PROGRAMME: COMPUTER SCIENCE AND ENGINEERING – ARTIFICIAL INTELLIGENCE
JNTUK UNIVERSITY REGULATION R20
FIRST YEAR COURSES (I & II SEMISTER)
Course Outcome's (Co's)
I-I & I-II

C101	COMMUNICATIVE ENGLISH

Course Outcomes (Cos)

C101.1	Understand social or transactional dialogues spoken by native speakers of English and identify the context, topic, and pieces of specific information
C101.2	Ask and answer general questions on familiar topics and introduce oneself /others
C101.3	Employ suitable strategies for skimming and scanning to get the general idea of a text and locate specific information
C101.4	Recognize paragraph structure and be able to match beginnings/ endings/ headings with paragraphs
C101.5	Form sentences using proper grammatical structures and correct word forms

C102	MATHEMATICS-I

Course Outcomes (Cos)

C102.1	utilize mean value theorems to real life problems
C102.2	solve the differential equations related to various engineering fields
C102.3	familiarize with functions of several variables which is useful in optimization
C102.4	apply double integration techniques in evaluating areas bounded by region
C102.5	students will also learn important tools of calculus in higher dimensions. Students will become familiar with 2- dimensional and 3-dimensional coordinate systems

C103	APPLIED CHEMISTRY

Course Outcomes (Cos)

C103.1	Importance of usage of plastics in household appliances and composites (FRP) in aerospace and automotive industries.
C103.2	Outline the basics for the construction of electrochemical cells, batteries and fuel cells. Understand the mechanism of corrosion and how it can be prevented.
C103.3	Explain the preparation of semiconductors and nonmaterial's, engineering applications of nonmaterial's, superconductors and liquid crystals.

C103.4	Recall the increase in demand for power and hence alternative sources of power are studied due to depleting sources of fossil fuels. Advanced instrumental techniques are introduced.
C103.5	Outline the basics of computational chemistry and molecular switches

C104	**PROGRAMMING FOR PROBLEM SOLVING USING C**

Course Outcomes (Cos)

C104.1	To write algorithms and to draw flowcharts for solving problems
C104.2	To convert flowcharts/algorithms to C Programs, compile and debug programs
C104.3	To use different operators, data types and write programs that use two-way/ multi-way selection
C104.4	To select the best loop construct for a given problem
C104.5	To design and implement programs to analyze the different pointer applications
C104.6	To decompose a problem into functions and to develop modular reusable code
C104.7	To apply File I/O operations

C105	**COMPUTER ENGINEERING WORKSHOP**

Course Outcomes (Cos)

C105.1	Assemble and disassemble components of a PC
C105.2	Construct a fully functional virtual machine, Summarize various Linux operating system commands.
C105.3	Recognize characters & extract text from scanned images, Create audio files and podcasts.

C106	**PROGRAMMING FOR PROBLEM SOLVING USING C LAB**

Course Outcomes (Cos)

C106.1	Gains Knowledge on various concepts of a C language.
C106.2	Able to draw flowcharts and write algorithms.
C106.3	Able design and development of C problem solving skills.
C106.4	Able to design and develop modular programming skills.
C106.5	Able to trace and debug a program.

C107	MATHEMATICS-II

Course Outcomes (Cos)

C107.1	develop the use of matrix algebra techniques that is needed by engineers for practical applications (L6)
C107.2	solve system of linear algebraic equations using Gauss elimination, Gauss Jordan, Gauss Seidel
C107.3	evaluate the approximate roots of polynomial and transcendental equations by different algorithms
C107.4	apply Newton's forward & backward interpolation and Lagrange's formulae for equal and unequal intervals
C107.5	apply numerical integral techniques to different Engineering problems
C107.6	apply different algorithms for approximating the solutions of ordinary differential equations with initial conditions to its analytical computations

C108	DIGITAL LOGIC DESIGN

Course Outcomes (Cos)

C108.1	An ability to define different number systems, binary addition and subtraction, 2's complement representation and operations with this representation.
C108.2	An ability to understand the different switching algebra theorems and apply them for logic functions.
C108.3	An ability to define the Karnaugh map for a few variables and perform an algorithmic reduction of logic functions.
C108.4	Students will be able to design various logic gates starting from simple ordinary gates to complex programmable logic devices & arrays.
C108.5	Students will be able to design various sequential circuits starting from flip-flop to registers and counters.

C109	PYTHON PROGRAMMING

Course Outcomes (Cos)

C109.1	Develop essential programming skills in computer programming concepts like data types, containers
C109.2	Apply the basics of programming in the Python language
C109.3	Solve coding tasks related conditional execution, loops
C109.4	Solve coding tasks related to the fundamental notions and techniques used in objectoriented programming

C110	APPLIED PHYSICS

Course Outcomes (Cos)

C110.1	Explain the need of coherent sources and the conditions for sustained interference. Identify the applications of interference in engineering. Analyze the differences between interference and diffraction with applications. Illustrate the concept of polarization of light and its applications. Classify ordinary refracted light and extraordinary refracted rays by their states of polarization
C110.2	➢ Explain various types of emission of radiation. Identify the role of laser in engineering applications. Describe the construction and working principles of various types of lasers Explain the working principle of optical fibers Classify optical fibers based on refractive index profile and mode of propagation . Identify the applications of optical fibers in medical, communication and other fields. Apply the fiber optic concepts in various fields .
C110.3	Describe the dual nature of matter. Explain the significance of wave function . Identify the role of Schrodinger's time independent wave equation in studying particle in onedimensional infinite potential well . Identify the role of classical and quantum free electron theory in the study of electrical conductivity . Classify the energy bands of solids.
C110.4	Explain the concept of dielectric constant and polarization in dielectric materials . Summarize various types of polarization of dielectrics . Interpret Lorentz field and Claussius-Mosotti relation in dielectrics . Classify the magnetic materials based on susceptibility and their temperature dependence . Explain the applications of dielectric and magnetic materials . Apply the concept of magnetism to magnetic devices
C110.5	Outline the properties of charge carriers in semiconductors . Identify the type of semiconductor using Hall effect . Identify applications of semiconductors in electronic devices . Classify superconductors based on Meissner's effect . Explain Meissner's effect, BCS theory & Josephson effect in superconductors .

C111	DATA STRUCTURES

Course Outcomes (Cos)

C111.1	Summarize the properties, interfaces, and behaviors of basic abstract data types
C111.2	Discuss the computational efficiency of the principal algorithms for sorting & searching .
C111.3	Use arrays, records, linked structures, stacks, queues, trees, and Graphs in writing programs.
C111.4	Demonstrate different methods for traversing trees

C112	PYTHON PROGRAMMING LAB

Course Outcomes (Cos)

C112.1	Develop essential programming skills in computer programming concepts like data types, containers
C112.2	Apply the basics of programming in the Python language
C112.3	Solve coding tasks related conditional execution, loops
C112.4	Solve coding tasks related to the fundamental notions and techniques used in object oriented programming

C113	DATA STRUCTURES LAB

Course Outcomes (Cos)

C113.1	Use basic data structures such as arrays and linked list.
C113.2	Programs to demonstrate fundamental algorithmic problems including Tree Traversals, Graph traversals, and shortest paths.
C113.3	Use various searching and sorting algorithms.

PROGRAMME: COMPUTER SCIENCE AND ENGINEERING – ARTIFICIAL INTELLIGENCE
JNTUK UNIVERSITY REGULATION R20
SECOND YEAR COURSES (I & II SEMISTER)
Course Outcome's (Co's)
II-I & II-II

C201	**MATHEMATICS - III**

Course Outcomes (Cos)

C201.1	Interpret the physical meaning of different operators such as gradient, curl and divergence (L5)
C201.2	Estimate the work done against a field, circulation and flux using vector calculus (L5)
C201.3	Apply the Laplace transform for solving differential equations (L3)
C201.4	Find or compute the Fourier series of periodic signals (L3)
C201.5	Know and be able to apply integral expressions for the forwards and inverse Fourier transform to a range of non-periodic waveforms (L3)
C201.6	Identify solution methods for partial differential equations that model physical processes (L3)

C202	**MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE**

Course Outcomes (Cos)

C202.1	Demonstrate skills in solving mathematical problemsComprehend mathematical principles and logic
C202.2	Comprehend mathematical principles and logic
C202.3	Demonstrate knowledge of mathematical modeling and proficiency in using mathematical software
C202.4	Manipulate and analyze data numerically and/or graphically using appropriate Software
C202.5	Communicate effectively mathematical ideas/results verbally or in writing

C203	INTRODUCTION TO ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

Course Outcomes (Cos)

C203.1	Enumerate the history and foundations of Artificial Intelligence
C203.2	Apply the basic principles of AI in problem solving
C203.3	Choose the appropriate representation of Knowledge
C203.4	Enumerate the fundamentals of data science and NumPy .
C203.5	Summarize and compute descriptive statistics using pandas

C204	OBJECT ORIENTED PROGRAMMING WITH JAVA

Course Outcomes (Cos)

C204.1	Able to realize the concept of Object Oriented Programming & Java Programming Constructs
C204.2	Able to describe the basic concepts of Java such as operators, classes, objects, inheritance, packages, Enumeration and various keywords
C204.3	Apply the concept of exception handling and Input/ Output operations
C204.4	Able to design the applications of Java & Java applet
C204.5	Able to Analyze & Design the concept of Event Handling and Abstract Window Toolkit

C205	DATABASE MANAGEMENT SYSTEMS

Course Outcomes (Cos)

C205.1	Describe a relational database and object-oriented database
C205.2	Create, maintain and manipulate a relational database using SQL
C205.3	Describe ER model and normalization for database design
C205.4	Examine issues in data storage and query processing and can formulate appropriate solutions
C205.5	Outline the role and issues in management of data such as efficiency, privacy, security, ethical responsibility, and strategic advantage

C206	INTRODUCTION TO ARTIFICIAL INTELLIGENCE AND DATA SCIENCE LAB

Course Outcomes (Cos)

C206.1	Apply the basic principles of AI in problem solving using LISP/PROLOG
C206.2	Implement different algorithms using LISP/PROLOG
C206.3	Perform various operations using numpy and pandas

C207	OBJECT ORIENTED PROGRAMMING WITH JAVA LAB

Course Outcomes (Cos)

C207.1	Evaluate default value of all primitive data type, Operations, Expressions, Control-flow, Strings
C207.2	Determine Class, Objects, Methods, Inheritance, Exception, Runtime Polymorphism, User defined Exception handling mechanism
C207.3	Illustrating simple inheritance, multi-level inheritance, Exception handling mechanism
C207.4	Construct Threads, Event Handling, implement packages, developing applets

C208	DATABASE MANAGEMENT SYSTEMS LAB

Course Outcomes (Cos)

C208.1	Utilize SQL to execute queries for creating database and performing data manipulation operations
C208.2	Examine integrity constraints to build efficient databases
C208.3	Apply Queries using Advanced Concepts of SQL
C208.4	Build PL/SQL programs including stored procedures, functions, cursors and triggers

C209	MOBILE APP DEVELOPMENT

Course Outcomes (Cos)

C209.1	Identify various concepts of mobile programming that make it unique from programming for other platforms
C209.2	Critique mobile applications on their design pros and cons
C109.3	Utilize rapid prototyping techniques to design and develop sophisticated mobile interfaces
C209.4	Program mobile applications for the Android operating system that use basic and advanced phone features and
C209.5	Deploy applications to the Android marketplace for distribution

C210	ESSENCE OF INDIAN TRADITIONAL KNOWLEDGE

Course Outcomes (Cos)

C210.1	Understand the significance of Indian Traditional Knowledge.
C210.2	Classify the Indian Traditional Knowledge
C210.3	Compare Modern Science with Indian Traditional Knowledge system.
C210.4	Analyze the role of Government in protecting the Traditional Knowledge
C210.5	Understand the impact of Philosophical tradition on Indian Knowledge System

C211	PROBABILITY AND STATISTICS

Course Outcomes (Cos)

C211.1	Classify the concepts of data science and its importance
C211.2	Interpret the association of characteristics and through correlation and regression tools
C211.3	Make use of the concepts of probability and their applications
C211.4	Apply discrete and continuous probability distributions
C211.5	Design the components of a classical hypothesis test
C211.6	Infer the statistical inferential methods based on small and large sampling tests

C212	COMPUTER ORGANIZATION

Course Outcomes (Cos)

C212.1	Develop a detailed understanding of computer systems
C212.2	Cite different number systems, binary addition and subtraction, standard, floating-point, and micro operations
C212.3	Develop a detailed understanding of architecture and functionality of central processing unit
C212.4	Exemplify in a better way the I/O and memory organization
C212.5	Illustrate concepts of parallel processing, pipelining and inter processor communication

C213	DATA WAREHOUSING AND MINING

Course Outcomes (Cos)

C213.1	Summarize the architecture of data warehouse
C213.2	Apply different preprocessing methods, Similarity, Dissimilarity measures for any given raw data
C213.3	Construct a decision tree and resolve the problem of model overfitting
C213.4	Compare Apriori and FP-growth association rule mining algorithms for frequent itemset generation
C213.5	Apply suitable clustering algorithm for the given data set

C214	FORMAL LANGUAGES AND AUTOMATA THEORY

Course Outcomes (Cos)

C214.1	Classify machines by their power to recognize languages.
C214.2	Summarize language classes & grammars relationship
C214.3	Employ finite state machines to solve problems in computing
C214.4	Illustrate deterministic and non-deterministic machines
C214.5	Quote the hierarchy of problems arising in the computer science

C215	MANAGERIAL ECONOMICS AND FINANCIAL ACCOUNTANCY

Course Outcomes (Cos)

C215.1	The Learner is equipped with the knowledge of estimating the Demand and demand elasticities for a product
C215.2	The knowledge of understanding of the Input-Output-Cost relationships and estimation of the least cost combination of inputs
C215.3	The pupil is also ready to understand the nature of different markets and Price Output determination under various market conditions and also to have the knowledge of different Business Units
C215.4	The Learner is able to prepare Financial Statements and the usage of various Accounting tools for Analysis
C215.5	The Learner can able to evaluate various investment project proposals with the help of capital budgeting techniques for decision making

C216	R PROGRAMMING LAB

Course Outcomes (Cos)

C216.1	Implement basic concepts of R programming, and its different module that includes conditional, looping, lists, Strings, Functions, Frames, Arrays, and File programming.
C216.2	Implement the concepts of R Script to extract the data from data frames and file operations
C216.3	Implement the various statistical techniques using R
C216.4	Extend the functionality of R by using add-on packages
C216.5	Use R Graphics and Tables to visualize results of various statistical operations on data

C217	DATA MINING USING PYTHON LAB

Course Outcomes (Cos)

C217.1	Apply preprocessing techniques on real world datasets
C217.2	Apply apriori algorithm to generate frequent itemsets.
C217.3	Apply Classification and clustering algorithms on different datasets

C218	WEB APPLICATION DEVELOPMENT LAB

Course Outcomes (Cos)

C218.1	Develop Single Page Applications
C218.2	Develop NodeJS & ReactJS Reusable Service
C218.3	Store the data in MySQL
C218.4	Get acquainted with the latest web application development trends in the IT industry

C219	Skill Oriented Course- II MONGO DB

Course Outcomes (Cos)

C219.1	Installing and configuring mongo DB in windows
C219.2	Perform all database operations using mongo DB
C219.3	Develop applications by integrating mongo DB with java/PHP

PROGRAMME: COMPUTER SCIENCE AND ENGINEERING – ARTIFICIAL INTELLIGENCE
JNTUK UNIVERSITY REGULATION R20
THIRD YEAR COURSES (I & II SEMISTER)
Course Outcome's (Co's)
III-I & III-II

C301	OPERATING SYSTEM

Course Outcomes (Cos)

C301.1	Describe various generations of Operating System and functions of Operating System
C301.2	Describe the concept of program, process and thread and analyze various CPU Scheduling Algorithms and compare their performance
C301.3	Solve Inter Process Communication problems using Mathematical Equations by various methods
C301.4	Compare various Memory Management Schemes especially paging and Segmentation in Operating System and apply various Page Replacement Techniques
C301.5	Outline File Systems in Operating System like UNIX/Linux and Windows

C302	COMPILER DESIGN

Course Outcomes (Cos)

C302.1	Demonstrate phases in the design of compiler
C302.2	Organize Syntax Analysis, Top Down and LL(1) grammars
C302.3	Design Bottom Up Parsing and Construction of LR parsers
C302.4	Analyze synthesized, inherited attributes and syntax directed translation schemes
C302.5	Determine algorithms to generate code for a target machine

C303	SOFTWARE ENGINEERING (Professional Elective-I)

Course Outcomes (Cos)

C303.1	Ability to transform an Object-Oriented Design into high quality, executable code
C303.2	Skills to design, implement, and execute test cases at the Unit and Integration level
C303.3	Compare conventional and agile software methods

C304	MACHINE LEARNING

Course Outcomes (Cos)

C304.1	Explain the fundamental usage of the concept Machine Learning system
C304.2	Demonstrate on various regression Technique
C304.3	Analyze the Ensemble Learning Methods
C304.4	Illustrate the Clustering Techniques and Dimensionality Reduction Models in Machine Learning
C304.5	Discuss the Neural Network Models and Fundamentals concepts of Deep Learning

C305	OPERATING SYSTEMS & COMPILER DESIGN LAB

Course Outcomes (Cos)

C305.1	Implement various scheduling, page replacement algorithms and algorithms related to deadlocks
C305.2	Design programs for shared memory management and semaphores
C305.3	Determine predictive parsing table for a CFG
C305.4	Apply Lex and Yacc tools
C305.5	Examine LR parser and generating SLR Parsing table

C306	MACHINE LEARNING LAB

Course Outcomes (Cos)

C306.1	Implement procedures for the machine learning algorithms
C306.2	Design and Develop Python programs for various Learning algorithms
C306.3	Apply appropriate data sets to the Machine Learning algorithms
C306.4	Develop Machine Learning algorithms to solve real world problems

C307	CONTINUOUS INTEGRATION AND CONTINUOUS DELIVERY USING DevOps (Skill Oriented Course III)

Course Outcomes (Cos)

C307.1	Understand the why, what and how of DevOps adoption
C307.2	Attain literacy on Devops
C307.3	Align capabilities required in the team
C307.4	Create an automated CICD pipeline using a stack of tools
C307.5	Create an automated CICD pipeline using a stack of tools

C308	COMPUTER NETWORKS

Course Outcomes (Cos)

C308.1	Demonstrate different network models for networking links OSI, TCP/IP, B-ISDN, N-BISDN and get knowledge about various communication techniques, methods and protocol standards
C308.2	Discuss different transmission media and different switching networks
C308.3	Analyze data link layer services, functions and protocols like HDLC and PPP.
C308.4	Compare and Classify medium access control protocols like ALOHA, CSMA, CSMA/CD, CSMA/CA, Polling, Token passing, FDMA, TDMA, CDMA protocols
C308.5	Determine application layer services and client server protocols working with the client server paradigms like WWW, HTTP, FTP, e-mail and SNMP etc

C309	DEEP LEARNING

Course Outcomes (Cos)

C309.1	Demonstrate the fundamental concepts learning techniques of Artificial Intelligence, Machine Learning and Deep Learning.
C309.2	Discuss the Neural Network training, various random models
C309.3	Explain the Techniques of Keras, TensorFlow, Theano and CNTK
C309.4	Classify the Concepts of CNN and RNN
C309.5	Implement Interactive Applications of Deep Learning

C310	DESIGN AND ANALYSIS OF ALGORITHMS

Course Outcomes (Cos)

C310.1	Analyze the performance of a given algorithm, denote its time complexity using the asymptotic notation for recursive and non-recursive algorithms
C310.2	List and describe various algorithmic approaches and Solve problems using divide and conquer &greedy Method
C310.3	Synthesize efficient algorithms dynamic programming approaches to solve in common engineering design situations
C310.4	Organize important algorithmic design paradigms and methods of analysis: backtracking, branch and bound algorithmic approaches
C310.5	Demonstrate NP- Completeness theory ,lower bound theory and String Matching

C311	SOFTWARE PROJECT MANAGEMENT (Professional Elective-II)

Course Outcomes (Cos)

C311.1	Apply the process to be followed in the software development life-cycle models
C311.2	Apply the concepts of project management & planning
C311.3	Implement the project plans through managing people, communications and change
C311.4	Conduct activities necessary to successfully complete and close the Software projects
C311.5	Implement communication, modeling, and construction & deployment practices in software development

C312	BASICS OF SIGNAL SYSTEMS

Course Outcomes (Cos)

C312.1	Define signals and systems, classify the signals and apply different operations on signal.
C312.2	Explain the Force Voltage analogy and Force Current analogy.
C312.3	Determine Fourier series coefficient and Fourier transforms for different types of signals.
C312.4	Determine Laplace transforms with their properties by using the concept of ROC.
C312.5	Determine Z transforms with their properties by using the concept of ROC and relate with Laplace transform.

C313	DEEP LEARNING WITH TENSORFLOW LAB

Course Outcomes (Cos)

C313.1	Implement deep neural networks to solve real world problems
C313.2	Choose appropriate pre-trained model to solve real time problem
C313.3	Interpret the results of two different deep learning models

C314	COMPUTER NETWORKS LAB

Course Outcomes (Cos)

C314.1	Know how reliable data communication is achieved through data link layer.
C314.2	Suggest appropriate routing algorithm for the network.
C314.3	Provide internet connection to the system and its installation
C314.4	Work on various network management tools

C315	ALGORITHMS FOR EFFICIENT CODING LAB

Course Outcomes (Cos)

C315.1	Analyze the program execution time

C316	MEAN STACK TECHNOLOGIES

Course Outcomes (Cos)

C316.1	Develop professional web pages of an application using HTML elements like lists, navigations, tables, various form elements, embedded media which includes images, audio, video and CSS Styles.
C316.2	Utilize JavaScript for developing interactive HTML web pages and validate form data.
C316.3	Build a basic web server using Node.js and also working with Node Package Manager (NPM).
C316.4	Build a web server using Express.js
C316.5	Make use of Typescript to optimize JavaScript code by using the concept of strict type checking

PROGRAMME: COMPUTER SCIENCE AND ENGINEERING – ARTIFICIAL INTELLIGENCE
JNTUK UNIVERSITY REGULATION R20
FOURTH YEAR COURSES (I & II SEMISTER)
Course Outcome's (Co's)
IV-I & IV-II

C401	CRYPTOGRAPHY AND NETWORK SECURITY

Course Outcomes (Cos)

C401.1	Explain different security threats and countermeasures and foundation course of cryptography mathematics.
C401.2	Classify the basic principles of symmetric key algorithms and operations of some symmetric key algorithms and asymmetric key cryptography
C401.3	Revise the basic principles of Public key algorithms and Working operations of some Asymmetric key algorithms such as RSA, ECC and some more
C401.4	Design applications of hash algorithms, digital signatures and key management techniques
C401.5	Determine the knowledge of Application layer, Transport layer and Network layer security Protocols such as PGP, S/MIME, SSL,TSL, and IPsec

C402	CLOUD COMPUTING

Course Outcomes (Cos)

C302.1	Illustrate the key dimensions of the challenge of Cloud Computing
C402.2	Classify the Levels of Virtualization and mechanism of tools.
C402.3	Analyze Cloud infrastructure including Google Cloud and Amazon Cloud.
C402.4	Create Combinatorial Auctions for cloud resource and design scheduling algorithms for computing cloud
C402.5	Assess control storage systems and cloud security, the risks involved its impact and develop cloud application

C403	OBJECT ORIENTED ANALYSIS AND DESIGN

Course Outcomes (Cos)

C403.1	Analyze the nature of complex system and its solutions.
C403.2	Illustrate & relate the conceptual model of the UML, identify & design the classes and relationships
C403.3	Analyze &Design Class and Object Diagrams that represent Static Aspects of a Software System and apply basic and Advanced Structural Modeling Concepts for designing real time applications.
C403.4	Analyze & Design behavioral aspects of a Software System using Use Case, Interaction and Activity Diagrams
C403.5	Analyze & Apply techniques of State Chart Diagrams and Implementation Diagrams to model behavioral aspects and Runtime environment of Software Systems

C404	UNIVERSAL HUMAN VALUES 2

Course Outcomes (Cos)

C404.1	Development of a holistic perspective based on self-exploration about themselves (human being),family, society and nature/existence.
C404.2	Understanding (or developing clarity) of the harmony in the human being, family, society and nature/existence
C404.3	Strengthening of self-reflection
C404.4	Development of commitment and courage to act.

C405	BASIC ELECTRONICS ENGINEERING

Course Outcomes (Cos)

C405.1	To give knowledge of some basic electronic components and circuits.
C405.2	To introduce basics of diode and transistor circuits
C405.3	To understand working of some I C based circuits
C405.4	To study logic gates and their usage in digital circuits.
C405.5	To introduce basic aspect of electronic communication systems.

C406	ENVIRONMENTAL MANAGEMENT

Course Outcomes (Cos)

C406.1	understand the environmental, social and economic framework in which environmental management decisions are made
C406.2	understand the life cycle perspective, systems approach and environmental technologies
C406.3	communicate proficiently in writing and speaking for promoting and coordinating public consultations on environmental matters
C406.4	Collaborate with environmental engineers, planners, technicians, and other specialists, and experts in to address environmental problems.
C406.5	recognize, evaluate, and control factors in the workplace and the environment that cause health and environmental hazards

C407	PROJECT WORK

Course Outcomes (Cos)

C407	On the completion of project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology