Turing machines.
CO5	Derive whether a problem is decidable or not.

Course code	**C305**
Subject code	**CS8592**
Subject name	**Object Oriented Analysis and Design**
COURSE OUTCOMES	
CO1	Express software design with UML diagrams
CO2	Design software applications using OO concepts.
CO3	Identify various scenarios based on software requirements
CO4	Transform UML based software design into pattern based design using design patterns
CO5	Understand the various testing methodologies for OO software

Course code	**C306**
Subject code	**EC8681**
Subject name	**Micro Processor and Micro Controller Laboratory**
COURSE OUTCOMES	
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 code	**C307**
Subject code	**OMF551**
Subject name	**Product Design and Development**
COURSE OUTCOMES	
CO1	Explain the difference between simulator and Emulator
CO2	Draw UML diagrams for the given project

CO3	Implement design patterns for the project
CO4	Develop source code for the project
CO5	Experiment with various testing techniques in various levels of project

Course code	**C308**
Subject code	**CS8252**
Subject name	**Object Oriented Analysis and Design Laboratory**
COURSE OUTCOMES	
CO1	Explain the difference between simulator and Emulator
CO2	Draw UML diagrams for the given project
CO3	Implement design patterns for the project
CO4	Develop source code for the project
CO5	Experiment with various testing techniques in various levels of project

Course code	**C309**
Subject code	**CS8581**
Subject name	**Networks Laboratory**
COURSE OUTCOMES	
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.

VI - SEMESTER	
Course code	**C310**
Subject code	**CS8651**
Subject name	**Internet Programming**
COURSE OUTCOMES	
CO1	Construct a basic website using HTML and Cascading Style Sheets.
CO2	Build dynamic web page with validation using Java Script objects and by applying different event handling mechanisms.
CO3	Develop server side programs using Servlets and JSP.
CO4	Construct simple web pages in PHP and to represent data in XML format.
CO5	Use AJAX and web services to develop interactive web applications

Course code	**C311**
Subject code	**CS8691**
Subject name	**Artificial Intelligence**
COURSE OUTCOMES	
CO1	Use appropriate search algorithms for any AI problem
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 NLP that use Artificial Intelligence.

Course code	**C312**
Subject code	**CS8601**
Subject name	**Mobile Computing**
COURSE OUTCOMES	
CO1	Explain 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 code	C313
Subject code	CS8602
Subject name	Compiler Design
COURSE OUTCOMES	
CO1	Understand the different phases of compiler.
CO2	Apply different parsing algorithms to develop the parsers for a given grammar.
CO3	Understand syntax-directed translation and run-time environment.
CO4	Learn to implement code optimization techniques and a simple code generator.
CO5	Design and implement a scanner and a parser using LEX and YACC tools.

Course code	C314
Subject code	CS8603
Subject name	Distributed Systems
COURSE OUTCOMES	
CO1	Elucidate the foundations and issues of distributed systems
CO2	Understand the various synchronization issues and global state for distributed systems.
CO3	Understand the Mutual Exclusion and Deadlock detection algorithms in distributed systems
CO4	Describe the agreement protocols and fault tolerance mechanisms in distributed systems.
CO5	Describe the features of peer-to-peer and distributed shared memory systems

Course code	C315
Subject code	CS8661
Subject name	Internet Programming Laboratory
COURSE OUTCOMES	
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	Use PHP programming to develop web applications.
CO5	Construct web applications using AJAX and web services.

Course code	C316
Subject code	CS8662
Subject name	Mobile Application Development Laboratory
COURSE OUTCOMES	
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 code	C317
Subject code	HS8581
Subject name	Professional Communication
COURSE OUTCOMES	
CO1	Apply appropriate communication skills across settings, purposes, and audiences.
CO2	Demonstrate knowledge of communication theory and application.
CO3	Practice critical thinking to develop innovative and well-founded perspectives related to the students' emphases.
CO4	Build and maintain healthy and effective relationships. Use technology to communicate effectively in various settings and contexts.
CO5	Demonstrate appropriate and professional ethical behavior.

VII - SEMESTER	
Course code	**C401**
Subject code	**CS8792**
Subject name	**Cryptography and Network Security**
COURSE OUTCOMES	
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 code	**C402**
Subject code	**CS8791**
Subject name	**Cloud Computing**
COURSE OUTCOMES	
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, service and delivery models.
CO4	Explain the core issues of cloud computing such as resource management and security.
CO5	Evaluate and choose the appropriate technologies, algorithms and approaches for implementation and use of cloud.

Course code	**C403**
Subject code	**CS8711**
Subject name	**Cloud Computing Laboratory**
COURSE OUTCOMES	
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	Install and use a generic cloud environment that can be used as a private cloud.
CO5	Manipulate large data sets in a parallel environment.

Course code	**C404**
Subject code	**IT8761**
Subject name	**Security Laboratory**
COURSE OUTCOMES	
CO1	Develop code for classical Encryption Techniques to solve the problems.
CO2	Build cryptosystems by applying symmetric and public key encryption algorithms.
CO3	Construct code for authentication algorithms.
CO4	Develop a signature scheme using Digital signature standard.
CO5	Demonstrate the network security system using open source tools

Course code	**C405**
Subject code	**OIE751**
Subject name	**Robotics**
COURSE OUTCOMES	
CO1	Understand the fundamentals of Robotics
CO2	Illustrate robort drive system and end efforts
CO3	Understand the sensors and machine vision
CO4	Explain kinematics and robot programming
CO5	Implement Robot economics

Course code	**C406**
Subject code	**MG8591**
Subject name	**Principles of Management**
COURSE OUTCOMES	
CO1	Understand the Evolution of Management and organizations
CO2	Understand the Managerial function like planning
CO3	Understand the Managerial function like Organizing
CO4	Understand the Managerial function like Directing
CO5	Understand the Managerial function like Controlleing

Course code	**C407**

Subject code	CS8091
Subject name	**Big Data Analytics**
COURSE OUTCOMES	
CO1	Work with big data tools and its analysis techniques
CO2	Analyze data by utilizing clustering and classification algorithms
CO3	Learn and apply different mining algorithms and recommendation systems for large volumes of data
CO4	Perform analytics on data streams
CO5	Learn NoSQL databases and management.

Course code	C408
Subject code	CS8079
Subject name	**Human Computer Interaction**
COURSE OUTCOMES	
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/ e-learning Web sites.
CO5	Develop meaningful user interface.

VIII - SEMESTER	
Course code	C410
Subject code	CS8074
Subject name	**Cyber Forensics**
COURSE OUTCOMES	
CO1	Understand the basics of computer forensics
CO2	Apply a number of different computer forensic tools to a given scenario
CO3	Analyze and validate forensics data
CO4	Identify the vulnerabilities in a given network infrastructure
CO5	Implement real-world hacking techniques to test system security

Course code	C411
Subject code	CS8078
Subject name	Green Computing
COURSE OUTCOMES	
CO1	Acquire knowledge to adopt green computing practices to minimize negative impacts on the environment
CO2	Enhance the skill in energy saving practices in their use of hardware.
CO3	Evaluate technology tools that can reduce paper waste and carbon footprint by the stakeholders.
CO4	Understand the ways to minimize equipment disposal requirements .
CO5	Understand and analyze different case studies