



# R.M.D ENGINEERING COLLEGE

R.S.M. NAGAR, KAVARAIPETTAI- 601206.

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

## COURSE OUTCOMES



Date: 20.9.2021

### II Year Courses

Subject Code/Name: MA8351/ DISCRETE MATHEMATICS

Course Outcomes	At the end of this course students will be able to
1	Identify the concepts needed to test the logic of a program
2	Understanding the mathematical induction methods and Inclusion and exclusion principle and applying its applications
3	Apply the concepts and techniques of combinatory and graph theory
4	Utilize the concepts and properties of algebraic structures such as groups, rings and fields.
5	Associate the significance of lattices and Boolean algebra in computer science and engineering.
6	Develop knowledge in Logic, Graphs and algebraic system in engineering.

Subject Code/Name: CS8351/DIGITAL PRINCIPLES AND SYSTEM DESIGN

Course Outcomes	At the end of this course students will be able to
1	Design Digital Circuits using simplified Boolean functions
2	Analyze and Design Combinational Circuits
3	Analyze and Design Synchronous Sequential Circuits
4	Analyze and Design Asynchronous Sequential Circuits
5	Implement designs using Programmable Logic Devices
6	Write HDL code for Combinational and Sequential Circuits

**Subject Code/Name: CS8391/DATA STRUCTURES**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Implement abstract data types using arrays and linked list.
2	Apply the linear data structures stack and queue to various computing problems.
3	Make use of different types of trees, a non-linear data structure, for problem solving.
4	Implement the non linear data structure, graph, along with its various operations for computational applications.
5	Differentiate the various sorting and searching algorithms.
6	Explain the different types of hashing techniques.

**Subject Code/Name: CS8392/OBJECT ORIENTED PROGRAMMING**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Develop Java programs using OOP principles .
2	Develop Java programs with the concepts inheritance and interfaces
3	Build Java applications using exceptions and I/O streams .
4	Develop Java applications with threads and generics classes .
5	Develop interactive Java programs using swings .
6	Develop real-time applications in Java.

**Subject Code/Name: EC8395/COMMUNICATION ENGINEERING**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Describe The Concepts Of Analog Modulation Systems.
2	Illustrate Pulse Communication techniques
3	Apply the concepts of Digital Modulation systems.
4	Solve Source Coding Techniques.
5	Explain the basic principles in the generation of spread spectrum signals.
6	Explain the methods of multiple accesses in communication systems.

**Subject Code/Name: CS8381/DATA STRUCTURES LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Write the functions to implement Stack ADT, Linear and Non Linear ADT
2	Write the functions to implement different operations on search trees
3	Able to write the program to implement graph traversal algorithms
4	Understand the sorting and searching algorithms

**Subject Code/Name: CS8383/ OBJECT ORIENTED PROGRAMMING  
LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Develop and implement Java programs for simple applications that make use of classes, packages and interfaces.
2	Develop and implement Java programs with array list, exception handling and multithreading .
3	Design applications using file processing, generic programming and event handling.

**Subject Code/Name: CS8382/ DIGITAL SYSTEMS LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Implement simplified combinational circuits using basic logic gates
2	Implement combinational circuits using MSI devices
3	Implement combinational circuits using MSI devices
4	Implement sequential circuits like registers and counters
5	Simulate combinational and sequential circuits using HDL

**Subject Code/Name:MA8402 / PROBABILITY AND QUEUING THEORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Understand the fundamental concepts of probability and have knowledge of standard distributions
2	Identify and apply the two dimensional discrete distributions and continuous distributions concepts in real life problems.
3	Apply the concept of random processes in engineering problems.
4	Examine Queueing Models and find the characteristics of Queueing system.
5	Apply the concept of non- Markovian Queueing Models in real life problems.
6	Identify and apply series Queues and Queueing networks in real life problems

**Subject Code/Name: CS8491/ COMPUTER ARCHITECTURE**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Demonstrate the basic structure and operation of a computer, Instructions and Addressing modes.
2	Describe the various operations of ALU using fixed point and floating point .
3	Develop the model for the pipelining and handling hazards.
4	Illustrate parallelism and multi core processor.
5	Evaluate the memory hierarchical system including cache memory and virtual memory.
6	Discuss the different ways of communicating with I/O devices and I/O interfaces.

**Subject Code/Name: CS8492 DATABASE MANAGEMENT SYSTEMS**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Discuss the fundamental concepts of relational database and SQL
2	Use ER model for Relational model mapping to perform database design effectively
3	Summarize the properties of transactions and concurrency control mechanisms
4	Outline the various storage and optimization techniques
5	Compare and contrast various indexing strategies in different database systems
6	Explain the different advanced databases

**Subject Code/Name: CS8451/DESIGN AND ANALYSIS OF ALGORITHMS**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Explain the Analysis of Algorithm Efficiency and Compare the Mathematical analysis for Recursive and Non-recursive algorithms..
2	Identify the efficiency of Brute Force And Divide-And-Conquer technique algorithms.
4	Solve the problems using Iterative Improvement technique.
5	Solve the problems using Backtracking and Branch and Bound Technique.
6	Outline the limitations of Algorithm power.

**Subject Code/Name: CS8493 /OPERATING SYSTEMS**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Explain the overall view of the computer system and operating system
2	Apply various CPU scheduling algorithms, synchronization primitives and deadlock handling methods
3	Compare and contrast various memory management schemes and file system functionalities
4	Analyze the performance of the various page replacement algorithms and interpret the file system implementation, sharing and protection mechanisms
5	Analyze the performance of the various disk scheduling algorithms
6	Demonstrate administrative tasks on Linux servers and to be familiar with the basics of Mobile OS like iOS and Android

**Subject Code/Name: CS8494 /SOFTWARE ENGINEERING**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Identify the key activities in managing a software project
2	Compare different process models
3	Summarize the concepts of requirements engineering and analysis modeling
4	Make use of systematic procedure for software design and deployment
5	Compare and contrast the various software testing and maintenance strategies
6	Develop project schedule, identify project costs and efforts required

**Subject Code/Name: CS8481/DATABASE MANAGEMENT SYSTEMS  
LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Use typical data definitions and manipulation commands.
2	Design applications to test Nested and Join Queries
3	Implement simple applications that use Views
4	Implement applications that require a Front-end Tool
5	Critically analyze the use of Tables, Views, Functions and Procedures
6	Use typical data definitions and manipulation commands.

**Subject Code/Name: CS8461 OPERATING SYSTEMS LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Compare the performance of various CPU Scheduling Algorithms
2	Implement Deadlock avoidance and Detection Algorithms
3	Implement Semaphores
4	Create processes and implement IPC
5	Analyze the performance of the various Page Replacement Algorithms
6	Implement File Organization and File Allocation Strategies

**Subject Code/Name: HS8461/ADVANCED READING AND WRITING**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Write different types of essays.
2	Write winning job applications.
3	Read and evaluate texts critically.
4	Display critical thinking in various professional contexts
5	Write different types of essays.
6	Write winning job applications.

### III Year Courses

#### Subject Code/Name: MA 8551/Algebra and Number Theory

Course Outcomes	At the end of this course students will be able to
1	Apply the basic notions of groups which will be used to solve group theory related problems.
2	Apply the basic notions of rings, fields which will then be used to solve related problems.
3	Explain the fundamental concepts of number theory, advanced algebra and their role in modern mathematics.
4	Demonstrate the number theory concepts by solving non -trivial related problems.
5	Apply integrated approach to number theory and abstract algebra and prove simple theorems.

#### Subject Code/Name: CS8591 /COMPUTER NETWORKS

Course Outcomes	At the end of this course students will be able to
1	Understand the basic layers and its functions, and transmission media in computer networks
2	Understand the performance of different types of networks
3	Inspect the functionalities of data link and media access control protocols
4	Examine different routing algorithms
5	Identify appropriate protocol to be used at the transport layer
6	Explain the working of various application layer protocols.

#### Subject Code/Name: EC8691/MICROPROCESSORS & MICROCONTROLLERS

Course Outcomes	At the end of this course students will be able to
1	Understand and execute programs based on 8086 microprocessor.
2	Understand the configurations of 8086 and able to design a system.
3	Design Memory Interfacing circuits with 8086.
4	Design and interface I/O circuits with 8086.
5	Understand and execute programs based on 8051 microcontroller.
6	Design and implement 8051 microcontroller based systems.

**Subject Code/Name: CS8501/THEORY OF COMPUTATION**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Construct automata for any pattern
2	Create regular expression for finite automata
3	Write Context free grammar for any construct.
4	Propose computation solutions using Turing machines.
5	Derive whether a problem is decidable or not.
6	Explain the hierarchy of problems arising in the computer sciences

**Subject Code/Name: CS8592/OBJECT ORIENTED ANALYSIS AND DESIGN**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Understand the fundamentals of object modeling
2	To understand and differentiate Unified Process from other approaches.
3	Design a static UML diagrams.
4	Design a dynamic UML and implementation diagrams.
5	To improve the software design with design patterns
6	To test the software against its requirements specification

**Subject Code/Name: OCE552/GEOGRAPHIC INFORMATION SYSTEM**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Outline the basic idea about fundamentals of GIS.
2	Understand the types of spatial data models.
3	Discuss about the data input and topology.
4	Understand the data management functions and data output.
5	Outline the application of GIS.
6	Apply the GIS tools to develop real time applications



**Subject Code/Name: CS8582 OBJECT ORIENTED ANALYSIS AND DESIGN LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Perform OO analysis and design for a given problem specification
2	Identify and map basic software requirements in UML mapping
3	Improve the software quality using design patterns and to explain the rationale behind applying specific design patterns
4	Test the compliance of the software with the SRS

**Subject Code/Name: CS8581/ NETWORKS LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Design and implement a PC-to-PC Communication and transfer files using WINDOWS / UNIX Socket processing.
2	Serial and Parallel Communication using RS232C and 8-bit cable respectively.
3	Simulate and study the performance of CSMA / CD, CSMA /CA, Token Bus and Token Ring protocol.
4	Implement stop and wait, Go back-n, selective repeat protocols.
5	Study the performance of routing protocols and implement a distance vector and link state routing protocol using simulator.
6	Study the security in data transfer and implement encryption and decryption techniques while transferring data.

**Subject Code/Name: EC8681 / MICROPROCESSORS AND MICROCONTROLLERS LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Implement ALP Programs for fixed and Floating Point and Arithmetic using 8086.
2	Implement ALP programs for code converters using 8086.
3	Interface different I/O devices with 8086 processor.
4	Interface A/D and D/A converters using 8086 Microprocessors.
5	Execute arithmetic and logical operation programs in 8051 microcontrollers.
6	Execute arithmetic and logical operation programs in 8086 emulators.

**SUBJECT CODE/NAME: CS8651/INTERNET PROGRAMMING**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Construct a basic website using HTML and Cascading Style Sheets.
2	Build dynamic web page with validation using Java Script objects and by applying different event handling mechanisms.
3	Develop server side programs using Servlets and JSP
4	Construct simple web pages in PHP and to represent data in XML format.
5	Use AJAX and web services to develop interactive web applications
6	Use various client and server interfacing tools

**Subject Code/Name: CS8691-ARTIFICIAL INTELLIGENCE**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	To understand the various characteristics of Intelligent agents
2	To learn the different search strategies in Artificial Intelligence
3	To learn to represent knowledge in solving Artificial Intelligence problems
4	To understand the different ways of designing software agents
5	To know about the various applications of Artificial Intelligence

**Subject Code/Name: CS8601-MOBILE COMPUTING**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Understand the basic concepts of mobile computing
2	Explain the basics of mobile telecommunication systems
3	Illustrate the generations of telecommunication systems in wireless networks
4	Demonstrate the functionality of MAC, network layer and Identify a routing protocol for a given Ad hoc network
5	Explain the functionality of Transport and Application layers
6	Develop a mobile application using android/blackberry/ios/Windows SDK

**Subject Code/Name: CS8602/COMPILER DESIGN**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Understand the different phases of compiler.
2	Design a lexical analyzer for a sample language.
3	Apply different parsing algorithms to develop the parsers for given grammar.
4	Understand syntax-directed translation and run-time environment.
5	Learn to implement code optimization techniques and a simple code generator.
6	Design and implement a scanner and a parser using LEX and YACC tools.

**Subject Code/Name: CS8603/DISTRIBUTED SYSTEMS**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	To understand the foundations of distributed systems.
2	To learn issues related to clock Synchronization and the need for global state in distributed systems.
3	To learn distributed mutual exclusion and deadlock detection algorithms
4	To understand the significance of agreement, fault tolerance and recovery protocols in Distributed Systems.
5	To learn the characteristics of peer-to-peer and distributed shared memory systems

**Subject Code/Name: IT8076/SOFTWARE TESTING**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Understand the impact of defects in software development process
2	Design test cases suitable for a software development for different domains
3	Identify suitable tests to be carried out
4	Prepare test planning based on the document
5	Develop and validate a test plan
6	Document test plans and test cases designed

**Subject Code/Name: HS8581 / Professional Communication**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Effectively communicate technical material in print.
2	Present technical material orally with confidence and poise, including audiovisual materials.
3	Communicate effectively in ways appropriate to the discipline, audience and purpose.
4	Think critically and creatively to generate innovative and optimum solutions
5	Identify, evaluate and synthesize information from a range of sources to optimize process engineering design and development.
6	Engage in continuous education, training and research, and take control of their own learning and development.
7	Work effectively and efficiently individually and in teams
8	Be 'career ready' for the process engineering profession, demonstrate leadership qualities, and work ethically and professionally

**SUBJECT CODE/NAME: CS8661/INTERNET PROGRAMMING LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Construct Web pages using HTML/XML and style sheets.
2	Build dynamic web pages with validation using Java Script objects and by applying different event handling mechanisms.
3	Develop dynamic web pages using server side scripting.
4	Use PHP programming to develop web applications.
5	Construct web applications using AJAX and web services
6	Construct Web pages using HTML/XML and style sheets.

**Subject Code/Name: CS8662/ MOBILE APPLICATION DEVELOPMENT LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Develop mobile applications using GUI and Layouts.
2	Develop mobile applications using Event Listener.
3	Develop mobile applications using Databases.
4	Develop mobile applications using RSS Feed, Internal/External Storage, SMS, Multi-threading and GPS.
5	Analyze and discover own mobile app for simple needs.
6	Develop mobile applications using GUI and Layouts.

## IV Year Courses

### Subject Code/Name: MG8591 / PRINCIPLES OF MANAGEMENT

Course Outcomes	At the end of this course students will be able to
1	Understand the Basics of Management
2	Apprehend the planning process in the organization
3	Realize the concept of organization
4	Demonstrate the ability to directing, leadership and communicate effectively
5	Analysis isolate issues and formulate best control methods.
6	Understand the Practical Importance of Management Skills

### Subject Code/Name: CS8792 CRYPTOGRAPHY AND NETWORK SECURITY

Course Outcomes	At the end of this course students will be able to
1	To Understand the fundamentals of networks security, security architecture, threats and vulnerabilities
2	To apply the different cryptographic operations of symmetric cryptographic algorithms
3	To apply the different cryptographic operations of public key cryptography
4	To Apply the various Authentication schemes to simulate different applications.
5	To understand various Security practices
6	To understand System security standards

### Subject Code/Name: CS8791/CLOUD COMPUTING

Course Outcomes	At the end of this course students will be able to
1	Describe the principles of Parallel and Distributed Computing and evolution of cloud computing from existing technologies
2	Implement different types of Virtualization technologies and Service Oriented Architecture systemss
3	Elucidate the concepts of NIST Cloud Computing architecture and its design challenges
4	Analyze the issues in Resource provisioning and Security governance in clouds
5	Choose among various cloud technologies for implementing applications
6	Install and use current cloud technologies

**Subject Code/Name: OME752/SUPPLY CHAIN MANAGEMENT**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Understand fundamental supply chain management concepts..
2	Understand the design factors and various design options of distribution networks in industries
3	Understand the framework of supply chain networks and functions
4	Understand the foundational role of logistics as it relates to transportation and warehousing.
5	Understand the various sourcing decisions in supply chain
6	Understand the supply chain management in IT industries

**Subject Code/Name: CS8079/HUMAN COMPUTER INTERACTION**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Examine the effective dialog for HCI
2	Inspect interactive design process in human computer interaction
3	Inspect software design process in human computer interaction
4	Examine various models and theories related to human computer interaction
5	Utilize the HCI implications for designing multimedia/ e-commerce/ e-learning Web sites
6	Build meaningful user interface

**Subject Code/Name: CS8711/CLOUD COMPUTING LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Configure various virtualization tools such as Virtual Box, VMware workstation.
2	Design and deploy a web application in a PaaS environment.
3	Learn how to simulate a cloud environment to implement new schedulers.
4	Install and use a generic cloud environment that can be used as a private cloud.
5	Manipulate large data sets in a parallel environment
6	Configure various virtualization tools such as Virtual Box, VMware workstation.

**Subject Code/Name: IT8761/SECURITY LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Develop code for classical Encryption Techniques to solve the problems.
2	Build cryptosystems by applying symmetric and public key encryption algorithms.
3	Construct code for authentication algorithms.
4	Develop a signature scheme using Digital signature standard.
5	Demonstrate the network security system using open source tools
6	Develop code for classical Encryption Techniques to solve the problems.



**Subject Code/Name: GE8076/PROFESSIONAL ETHICS IN  
ENGINEERING**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Create awareness on human values and apply ethics in society.
2	Identify an ethical issue and assess variety of moral issues using ethical theories in engineering
3	Analyze engineering, social experimentation and engineers as responsible experimenters
4	Realize engineer's safety and their responsibilities, professional rights, employee rights, and intellectual property rights.
5	Interpret various types of ethics like business ethics, environmental ethics and computer ethics.
6	Take part an engineers as managers, consulting engineers, engineers as expert witness and advisors.

**Subject Code/Name: CS8080/INFORMATION RETRIEVAL TECHNIQUES**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Understand the basics of Information Retrieval.
2	Use an open source search engine framework and explore its capabilities.
3	Apply appropriate method of classification or clustering.
4	Design and implement innovative features in a search engine.
5	Design and implement a recommender system.



  
HOD/CSE 20/9/21

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PRINCIPAL 20/9/21

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# R.M.D. ENGINEERING COLLEGE

(An Autonomous Institution)

R.S.M. NAGAR, KAVARAIPETTAI – 601206



DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING COURSE  
OUTCOMES (2021-22) Date: 12.8.2021

## II Year Courses

Subject Code/Name: MA8353/Transforms and Partial Differential Equations

Course Outcomes	At the end of this course students will be able to
1	To represent the physical processes as partial differential equations and solve both homogenous and non homogeneous equations.
2	To solve Fourier series concept to many applications in engineering.
3	To solve boundary value problems involving heat equation and wave equation.
4	To solve definite integrals by using Fourier Transform techniques.
5	Construct Z- transform and find inverse Z-transform techniques for discrete systems.
6	To solve difference equations using Z - transforms.

Subject Code/Name: EE8351/Digital Logic Circuits

Course Outcomes	At the end of this course students will be able to
1	Ability to design combinational and sequential Circuits.
2	Ability to simulate using software package.
3	Ability to study various number systems and simplify the logical expressions using Boolean functions
4	Ability to design various synchronous and asynchronous circuits.
5	Ability to introduce asynchronous sequential circuits and PLDs
6	Ability to introduce digital simulation for development of application oriented logic circuits.

Subject Code/Name: EE8391/Electromagnetic Theory

Course Outcomes	At the end of this course students will be able to
1	Ability to understand the basic mathematical concepts related to electromagnetic vector fields.
2	Ability to understand the basic concepts about electrostatic fields, electrical potential, energy density and their applications.
3	Ability to acquire the knowledge in magneto static fields, magnetic flux density, vector potential and its applications.
4	Ability to understand the different methods of emf generation and Maxwell's equations
5	Ability to understand the basic concepts electromagnetic waves and characterizing parameters
6	Ability to understand and compute Electromagnetic fields and apply them for design and analysis of electrical equipment and systems

**Subject Code/Name: EE8301/Electrical Machines – I**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to analyze the magnetic-circuits.
2	Ability to acquire the knowledge in constructional details of transformers.
3	Ability to understand the concepts of electromechanical energy conversion.
4	Ability to acquire the knowledge in working principles of DC Generator.
5	Ability to acquire the knowledge in working principles of DC Motor
6	Ability to acquire the knowledge in various losses taking place in D.C. Machines

**Subject Code/Name: EC8353/Electron Devices and Circuits**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Design and analyze the Rectifier circuits using PN Junction diodes
2	Differentiate the structures and working principle of Electronic switches like UJT, BJT, MOSFET etc.
3	Design and analyze the Amplifier circuits using BJT and FET
4	Design Differential & single tuned & Power amplifiers and analyze the parameters to judge their quality.
5	Classify and compare different types of negative feedback in amplifiers.
6	Classify and compare different types of Oscillator circuits

**Subject Code/Name: ME8792/Power Plant Engineering**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Summarize the construction and working of thermal power plant, analyze the working of Rankine cycle with its improvisations
2	Analyze and optimize Diesel, Otto, Dual and Brayton cycle. Summarize the construction and working of diesel and gas turbine power plant
3	Infer the operations of nuclear power plant and the safety measures adopted in nuclear power plant
4	Differentiate the various types of renewable energy systems. Summarize the working of hydro electric power plant.
5	Analyze the load distribution criteria, capital and operating cost of different power plant and tariff types.
6	Compare the site selection criteria for different power plants; distinguish the various pollutions control technologies.

**Subject Code/Name: EC8311/Electronics Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand and analyze electronic circuits

**Subject Code/Name: EE8311/Electrical Machines Laboratory-I**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand and analyze DC Generator
2	Ability to understand and analyze DC Motor
3	Ability to understand and analyse Transformers

**Subject Code/Name: MA8491/Numerical Methods**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Calculate the solution of algebraic and transcendental system of linear equations.
2	To interpolate the values of unknown functions using Newton's Formula
3	Interpret the numerical values of the derivatives and integrals of unknown function
4	Demonstrate first and second order to initial value problem
5	Execute Numerically boundary value problem
6	Classify the solution PDE models representing temporal variations in physical systems through numerical methods.

**Subject Code/Name: EE8401/Electrical Machines – II**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand the construction and working principle of Synchronous Generator
2	Ability to understand MMF curves and armature windings.
3	Ability to acquire knowledge on Synchronous motor.
4	Ability to understand the construction and working principle of Three phase Induction Motor
5	Ability to understand the construction and working principle of Special Machines
6	Ability to predetermine the performance characteristics of Synchronous Machines.

**Subject Code/Name: EE8402/Transmission and Distribution**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	To understand the importance and the functioning of transmission line parameters.
2	To understand the concepts of Lines and Insulators.
3	To acquire knowledge on the performance of Transmission lines.
4	To understand the importance of distribution of the electric power in power system.
5	To acquire knowledge on Underground Cabilities
6	To become familiar with the function of different components used in Transmission and Distribution levels of power system and modelling of these components.

**Subject Code/Name: EE8403/Measurements and Instrumentation**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	To acquire knowledge on Basic functional elements of instrumentation
2	To understand the concepts of Fundamentals of electrical and electronic instruments
3	Ability to compare between various measurement techniques
4	To acquire knowledge on Various storage and display devices
5	To understand the concepts Various transducers and the data acquisition systems
6	Ability to model and analyze electrical and electronic Instruments and understand the operational features of display Devices and Data Acquisition System.

**Subject Code/Name: EE8451/Linear Integrated Circuits and Applications**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to acquire knowledge in IC fabrication procedure
2	Ability to analyze the characteristics of Op-Amp
3	To understand the importance of Signal analysis using Op-amp based circuits.
4	Functional blocks and the applications of special ICs like Timers, PLL circuits, regulator Circuits.
5	To understand and acquire knowledge on the Applications of Op-amp
6	Ability to understand and analyse, linear integrated circuits their Fabrication and Application.

**Subject Code/Name: IC8451/Control Systems**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to develop various representations of system based on the knowledge of Mathematics, Science and Engineering fundamentals.
2	Ability to do time domain and frequency domain analysis of various models of linear system.
3	Ability to interpret characteristics of the system to develop mathematical model.
4	Ability to design appropriate compensator for the given specifications.
5	Ability to come out with solution for complex control problem.
6	Ability to understand use of PID controller in closed loop system.

**Subject Code/Name: EE8411/Electrical Machines Laboratory – II**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand and analyze EMF and MMF methods
2	Ability to analyze the characteristics of V and Inverted V curves
3	Ability to understand the importance of Synchronous machines
4	Ability to understand the importance of Induction Machines
5	Ability to acquire knowledge on separation of losses

**Subject Code/Name: EE8461/Linear and Digital Integrated Circuits Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand and implement Boolean Functions.
2	Ability to understand the importance of code conversion
3	Ability to Design and implement 4-bit shift registers
4	Ability to acquire knowledge on Application of Op-Amp
5	Ability to Design and implement counters using specific counter IC.

**Subject Code/Name: EE8412/Technical Seminar**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to review, prepare and present technological developments
2	Ability to face the placement interviews.

### III Year Courses

Subject Code/Name: EE8501/Power System Analysis

Course Outcomes	At the end of this course students will be able to
1	Ability to model the power system under steady state operating condition
2	Ability to understand and apply iterative techniques for power flow analysis
3	Ability to model and carry out short circuit studies on power system
4	Ability to model and analyze stability problems in power system
5	Ability to acquire knowledge on Fault analysis.
6	Ability to model and understand various power system components and carry out power flow, short circuit and stability studies.

Subject Code/Name: EE8551/Microprocessor and Microcontrollers

Course Outcomes	At the end of this course students will be able to
1	Ability to acquire knowledge in Addressing modes & instruction set of 8085 & 8051.
2	Ability to need & use of Interrupt structure 8085 & 8051.
3	Ability to understand the importance of Interfacing
4	Ability to explain the architecture of Microprocessor and Microcontroller.
5	Ability to write the assembly language programme.
6	Ability to develop the Microprocessor and Microcontroller based applications.

Subject Code/Name: EE8552/Power Electronics

Course Outcomes	At the end of this course students will be able to
1	Distinguish the types of power semiconductor devices, and analyze their switching characteristics
2	Construct and demonstrate the operation of controlled rectifiers, and analyze its characteristics and performance parameters of controlled rectifiers
3	Construct and demonstrate the operation of DC-DC switching regulators, and differentiate the switching techniques and basics topologies of DC-DC switching regulators.
4	Apply the different modulation techniques to pulse width modulated inverters and identify the harmonic reduction methods.
5	Construct and demonstrate the operation of AC voltage controller and differentiate its various configurations.
6	Associate Cyclo-converter and matrix converter in AC-AC applications.



**Subject Code/Name: EE8591/Digital Signal Processing**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand the importance of Fourier transform, digital filters and DS Processors.
2	Ability to acquire knowledge on Signals and systems & their mathematical representation.
3	Ability to understand and analyze the discrete time systems.
4	Ability to analyze the transformation techniques & their computation.
5	Ability to understand the types of filters and their design for digital implementation.
6	Ability to acquire knowledge on programmability digital signal processor & quantization effects.

**Subject Code/Name: CS8392/Object Oriented Programming**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Define the need and the basic concepts of Object Oriented Programming
2	Apply the important features of Object Oriented Programming such as Classes, Objects, Inheritance and Polymorphism
3	Illustrate the concepts of templates and Exception handling in real world applications
4	Examine the working of RTTI and casting
5	Interpret the working of IO Streams, file handling and standard template library in practical applications
6	Evaluate real time applications in an efficient manner using Object Oriented Programming principles

**Subject Code/Name: OAN551/Sensors and Transducers**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	To understand the concepts of measurement technology, classification of transducers & Expertise in various calibration techniques and signal types for sensors
2	To understand the working of various motion, proximity and ranging sensors
3	To learn the various sensors used to measure various physical parameters like force, magnetic and heading Sensors
4	To study the basic principles of optical, pressure, temperature sensors & smart sensors
5	To apply the various sensors in the Automotive and Mechatronics applications
6	To implement the DAQ systems with different sensors for real time applications

**Subject Code/Name: EE8511/Control and Instrumentation Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand control theory and apply them to electrical engineering problems.
2	Ability to analyze the various types of converters.
3	Ability to design compensators
4	Ability to understand the basic concepts of bridge networks.
5	Ability to the basics of signal conditioning circuits.
6	Ability to study the simulation packages.

**Subject Code/Name: HS8581/Professional Communication**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Make effective presentations
2	Participate confidently in Group Discussions.
3	Attend job interviews and be successful in them.
4	Develop adequate Soft Skills required for the workplace

**Subject Code/Name: CS8383/Object Oriented Programming Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Develop and implement Java programs for simple applications that make use of classes
2	Develop and implement Java programs with array list
3	Design applications using file processing

**Subject Code/Name: EE8601/Solid State Drives**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand and suggest a converter for solid state drive.
2	Ability to select suitability drive for the given application.
3	Ability to study about the steady state operation and transient dynamics of a motor load system.
4	Ability to analyze the operation of the converter/chopper fed dc drive.
5	Ability to analyze the operation and performance of AC motor drives.
6	Ability to analyze and design the current and speed controllers for a closed loop solid state DC motor drive.

**Subject Code/Name: EE8602/Protection and Switchgear**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand and analyze Electromagnetic and Static Relays.
2	Ability to suggest suitability circuit breaker.
3	Ability to find the causes of abnormal operating conditions of the apparatus and system.
4	Ability to analyze the characteristics and functions of relays and protection schemes.
5	Ability to study about the apparatus protection, static and numerical relays.
6	Ability to acquire knowledge on functioning of circuit breaker.

**Subject Code/Name: EE8691/Embedded Systems**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand and analyze Embedded systems.
2	Ability to suggest an embedded system for a given application.
3	Ability to operate various Embedded Development Strategies
4	Ability to study about the bus Communication in processors.
5	Ability to acquire knowledge on various processor scheduling algorithms.
6	Ability to understand basics of Real time operating system.

**Subject Code/Name: EE8002/Design of Electrical Apparatus**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand basics of design considerations for rotating and static electrical machines
2	Ability to design of field system for its application.
3	Ability to design single and three phase transformer.
4	Ability to design armature and field of DC machines.
5	Ability to design stator and rotor of induction motor.
6	Ability to design and analyze synchronous machines.

**Subject Code/Name: EE8005/Special Electrical Machines**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to analyze and design controllers for special Electrical Machines.
2	Ability to acquire the knowledge on construction and operation of stepper motor
3	Ability to acquire the knowledge on construction and operation of stepper switched reluctance motors
4	Ability to construction, principle of operation, switched reluctance motors
5	Ability to acquire the knowledge on construction and operation of permanent magnet brushless D.C. motors.
6	Ability to acquire the knowledge on construction and operation of permanent magnet synchronous motors and to select a special machine for a particular application

**Subject Code/Name: EE8661/Power Electronics and Drives Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to practice and understand converter and inverter circuits and apply software for engineering problems.
2	Ability to experiment about switching characteristics various switches.
3	Ability to analyze about AC to DC converter circuits.
4	Ability to analyze about DC to AC circuits.
5	Ability to acquire knowledge on AC to AC converters
6	Ability to acquire knowledge on simulation software.

**Subject Code/Name: EE8681/Microprocessors and Microcontrollers Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand and apply computing platform and software for engineering problems.
2	Ability to programming logics for code conversion.
3	Ability to acquire knowledge on A/D and D/A.
4	Ability to understand basics of serial communication.
5	Ability to understand and impart knowledge in DC and AC motor interfacing.
6	Ability to understand basics of software simulators.

**Subject Code/Name: EE8611/Mini Project**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	On Completion of the mini project work students will be in a position to take up their final year project work and find solution by formulating proper methodology.

## IV Year Courses

### Subject Code/Name: EE8701/High Voltage Engineering

Course Outcomes	At the end of this course students will be able to
1	Ability to understand Transients in power system.
2	Ability to understand Generation and measurement of high voltage.
3	Ability to understand High voltage testing.
4	Ability to understand various types of over voltages in power system.
5	Ability to measure over voltages.
6	Ability to test power apparatus and insulation coordination

### Subject Code/Name: EE8702/Power System Operation and Control

Course Outcomes	At the end of this course students will be able to
1	Ability to understand the day-to-day operation of electric power system.
2	Ability to analyze the control actions to be implemented on the system to meet the minute-to-minute variation of system demand.
3	Ability to understand the significance of power system operation and control.
4	Ability to acquire knowledge on real power-frequency interaction.
5	Ability to understand the reactive power-voltage interaction.
6	Ability to design SCADA and its application for real time operation.

### Subject Code/Name: EE8703/Renewable Energy Systems

Course Outcomes	At the end of this course students will be able to
1	Ability to create awareness about Renewability Energy Sources and technologies.
2	Ability to get adequate inputs on a variety of issues in harnessing Renewability Energy.
3	Ability to recognize current and possible future role of renewability energy sources.
4	Ability to explain the various renewability energy resources and technologies and their applications.
5	Ability to understand basics about biomass energy.
6	Ability to acquire knowledge about solar energy.

**Subject Code/Name: GE8074/Human Rights**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	To understand the origin and detailed classification about the human rights
2	To describe the evolutionary concepts and theories of human rights
3	To develop the critical thinking and understanding of UN Laws and its agencies
4	To understand the constitutional Provisions & Guarantees of Human rights in India
5	To demonstrate the Human Rights Issues of disadvantaged people
6	To apply the implementation of Human rights commission, Judiciary and social movements

**Subject Code/Name: EE8010/Power System Transients**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand and analyze switching and lightning transients
2	Ability to acquire knowledge on generation of switching transients and their control
3	Ability to analyze the mechanism of lightning strokes
4	Ability to understand the importance of propagation, reflection and refraction of travelling waves
5	Ability to find the voltage transients caused by faults
6	Ability to understand the concept of circuit breaker action, load rejection on integrated power system

**Subject Code/Name: OCS752 Introduction to C Programming**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Develop algorithmic solutions to simple computational problems using basic constructs
2	Develop simple applications in C using Control Constructs
3	Design and implement applications using arrays
4	Represent data using string and string operations
5	Decompose a C program into functions and pointers
6	Represent and write program using structure and union

**Subject Code/Name: EE8711/Power System Simulation Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand power system planning and operational studies.
2	Ability to acquire knowledge on Formation of Bus Admittance and Impedance Matrices and Solution of Networks.
3	Ability to analyze the power flow using GS and NR method
4	Ability to find Symmetric and Unsymmetrical fault
5	Ability to understand the economic dispatch.
6	Ability to analyze the electromagnetic transients

**Subject Code/Name: EE8712/Renewable Energy Systems Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand and analyze renewability energy systems.
2	Ability to train the students in Renewability Energy Sources and technologies.
3	Ability to provide adequate inputs on a variety of issues in harnessing Renewability Energy.
4	Ability to simulate the various renewability energy sources.
5	Ability to recognize current and possible future role of renewability energy sources.
6	Ability to understand basics of Intelligent Controllers.



**Subject Code/Name: EE8018/Microcontroller Based System Design**

Course Outcomes	At the end of this course students will be able to
1	Ability to understand and apply computing platform and software for engineering problems.
2	Ability to understand the concepts of Architecture of PIC microcontroller
3	Ability to acquire knowledge on Interrupts and timers.
4	Ability to understand the importance of Peripheral devices for data communication.
5	Ability to understand the basics of sensor interfacing
6	Ability to acquire knowledge in Architecture of ARM processors

**Subject Code/Name: MG8591/Principles of Management**

Course Outcomes	At the end of this course students will be able to
1	Classify and differentiate various managerial theories and relate these theories into practice in different Organizations.
2	Summarize functional aspects of management, planning as well as decision making.
3	Differentiate and categorize types of organizational structure, process of selection and performance appraisal.
4	Relate the importance of motivation, leadership and communication in a management environment.
5	Classify and compare various budgetary and Non budgetary control methods.
6	Apply the control techniques in productivity problems & management

**Subject Code/Name: EE8811/Project Work**

Course Outcomes	At the end of this course students will be able to
1	On Completion of the project work students will be in a position to take up any Challenging practical problems and find solution by formulating proper methodology.

V.P.S.  
12/8/2024  
HOD/EEE

HEAD OF THE DEPARTMENT  
ELECTRICAL & ELECTRONIC ENGINEERING



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# R.M.D. ENGINEERING COLLEGE

(An Autonomous Institution)

R.S.M. NAGAR, KAVARAIPETTAI – 601206.



DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE OUTCOMES (2021-22)

Date: 12.8.2021

## II Year Courses

Subject Code/Name: MA8352 / Linear Algebra and Partial Differential Equations

Course Outcomes	At the end of this course students will be able to
1	Describe the basic notions associated with vector spaces and its properties.
2	Apply the concept of linear transformation
3	Apply the concepts on eigenvalues and eigenvectors of a matrix and inner product spaces.
4	Apply the fundamental concepts of partial differential equations and the various solution procedures for solving the first order non-linear partial differential equations.
5	Utilize the Fourier series problems in current flow, sound waves
6	Formulate and solve the physical problems of Engineering.

Subject Code/Name: EC8393 / Fundamentals of Data Structures in C

Course Outcomes	At the end of this course students will be able to
1	Illustrate the basic features of C Programming and their applications
2	Enumerate the structured data types and dynamic memory objects and apply for real world scenario
3	Implement various linear data structures operations and applications in C
4	Implement various non-linear data structures operations and applications in C
5	Analyze the various searching and sorting algorithms and appropriately choose it for a given real world scenario
6	Analyze a hash table and overflow handling

**Subject Code/Name: EC8351 / Electronic Circuits I**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Design the amplifier circuits using various biasing methods.
2	Analyze the single stage and multistage BJT amplifiers using small signal equivalent model.
3	Analyze JFET amplifiers using small signal equivalent model.
4	Analyze MOSFET amplifiers using small signal equivalent model.
5	Determine the frequency response of single stage and multistage amplifiers.
6	Design and fault analyze dc power supplies

**Subject Code/Name: EC8352 / Signals and Systems**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Classify signals as Periodic/ Energy/ Causal/ Odd
2	Determine if a given system is Linear/Causal/ Stable/Time variant
3	Analyze the spectral characteristics of Continuous-Time Signals using Fourier Series, Fourier transform and Laplace transform
4	Apply Fourier Transform and Laplace Transform for characterizing the LTI-CT systems
5	Analyze the Discrete time signals using Transforms
6	Apply Fourier and Z- transform for analysis of DT system

**Subject Code/Name: EC8392 / Digital Electronics**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Realize Boolean expression using logic gates.
2	Design Combinational circuits for a given functions using logic gates.
3	Implement synchronous and Asynchronous sequential circuits for a given application.
4	Design the combinational logic circuits using Programmable Logic Devices.
5	Use the semiconductor memories and related technologies.
6	Analyze the various logic families and their characteristics

**Subject Code/Name: EC8391 / Control Systems Engineering**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Identify the various Control System components and their representations.
2	Analyze the various time domain parameters
3	Analyze the various frequency response plots and its system
4	Apply the concepts of various system stability criteria
5	Design various transfer functions of digital control system using state variable models.
6	Analyze the digital Control System using State Feedback

**Subject Code/Name: EC8381 / Fundamentals of Data Structures in C Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Design and implement C++ programs for manipulating stacks.
2	Design and implement C++ programs for manipulating queues.
3	Design and implement C++ programs for manipulating linked list and trees.
4	Apply good programming design method for program development.
5	Apply the different data structures for implementing solutions to practical problems.

**Subject Code/Name: EC8361 / Analog and Digital Circuits Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Design and analyze the frequency Response of Amplifiers
2	Measure CMRR in differential amplifier
3	Analyze the limitation in bandwidth of single stage and multi stage amplifier
4	Simulate Transistor Amplifiers using SPICE
5	Design and implement Combinational and sequential circuits
6	Design Cascode and Cascade amplifiers

**Subject Code/Name: HS8381 / Interpersonal Skills / Listening & Speaking**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Equip students with the English language skills required for the successful undertaking of academic studies with primary emphasis on academic speaking and listening skills
2	Provide guidance and practice in basic general and classroom conversation and to engage in specific academic speaking activities
3	Improve general and academic listening skills
4	Make effective presentations

**Subject Code/Name: MA8451 / Probability and Random Processes**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Illustrate the fundamental knowledge of the concepts of probability and one-dimensional random variables.
2	Apply the fundamental knowledge of standard distributions which can describe real life phenomenon.
3	Apply the basic concepts of two-dimensional random variables in engineering applications.
4	Apply the concepts of random processes in engineering disciplines.
5	Apply the concepts of correlation and spectral densities.
6	Analyze the response of random inputs to linear time invariant systems.

**Subject Code/Name: EC8452/ Electronic Circuits II**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Analyze different types of amplifiers with negative feedback
2	Design & Analysis of transistorized RC oscillators & LC oscillators
3	Analyze transistorized tuned amplifiers
4	Analyze wave shaping circuits
5	Design & Analysis of multivibrators.
6	Analyze power amplifiers

**Subject Code/Name: EC8491/ Communication Theory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Design the concepts of amplitude modulation system
2	Design the concepts of angle modulation system
3	Apply the concept of Random Process to design of communication system.
4	Analyze the noise performance of AM and FM systems
5	Illustrate the principles of Sampling and quantization
6	Design the PCM systems

**Subject Code/Name: EC8451/ Electromagnetic Fields**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Apply the vector calculus, fundamental laws of physics and to solve EM problems.
2	Analyze electric field and potential for different configurations.
3	Describe the behavior of electric and magnetic fields in the presence of dielectric and magnetic materials.
4	Evaluate Magnetic field, magnetic field intensity and inductances for solenoid, toroid, coaxial cables and transmission lines.
5	Design Maxwell's Equations for time varying situations and the boundary conditions across media boundaries
6	Explicate electromagnetic wave propagation in lossy and in lossless media

**Subject Code/Name: EC8453/ Linear Integrated Circuits**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Design basic building blocks of Op-amp.
2	Design Linear and nonlinear applications of Op-amp.
3	Use analog multiplier IC and PLL for signal processing applications.
4	Design ADC and DAC using Op-amp.
5	Design Waveform generator circuits using Op-amp and IC555 timer.
6	Analyze special function ICs.

**Subject Code/Name: GE8291 / Environmental Science and Engineering**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Relate the concepts of different ecosystem and biodiversity present
2	Apply the basic concepts of science and engineering for pollution abatement
3	Explain the different types of natural resources, usage and exploitation
4	Implement scientific, technological, and economic solutions to environmental problems
5	Recognize on the impact of population on environment
6	Relate the concepts of science and environment with engineering process

**Subject Code/Name: EC8461 / Circuits Design and Simulation Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Design and analyze various types of feedback amplifiers.
2	Design Oscillators and tuned circuits.
3	Design wave-shaping circuits and multivibrators.
4	Design RC integrator and differentiator circuits.
5	Design and simulate feedback amplifiers and oscillators using SPICE tool.
6	Design and simulate wave –shaping circuits and multivibrators using SPICE tool.

**Subject Code/Name: EC8462 / Linear Integrated Circuits Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Demonstrate significance of Op-amps and their importance.
2	Use op-amp as Inverting, non-inverting, Differential Amplifiers, Differentiator and Integrator.
3	Design instrumentation amplifier and explain the applications of Instrumentation amplifier.
4	Use op-amp as Low pass, High pass, Band pass filters and explain the frequency response.
5	Use op-amp to generate Sine and Square waveform generators.
6	Use IC555 timer to generate square wave form generators.
7	Use IC565 PLL IC to design Frequency multiplier and demonstrate PLL Characteristics.
8	Design DC power supply circuits using special function ICs.
9	Use SPICE software tool to design and analyze the Op-amp Circuits.
10	Use SPICE software tool to design Analog to Digital and Digital to analog converters.

### III Year Courses

#### Subject Code/Name: EC8501/Digital Communication

Course Outcomes	At the end of this course students will be able to
1	Demonstrate the concepts of information theory and coding
2	Compare the various waveform coding techniques
3	Experiment the baseband transmission and reception schemes
4	Illustrate the different digital modulation schemes and equalization techniques
5	Analyze the PSD and BER of various digital modulation schemes
6	Implement different error control codes

#### Subject Code/Name: EC8553/ Discrete-Time Signal Processing

Course Outcomes	At the end of this course students will be able to
1	Apply DFT for the analysis of digital signals and systems
2	Design IIR digital filters.
3	Design FIR digital filters.
4	Characterize the effects of finite precision representation on digital filters
5	Understand the DSP functionalities
6	Distinguish between fixed- and floating-point architecture principle.

#### Subject Code/Name:EC8552/Computer Architecture and Organization

Course Outcomes	At the end of this course students will be able to
1	Describe the basic structure and operation of digital computer.
2	Experiment the Fixed point and Floating-point arithmetic operations.
3	Discuss about implementation schemes of Control unit and Pipeline architecture.
4	Discuss about pipelined control units and various types of hazards in the instructions.
5	Describe the concept of various memories and interfacing.
6	Summarize the latest advancements in computer architecture



**Subject Code/Name: EC8551/ Communication Networks**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Describe the Internet architecture and link layer services
2	Analyze various media access and internetworking protocols
3	Apply various routing protocols and algorithms for a given network along with IP addresses
4	Demonstrate the flow of information from one process to another process in the network
5	Summarize the various congestion control and avoidance mechanisms
6	Discuss the various application layer protocols

**Subject Code/Name: EC8073 / Medical Electronics**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Discuss the characteristics of the bioelectric signals
2	Describe the measurement techniques for various non electrical parameters.
3	Illustrate the working of human assist devices
4	Discuss the operation of diathermy equipment's.
5	Describe the principle of Bio -Telemetry.
6	Explain the recent trends in diagnosis & Therapy

**Subject Code/Name: OMD551 / Basics of Biomedical Instrumentation**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Interpret the different bio potential and its propagation.
2	Describe different types of electrode placement for various physiological recording
3	Design bio amplifier for various physiological recording
4	Illustrate various techniques on non-electrical physiological measurements
5	Recognize the different types of bio-chemical electrodes
6	Recognize the different types of biochemical measurements

**Subject Code/Name: EC8562 / Digital Signal Processing Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Carry out the simulation of DSP systems.
2	Design and implement FIR and IIR filters.
3	Demonstrate their abilities towards DSP processor-based implementation of DSP systems.
4	Analyze Finite word length effect on DSP systems.
5	Demonstrate the applications of FFT to DSP.
6	Implement adaptive filters for various applications of DSP.

**Subject Code/Name: EC8561 / Communication Systems Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Apply their knowledge in analog modulation schemes through implementation of AM, FM.
2	Demonstrate the digital modulation schemes through implementation of FSK, PSK and DPSK
3	Apply various channel coding schemes & demonstrate their capabilities towards the improvement of the noise performance of communication system.
4	Simulate & validate the various functional modules of a communication system
5	Analyze the transmission of analog signals using Pulse Code Modulation and Demodulation in the trainer kit.
6	Detect the Error control coding schemes using Linear Block Codes.
7	Understand the Equalization concept by Zero Forcing & LMS algorithms.

**Subject Code/Name: EC8563/ Communication Networks Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Design and implement a PC-to-PC Communication and transfer files using WINDOWS / UNIX Socket processing.
2	Simulate Serial and Parallel Communication using RS232C and 8-bit cable respectively.
3	Simulate and study the performance of CSMA / CD, CSMA /CA, Token Bus and Token Ring protocol.
4	Implement stop and wait, Go back-n, selective repeat protocols.
5	Study the performance of routing protocols and implement a distance vector and link state routing protocol using simulator.
6	Study the security in data transfer and implement encryption and decryption techniques while transferring data.

**Subject Code/Name: EC8691/Microprocessors and Microcontrollers**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Discuss the architecture of 8086 microprocessor and acquire skills in programming.
2	Analyze the instruction set of 8086 with Programming.
3	Classify the various interfacing techniques with 8086
4	Discuss the architecture of 8051 microcontroller and acquire skills in programming
5	Discuss the features of 8051
6	Implement the knowledge of 8051 in various devices.

**Subject Code/Name: EC8095/VLSI Design**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Realize the concepts of digital building blocks using MOS transistor
2	Design combinational MOS circuits and power strategies
3	Design and construct Sequential Circuits and Timing systems
4	Design arithmetic building blocks and memory subsystems
5	Apply and implement FPGA design flow
6	Apply the design techniques for testability and manufacturability

**Subject Code/Name: EC8652/Wireless Communication**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Define a wireless channel.
2	Explain the concepts of cellular system
3	Classify multiple access techniques
4	Design and implement various signaling schemes for fading channel
5	Compare multipath mitigation techniques and analyze their performance
6	Discuss various multiple antenna techniques

**Subject Code/Name: MG8591 / Principles of Management**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Illustrate the Basics of Management
2	Analyze the planning process in the organization
3	Realize the concept of organization
4	Demonstrate the ability to directing, leadership and communicate effectively
5	Analysis isolate issues and formulate best control methods.
6	Appreciate the Practical Importance of Management Skills

**Subject Code/Name: EC8651 / Transmission Lines and RF Systems**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Familiarize with various types of transmission lines and its characteristics
2	Illustrate about high frequency line, power and impedance measurements.
3	Impart technical knowledge in impedance matching using smith chart
4	Discuss basic principles associated with Wave guides
5	Design of active RF Components
6	Familiarize with RF system transceiver Design

**Subject Code/Name: EC8004 / Wireless Networks**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Explain various standards and technologies in wireless LAN
2	Illustrate packet delivery and routing mechanism used in mobile network layer.
3	Explain overview of UTMS terrestrial radio access network.
4	Describe about the inter working WLANs and WWANs
5	Describe about 4G networks vision, features and challenges.
6	Classify different technologies used in 4G networks.

**Subject Code/Name: EC8681 / Microprocessors and Microcontrollers Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Implement ALP Programs for fixed and Floating Point and Arithmetic using 8086.
2	Implement ALP programs for code converters using 8086.
3	Interface different I/O devices with 8086 processor.
4	Interface A/D and D/A converters using 8086 Microprocessors.
5	Execute arithmetic and logical operation programs in 8051 microcontrollers.
6	Execute arithmetic and logical operation programs in 8086 emulators.

**Subject Code/Name: EC8661 / VLSI Design Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Write Verilog HDL code for basic as well as advanced digital integrated circuits.
2	Perform Simulate, Synthesize, place and route the logic modules in Xilinx.
3	Implement the Digital logic modules in FPGA boards.
4	Design and simulate the layout of Digital integrated Circuits using EDA tool.
5	Analyze the power, area and timing of digital integrated circuits.
6	Design, simulate and analyze the parameters of Analog Integrated circuits.

**Subject Code/Name: HS8581 / Professional Communication**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Effectively communicate technical material in print.
2	Present technical material orally with confidence and poise, including audiovisual materials.
3	Communicate effectively in ways appropriate to the discipline, audience and purpose.
4	Think critically and creatively to generate innovative and optimum solutions
5	Identify, evaluate and synthesize information from a range of sources to optimize process engineering design and development.
6	Engage in continuous education, training and research, and take control of their own learning and development.
7	Work effectively and efficiently individually and in teams
8	Be 'career ready' for the process engineering profession, demonstrate leadership qualities, and work ethically and professionally

#### IV Year Courses

##### Subject Code/Name: EC8701/ Antenna and Microwave Engineering

Course Outcomes	At the end of this course students will be able to
1	Apply the basic principles and evaluate antenna parameters and link power budgets
2	Compare the radiation mechanisms of wire and loop antennas
3	Design and assess the performance of aperture and frequency independent antennas
4	Design the radiation pattern of end fire and broad side arrays
5	Describe the working principle of active and passive microwave components
6	Design a microwave system given the application specifications

##### Subject Code/Name: EC8751/ Optical Communication

Course Outcomes	At the end of this course students will be able to
1	Describe basic elements in optical fibers, different modes and configurations
2	Summarize the transmission characteristics associated with dispersion and polarization techniques
3	Discuss the Characteristics of various fiber optical sources and detectors
4	Explain fiber optic receiver systems, measurements and coupling techniques
5	Demonstrate optical communication systems and its networks
6	Compare the performance of optical networks

##### Subject Code/Name: EC8791/ Embedded and Real time systems

Course Outcomes	At the end of this course students will be able to
1	Apply the knowledge of Embedded system design process and design methodologies for Industry applications.
2	Design an Embedded system applications with the knowledge of ARM Processor Architecture and Programming.
3	Analyze the performance and optimization techniques of embedded programming components.
4	Apply the basic concepts of Real Time System for Embedded system design.
5	Analyze the performance and power optimization strategies of Real time operating systems.
6	Design Real time applications using Embedded system design concepts.

**Subject Code/Name: EC6014/ Cognitive Radio**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Explain the concepts of software defined radios
2	Describe the Principles of self-aware cognitive radios
3	Compare various approaches for optimizing radio resources
4	Classify the various networking techniques for cognitive Radio
5	Illustrate various security issues in cognitive radio
6	Explain the role of cognitive radio in next generation applications

**Subject Code/Name: OIC751 /Transducer Engineering**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Apply the mathematical knowledge and science & engineering fundamentals gained to solve problems pertaining to measurement applications.
2	Design right transducer for a given application
3	Analyze the static and dynamic characteristics of transducers
4	Demonstrate different types of resistive transducers and their application areas.
5	Explain different types of capacitive and inductive transducers
6	Explain Piezoelectric, Hall effect, Magnetoelastic, MEMS and Smart transducers.

**Subject Code/Name: EC8702 / ADHOC and Wireless Sensor Networks**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Interpret the basics of Ad hoc networks and Wireless Sensor Networks
2	Apply this knowledge to identify the suitable routing algorithm based on the network and user requirement
3	Apply the knowledge to identify appropriate physical and MAC layer protocols
4	Recognize the transport layer and security issues possible in Ad hoc and sensor networks
5	Familiarize with the OS used in Wireless Sensor Networks and build basic modules
6	Recognize the sensor network simulation platforms and tools

**Subject Code/Name: EC8761/ Advanced Communication Lab**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Analyze the performance of simple optical link by measurement of losses and analyzing the mode characteristics of fiber
2	Analyze the Eye Pattern, Pulse broadening of optical fiber and the impact on BER
3	Estimate the Wireless Channel Characteristics and Analyze the performance of Wireless Communication System
4	Realize the intricacies in Microwave System design

**Subject Code/Name: EC8711/Embedded Lab**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Write programs in Embedded-C in ARM for a specific Application.
2	Write a program to access GPIO pins of ARM microcontroller by interfacing LED and stepper motor
3	Interface memory and Write programs related to memory operations.
4	Interface A/D and D/A converter with ARM system.
5	Analyze the performance of interrupt.
6	Write programs for interfacing keyboard, display, and sensors.
7	Formulate a mini project using embedded system

**Subject Code/Name: EC8094/Satellite Communication**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Realize the satellite orbits and its trajectories with the definitions of parameters associated with it.
2	Illustrate the working and operation of various sub systems of satellite as well as the earth stations.
3	Analyze and design satellite communication link
4	Apply various Communication techniques for satellite applications.
5	Acquire advanced techniques and regulatory aspects of satellite communication
6	Realize role of satellite in various applications



Subject Code/Name: GE8076/ Professional Ethics in Engineering

Course Outcomes	At the end of this course students will be able to
1	Create awareness on human values and apply ethics in society.
2	Choose an ethical issue and assess variety of moral issues using ethical theories in engineering.
3	Analyze engineering, social experimentation and engineers as responsible experimenters
4	Perceive engineers' safety and their responsibilities, professional rights, employee rights, and intellectual property rights.
5	Interpret various types of ethics like business ethics, environmental ethics and computer ethics.
6	Create an engineer as managers, consulting engineers, engineers as expert witness and advisors.

*hes/12/21*  
HOD/ECE

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# R.M.D ENGINEERING COLLEGE

(An Autonomous Institution)

R.S.M. NAGAR, KAVARAIPETTAI – 601206.

DEPARTMENT OF ELECTRONICS AND INSTRUMENTATION ENGINEERING

COURSE OUTCOMES (R 2017)

ODD SEMESTER

III Year Courses

**Subject Code/Name: EI8551/ Analytical Instruments**



<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand the fundamental principles of selective analytical instruments used in medical diagnosis, quality assurance & control and research studies.
2	Ability to assess and suggest a suitable analytical method for a specific purpose, and evaluate sensitivity, important sources of interferences and errors, and also suggest alternative analytical methods for quality assurance.
3	Ability to critically evaluate the strengths and limitations of the various instrumental methods.
4	Ability to develop critical thinking for interpreting analytical data.
5	Ability to understand the working principle, types and applications of NMR.
6	Ability to understand the working principle, types and applications of Mass spectroscopy

**Subject Code/Name: EI8552/ Industrial Instrumentation - II**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Demonstrate variable head type flow meters
2	Illustrate quantity meters, air flow meters and mass flow meters
3	Explain electrical type flow meters
4	Identify techniques for level measurement
5	Explain various types of transmitters
6	Analyze a suitable instrumentation system for various industries

**Subject Code/Name: EI8553/ Process Control**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Build and analyse models using first principles approach for processes such as level, flow, pressure and temperature.
2	Understand and apply actuators, control valves in process Industries.
3	Design PID Controllers to achieve desired performance for various processes
4	Analyze the evaluation criteria and tuning techniques of controllers.
5	Analyze design and implement control Schemes for various Processes
6	Identify, formulate and solve problems in the Process Control Domain

**Subject Code/Name: EE8551/ Microprocessors and Microcontrollers**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Describe the functional blocks of 8085 microprocessor
2	Develop an simple assembly language program of 8085 microprocessor
3	Explain the architecture of 8051 microcontroller
4	Analyze the data transfer information through serial and parallel ports.
5	Illustrate how the different peripherals are interfaced with Microprocessor and microcontroller
6	Develop a program for various application of 8051

**Subject Code/Name: EE8591/ Digital Signal Processing**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Categorize the different types of signals and systems
2	Examine the LTI systems with different inputs using z-transform
3	compare discrete fourier transform and fast fourier transform
4	Realize FIR filters using windowing techniques
5	Design IIR filters using different types of approximation
6	Summarize the DSP processors and its architectures for different applications.

**Subject Code/Name: OCE551/ Air Pollution and Control Engineering**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand nature and characteristics of air pollutants
2	Describing the stacks behaviour and comprehend various environmental transformation processes of pollutants under extreme weather condition.
3	Ability to interpret meteorological data
4	Illustrate control equipment's of particulate contaminants in air pollution
5	Illustrate control equipment's of gaseous contaminants in air pollution
6	Ability to comprehend quality, control and preventive measures of noise pollution and Indoor air quality management

**Subject Code/Name: EE8681 / Microprocessors and Microcontrollers Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand and apply computing platform and software for engineering problems.
2	Ability to programming logics for code conversion.
3	Ability to acquire knowledge on A/D and D/A.
4	Ability to understand basics of serial communication
5	Ability to understand and impart knowledge in DC and AC motor interfacing
6	Ability to understand basics of software simulators

**Subject Code/Name: EI8561/ Industrial Instrumentation Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	To impart an adequate knowledge and expertise to handle equipment generally available in an industry
2	To make the students aware about calibration of meters, sensors and transmitters
3	To make the students conscious about the working and operation of different types of analytical Instruments
4	To identify, formulate, and analyze problems regarding sensors and transmitter

#### IV Year Courses

##### Subject Code/Name: EI8751/Industrial Data Networks

Course Outcomes	At the end of this course students will be able to
1	Explain the basic concepts of data networks and communication.
2	Explain and relate the functions of networking and internetworking devices and choose the appropriate one depending on application.
3	Compare the characteristics of various communication buses like Fieldbus, and Profibus and select the appropriate one depending on application.
4	Explain the various communication protocols available like HART, MODBUS in data communication and select the appropriate one depending on application.
5	Explain the various Industrial Ethernets.
6	Explain the basic concepts of wireless communication.

##### Subject Code/Name: EE8691/Embedded Systems

Course Outcomes	At the end of this course students will be able to
1	Discuss the essentials of function and Blocks of Embedded system
2	Explain the different communication network strategies of embedded systems
3	Demonstrate the different phases of embedded product development life cycle (EDLC)
4	Analyze the issues, modeling and computational models in Embedded design
5	Explain the basic concepts and compare the features of real time operating systems (RTOS)
6	Utilize the concepts of Embedded Systems in real time applications

##### Subject Code/Name: EC8093/Digital Image Processing

Course Outcomes	At the end of this course students will be able to
1	To understand the basics and fundamentals of digital image processing such as digitization, sampling, quantization and 2D transforms
2	To operate on images using the techniques of smoothing, sharpening and enhancement.
3	To understand the restoration concepts and filtering techniques
4	To learn the basics of segmentation, features and extraction
5	To learn the basics of compression methods of color models
6	To learn the recognition methods.

**Subject Code/Name: EI8075/Fiber Optics and Laser Instruments**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Classify the types of optical fibers and discuss the various losses and dispersion involved in optical fibers and discuss about various optical sources, optical detectors, optical connectors and splices.
2	Illustrate the various applications of lasers in industries.
3	Explain the characteristics and types of lasers.
4	Develop a thorough knowledge about applications of lasers in industries and material processing..
5	Explain the concept of holography using lasers.
6	Interpret the applications of lasers in medical field.

**Subject Code/Name: GE8077/Total Quality Management**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Understand the quality philosophies and customer focused managerial system
2	Summarize the quality management principles
3	Apply six sigma concepts in manufacturing and service sector
4	Determine the tools and techniques for quality improvement.
5	Analyze standards and auditing system on implementation of TQM.
6	Analyze standards for the operation of EMS.

**Subject Code/Name: OBT751/ Analytical Methods and Instrumentation**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand the fundamental of electromagnetic radiations and various components used for optical instruments.
2	Ability to choose appropriate optical components for different wavelength and samples used in spectroscopy
3	Ability to assess and suggest a suitable spectrometry for a specific purpose, and evaluate absorbance and Transmission in the substance.
4	Ability to understand the working principle, types and applications of NMR and mass spectroscopy.
5	Ability to choose appropriate chromatography for various applications.
6	Ability to understand the working principle, types and applications of electro analysis and surface microscopy.

**Subject Code/Name: E18761/ Industrial Automation Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand and Programming of PLC, SCADA and DCS
2	Ability to working with industrial automation system
3	Be able to design and implement control schemes in PLC & DCS
4	Ability to interface field devices with PLC & DCS

**Subject Code/Name: E18762/ Instrumentation System Design Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Ability to understand design of signal conditioning circuits and instrumentation systems.
2	Ability to design controller, control valve and transmitter.
3	Be able to design and draw the piping diagram for industrial application projects.
4	Be able to design the multi-channel data acquisition system and transmitter

  
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# R.M.D ENGINEERING COLLEGE

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DEPARTMENT OF ELECTRONICS AND INSTRUMENTATION ENGINEERING



## COURSE OUTCOMES (R 2017)

### EVEN SEMESTER

#### III Year Courses

Subject Code/Name: EI8651/ Logic and Distributed control system

Course Outcomes	At the end of this course students will be able to
1	Understand all the important components of PLC and SCADA, I/O modules and field devices of an industrial automation system.
2	Develop PLC program in using ladder diagram for industrial sequential applications.
3	Develop PLC program in using other languages for industrial sequential applications.
4	Understand all the important components of DCS and Smart field Devices of an industrial automation system.
5	Explain the most appropriate automation technologies for a given application.
6	Outline the recent developments in industrial automation.

Subject Code/Name: EI8691/ Computer Control of Process

Course Outcomes	At the end of this course students will be able to
1	Represent the linear time invariant System in discrete State Space form
2	Analyze the controllability, observability and stability of a Discrete time System
3	Estimate model parameters from input/output measurements
4	Design Digital Controllers
5	Design Multi-loop and Multivariable Controllers for multivariable system



**Subject Code/Name: CS8391/ Data structures**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Implement abstract data types using arrays and linked list.
2	Apply the different linear data structures like stack and queue to various computing problems.
3	Implement different types of trees and apply them to problem solutions.
4	Discuss graph structure and understand various operations on graphs and their applicability.
5	Analyze the various sorting and searching algorithms.
6	Understand the hashing technique and hash functions.

**Subject Code/Name: EI8692/ Electronic Instrumentation**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Demonstrate various electronic instruments for measurement of voltage
2	Illustrate various types of cathode ray oscilloscopes and their applications
3	Summarize different types of signal analysers
4	Explain different types of waveform generators
5	Examine a measurement system using VI programming techniques
6	Apply different types of modulation and multiplexing techniques in telemetry

**Subject Code/Name: EI8077/ Power Electronics and Drives**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Explain various devices and their structure, operating characteristics in the field of electronics.
2	Classify, analyze and design,Control rectifier, chopper and inverter.
3	Apply power electronic circuits for the control of popular applications.
4	Analyse the classification of Inverters
5	Apply Converter techniques in Electric Drives
6	Exposure to design and analyze PE circuits using simulation software.

**Subject Code/Name: EI8072 / Advanced Instrumentation Systems**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Review the instrumentation behind flow, level, temperature and pressure measurement
2	Discuss about various types of analyzers used in typical industries
3	Discover about the role of Safety instrumented system in the industry
4	Explain Standards for applying Instrumentation in Hazards Locations.
5	Design, develop, and interpret the documents used to define instruments and control Systems for a typical project
6	Describe about P&IDs, loop diagrams, Instrument lists, logic diagrams, installation details, and location plans

**Subject Code/Name: CS8381/ Data Structures Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Write functions to implement linear and non-linear data structure operations
2	Suggest appropriate linear / non-linear data structure operations for solving a given problem
3	Appropriately use the linear / non-linear data structure operations for a given problem
4	Apply appropriate hash functions that result in a collision free scenario for data storage and retrieval

**Subject Code/Name: EI8661/ Process Control Laboratory**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Understand and analyze process control engineering problems
2	Build dynamic models using input -output data of a process
3	Work with real time control loops(flow/level/temperature/pressure)
4	Acquire Knowledge on simulation tools such as MATLAB/LABVIEW/ASPEN
5	Learn and implement simple adaptive and model based control schemes

## IV Year Courses

### Subject Code/Name: GE8076/Professional Ethics in Engineering

Course Outcomes	At the end of this course students will be able to
1	Create awareness on human values and apply ethics in society.
2	Identify an ethical issue and assess variety of moral issues using ethical theories in engineering.
3	Analyze engineering, social experimentation and engineers as responsible experimenters.
4	Realize engineers' safety and their responsibilities, professional rights, employee rights, and intellectual property rights.
5	Interpret various types of ethics like business ethics, environmental ethics and computer ethics.
6	Take part an engineer as managers, consulting engineers, engineers as expert witness and advisors.

### Subject Code/Name: E18078/Project Management and Finance

Course Outcomes	At the end of this course students will be able to
1	Study the current market trends and choose projects.
2	Prepare project feasibility reports.
3	Implement the project effectively meeting government norms and conditions.
4	Understand the role and responsibility of the Professional Engineer.
5	Assess social, health, safety issues based on the reasoning received from the contextual knowledge.
6	Choose projects which benefit the society and organization.

  
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# R.M.D. ENGINEERING COLLEGE

(An Autonomous institution)

R.S.M.NAGAR, KAVARAIPETTAI-601206.



DEPARTMENT OF INFORMATION TECHNOLOGY

## COURSE OUTCOMES

Date: 12.08.2021

### SEMESTER- III

SUBJECT CODE/NAME: MA8351 – DISCRETE MATHEMATICS

Course Outcomes	At the end of this course students will be able to
1	Identify the concepts needed to test the logic of a program
2	Solve problems in mathematical induction, counting principles, permutation and combination
3	Solve problems in recurrence relations
4	Utilize graph theory concepts in computer science
5	Utilize the concepts and properties of algebraic structures such as groups, rings and fields.
6	Solve problems in lattices and Boolean algebra

SUBJECT CODE/NAME: CS8351 – DIGITAL PRINCIPLES AND SYSTEM DESIGN

Course Outcomes	At the end of this course students will be able to
1	Simplify Boolean functions using K-map
2	Design and Analyse Combinational circuits with HDL description
3	Design and Analyse Sequential circuits
4	Design and Analyse Sequential circuits (Registers and Counters) with HDL description
5	Design and Analyse Asynchronous Sequential circuits
6	Implement designs using Programmable Logic Devices

**SUBJECT CODE/NAME: CS8391 – DATA STRUCTURES**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Implement abstract data types for linked list data structure and apply for problem solution
2	Examine abstract data types for stack and queue data structure and apply for problem solution
3	Examine abstract data types for basic tree data structure (BST, Expression trees, AVL trees) and apply for problem solution
4	Implement abstract data types for advanced tree (B-Trees, B+ Tree, Threaded Binary Tree) and heap data structures and apply for problem solution
5	Inspect abstract data types for graph data structures and apply for problem solution
6	Critically analyse the various sorting, searching algorithms, and hashing techniques

**SUBJECT CODE/NAME: CS8392 – OBJECT ORIENTED PROGRAMMING**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Develop Java programs based on OOP principles
2	Develop and Test Java programs based on inheritance and interfaces
3	Build and Test Java applications using exceptions and I/O streams
4	Develop and Test Java applications with threads
5	Build Java applications with generic classes.
6	Develop and Test interactive Java programs with Swings

**SUBJECT CODE/NAME: EC8394 – ANALOG AND DIGITAL COMMUNICATION**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Make use of the principles of analog communication techniques
2	Make use of the principles of pulse communication techniques
3	Utilize the fundamentals of data communication
4	Utilize the principles of digital communication techniques
5	Solve source coding and error control coding problems
6	Make use of the fundamentals of multi-user radio communication

**SUBJECT CODE/NAME: CS8381 – DATA STRUCTURES LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Develop and Test C programs to implement linear data structures
2	Use appropriate linear data structures for the given problem
3	Develop and Test C programs to implement non-linear data structures
4	Use and Test appropriate non-linear data structures for the given problem
5	Develop and Test C programs for implementing sorting and searching algorithms
6	Use and Test appropriate hashing techniques for the given problem

**SUBJECT CODE/NAME: CS8383 – OBJECT ORIENTED PROGRAMMING LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Develop and Test Java programs to implement simple applications that make use of classes and packages
2	Develop and Test Java programs to implement simple applications that make use of inheritance and interfaces
3	Develop and Test Java programs to implement applications with arraylist and exception handling
4	Develop and Test Java programs to implement applications with multi-threading
5	Develop and Test Java programs to implement applications with file processing
6	Develop and Test Java programs to implement applications with generic programming and event handling

**SUBJECT CODE/NAME: CS8382 – DIGITAL SYSTEMS LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Implement and Inspect simplified combinational circuits using logic gate
2	Implement and Inspect simplified combinational circuits using MSI devices
3	Implement and Inspect various shift registers
4	Implement and Inspect various counters
5	Model and Examine combinational circuits using HDL

**SUBJECT CODE/NAME: HS8381 – INTERPERSONAL SKILLS/LISTENING AND SPEAKING**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Listen and respond appropriately
2	Participate in group discussions
3	Make effective presentations
4	Participate confidently and appropriately in conversations both formal and informal
5	Attend the classes regularly
6	Submit the Observation and Record regularly.

**SEMESTER - IV**

**SUBJECT CODE/NAME: MA8391 – PROBABILITY AND STATISTICS**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Apply the fundamental knowledge of the concepts of probability which can describe real life phenomenon
2	Compare and Contrast various standard distributions which can describe real life phenomenon
3	Make use of the basic concepts of one and two dimensional random variables in engineering applications
4	Examine the concept of testing of hypothesis for small and large samples in real life problems
5	Inspect the basic concepts of classifications of design of experiments for the engineering problems.
6	Examine the statistical techniques used in engineering statistical quality control and management problems.

**SUBJECT CODE/NAME: CS8491 – COMPUTER ARCHITECTURE**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Identify the basic organization of computer system and performance of a computer system.
2	Utilize the basic instruction set, operations and addressing modes of MIPS architecture.
3	Examine the procedure involved in designing ALU
4	Compare and Contrast the non-pipelined and pipelined data path implementation of MIPS
5	Inspect Parallel Processing challenges, Hardware Multithreading and Multicore architectures
6	Examine the performance of Memory and I/O systems.

**SUBJECT CODE/NAME: CS8492 – DATABASE MANAGEMENT SYSTEMS**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Classify the modern and futuristic database applications based on size and complexity.
2	Construct Relational model from ER model to perform database design effectively and optimize queries using normalization criteria.
3	Examine the database transaction concepts
4	Compare and contrast various indexing strategies in different database systems
5	Examine query optimization algorithms and query optimization techniques
6	Compare and Contrast the distributed database architectures and traditional database architecture.

**SUBJECT CODE/NAME: CS8451 – DESIGN AND ANALYSIS OF ALGORITHMS**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Examine mathematically the notion of algorithm, asymptotic notations, and algorithmic efficiency with properties.
2	Inspect the time and space complexity of the algorithms designed using brute force and divide and conquer methods
3	Inspect the time and space complexity of the algorithms designed using dynamic programming techniques.
4	Inspect the time and space complexity of the algorithms designed using greedy techniques.
5	Examine various iterative improvement techniques.
6	Identify the limitations of algorithm power.

**SUBJECT CODE/NAME: CS8493 – OPERATING SYSTEMS**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Explain the basics of operating systems like kernel, shell, types and views of operating systems
2	Examine process management with various Scheduling algorithms
3	Inspect the principles of concurrency and deadlock.
4	Compare and Contrast various memory management schemes.
5	Examine file system implementation, protection and security mechanisms.
6	Compare iOS and Android operating systems and perform administrative tasks on Linux servers.



**SUBJECT CODE/NAME: GE8291 – ENVIRONMENTAL SCIENCE AND ENGINEERING**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Summarize the concepts of Biodiversity, environment and ecosystem
2	Outline various sources of environmental pollution
3	Identify various natural resources such as Forest, Water and Mineral
4	Identify various natural resources such as Food, Energy and Land
5	Summarize various social issues and impact related to environment.
6	Explain the impact of human population toward environment sustainability

**SUBJECT CODE/NAME: CS8481 – DATABASE MANAGEMENT SYSTEMS LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Make use of typical data definitions and manipulation commands
2	Test the implementation of nested and join queries
3	Develop simple application using views, sequences and synonyms.
4	Inspect and implement applications that require front-end tools
5	Examine database programming using implicit and explicit cursors.
6	Test the implementation of Tables, views, functions, procedures, triggers and exceptionhandling.

**SUBJECT CODE/NAME: CS8461 – OPERATING SYSTEMS LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Make use of Linux commands, develop shell programs, implement system calls and simulate Linux commands
2	Test the implementation of processes and IPC
3	Compare the performance of various CPU scheduling algorithms
4	Experiment with the implementation of semaphores, deadlock avoidance algorithm and deadlock detection algorithm
5	Compare the implementation of various memory allocation, memory management and page replacement strategies.
6	Examine the implementation of file allocation and file organization strategies.

**SUBJECT CODE/NAME: HS8461 – ADVANCED READING  
AND WRITING**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Write different types of Essays
2	Write winning job applications
3	Read and evaluate texts critically
4	Display critical thinking in various professional contexts
5	Attend the classes regularly
6	Submit the Observation and Record regularly.

**SEMESTER - V**

**SUBJECT CODE/NAME: MA8551 – ALGEBRA AND NUMBER  
THEORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Apply the basic notions of groups, rings, fields which will then be used to solve related problems
2	Apply the fundamental concepts of advanced algebra and their role in modern mathematics and application contexts
3	Examine accurate and efficient use of advanced algebraic techniques
4	Solve non - trivial problems related to the concepts, and by proving simple theorems about the, statements proven by the text
5	Examine integrated approach to number theory and abstract algebra, and provide a firm basis for further reading and study in the subject.

**SUBJECT CODE/NAME: CS8591 – COMPUTER NETWORKS**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Explain the basic layers and its functions, and transmission media in computer networks
2	Examine the performance of different types of networks
3	Inspect the functionalities of data link and media access control protocols
4	Examine different routing algorithms
5	Identify appropriate protocol to be used at the transport layer
6	Explain the working of various application layer protocols.

**SUBJECT CODE/NAME: EC8691 – MICROPROCESSORS AND MICROCONTROLLERS**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Develop 8086 microprocessor based assembly language programs for specified problem
2	Examine the 8086 signals, bus structure, I/O programming and multiprocessor configurations
3	Inspect various I/O interfacing mechanisms with 8086 microprocessor
4	Examine various programming and application case studies based on 8086 microprocessor
5	Develop 8051 microcontroller based assembly language programs for specified problem
6	Examine various interfacing mechanisms with 8051 microcontroller

**SUBJECT CODE/NAME: IT8501 – WEB TECHNOLOGY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Develop simple web pages using markup languages like HTML and XHTML
2	Build dynamic web pages using DHTML and Java script that is easy to navigate and Use
3	Develop server side web pages that have to process request from client side webpages
4	Develop applications using JSP
5	Represent web data using XML and develop web pages using JSP
6	Explain various web services and how they interact

**SUBJECT CODE/NAME: CS8494 – SOFTWARE ENGINEERING**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Identify the key activities in managing a software project
2	Compare different process models
3	Summarize the concepts of requirements engineering and analysis modelling
4	Make use of systematic procedure for software design and deployment
5	Compare and contrast the various software testing and maintenance strategies
6	Develop project schedule, identify project costs and efforts required

**SUBJECT CODE/NAME: OCE552 – GEOGRAPHIC INFORMATION SYSTEM**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Explain the fundamental concepts about Geographic Information System
2	Summarize the different types of data models
3	Explain about data input and topology
4	Make use of different data analysis tools for data quality and standards
5	Demonstrate the different application areas of Geographic Information System with case studies

**SUBJECT CODE/NAME: EC8681 – MICROPROCESSORS AND MICROCONTROLLER LABORATORY**

<b>course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Develop and Test 8086 based ALP for fixed and floating point arithmetic operations
2	Develop and Test 8086 based ALP for moving data block without overlap, code conversion, decimal arithmetic and matrix operations
3	Develop and Test 8086 based ALP for string manipulation, sorting, searching, password checking, printing RAM size, counters and time delay
4	Develop and Test 8086 based ALP for interfacing various I/O
5	Develop and Test 8051 based ALP for basic arithmetic and logical operations
6	Develop and Test 8051 based ALP for square wave generation, finding 2 <sup>s</sup> complement and converting unpacked BCD to ASCII

**SUBJECT CODE/NAME: CS8581 – NETWORKS LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Examine the use of various commands using a network protocol analyzer
2	Experiment with TCP and UDP protocols to implement echo client, echo server, chat and file transfer
3	Compare the performance of transport layer protocols
4	Examine the performance of various network protocols
5	Examine various routing algorithms
6	Infer the importance and implementation of error correcting codes

**SUBJECT CODE/NAME: IT8511 – WEB TECHNOLOGY LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Test the working of simple web pages designed using markup languages like HTML and XHTML
2	Examine dynamic web pages created using DHTML and Java script
3	Test the working of server side web pages implemented for handling requests from client side web pages
4	Inspect the installation of Apache Tomcat web server
5	Categorize web data using XML and develop web pages using JSP
6	Examine the interactions of web services

**SEMESTER - VI****SUBJECT CODE/NAME: IT8601 – COMPUTATIONAL INTELLIGENCE**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Utilize search algorithms and genetic algorithms for problem solving.
2	Make use of knowledge representation and reasoning techniques in applications which involve perception, reasoning and learning.
3	Make use of fuzzy logic reasoning in applications which involve perception, reasoning and learning.
4	Utilize Bayesian networks, hidden Markov model, supervised learning and decision tree approaches for various applications.
5	Utilize linear regression and classification, Artificial Neural Networks for applications involves learning
6	Make use of computational intelligence techniques for information retrieval.

**SUBJECT CODE/NAME: CS8592 – OBJECT ORIENTED ANALYSIS AND DESIGN**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Utilize unified process and use case diagrams for software design
2	Construct static UML diagrams for software design process
3	Construct dynamic UML diagrams for software design process
4	Construct implementation UML diagrams for software design process
5	Transform UML based software design into pattern based design using design patterns
6	Utilize various testing methodologies for object oriented software design.

**SUBJECT CODE/NAME: IT8602 – MOBILE COMMUNICATION**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Summarize the basics of mobile telecommunication system and generations of mobile communication technologies
2	Compare various MAC protocols such as TDMA, FDMA and CDMA
3	Examine the various mobile telecommunication systems such as GSM, GPRS and UMTS
4	Inspect the architectures of various wireless LAN technologies
5	Determine the functionality of network layer and Identify a routing protocol for a given Adhoc networks
6	Summarize the functionality of Transport and Application layer

**SUBJECT CODE/NAME: CS8091 – BIG DATA ANALYTICS**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Identify big data use cases, characteristics and make use of HDFS and Map-reduce programming model for data analytics
2	Examine the data with clustering and classification techniques
3	Discover the similarity of huge volume of data with association rule mining and examine recommender system
4	Perform analytics on data streams
5	Inspect NoSQL database and its management
6	Examine the given data with R programming

**SUBJECT CODE/NAME: CS8092 – COMPUTER GRAPHICS AND MULTIMEDIA**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Make use of various illumination and color model during graphic design
2	Design two dimensional graphics
3	Design three dimensional graphics
4	Utilize various transformation and clipping techniques for graphics
5	Inspect the different types of multimedia file formats
6	Design Basic 3d Scenes using Blender

**SUBJECT CODE/NAME: IT8076 – SOFTWARE TESTING**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Summarize software testing principles, origin of defect, cost of defects, defect classes and defect repository
2	Design test cases suitable for a software development for different domains
3	Identify suitable tests to be carried out and document test plans and test case designed
4	Determine test planning based on the document
5	Develop and validate a test plan
6	Make use of automatic testing tools

**SUBJECT CODE/NAME: CS8662 – MOBILE APPLICATION DEVELOPMENT LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Design mobile applications using GUI and Layouts
2	Design mobile applications using Event Listener
3	Design mobile applications using Databases
4	Design mobile applications using RSS Feed, Internal/External Storage
5	Design mobile applications using SMS, Multithreading and GPS
6	Inspect and discover own mobile app for simple needs

**SUBJECT CODE/NAME: CS8552 – OBJECT ORIENTED ANALYSIS AND DESIGN LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Identify and map basic software requirements in UML mapping
2	Identify use cases and develop the Use Case model
3	Test the compliance of the software with the SRS
4	Identify the conceptual classes and develop a Domain Model and also derive from it a Class diagram
5	Using the identified scenarios, find the interaction between objects and represent them using UML Sequence and Collaboration Diagrams
6	Develop reusability and maintainability of the software system by applying appropriate design patterns

**SUBJECT CODE/NAME: IT8661 – MINI PROJECT**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Determine appropriate methodologies for solving problems related to real lifesituations using the engineering knowledge
2	Comprehend the existing solutions and summarize problem definition
3	Determine design strategies for providing solution to a problem
4	Acquire skills of collaboration and working in teams.
5	Communicate ideas clearly both orally and in written

**SUBJECT CODE/NAME: HS8551 – PROFESSIONAL COMMUNICATION LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Develop adequate Soft Skills required for the workplace
2	Make use of effective presentations
3	Utilize Group Discussions or increasing the confidence level
4	Develop interview etiquette and be successful in interview process
5	Develop long-term career plan, stress and time management, respecting socialprotocols

**SEMESTER - VII****SUBJECT CODE/NAME: MG8591 – PRINCIPLES OF MANAGEMENT**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Describe the influence of historical forces on the current practice of management and primary types of managers and the roles they play
2	Summarize different types of organization, culture, environment and current trends and issues in management
3	Explain planning process, types, policies, strategic management, tools, techniques and decision making steps and process.
4	Describe the purpose of organization, chart, structure and human resource Management
5	Summarize the behavioral skills, motivation theories, techniques and leadership Skills needed for directing.
6	Outline the system and process of controlling



**SUBJECT CODE/NAME: CS8792 – CRYPTOGRAPHY AND NETWORK SECURITY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Identify the fundamentals of networks security, security architecture, threats and vulnerabilities
2	Examine the mathematical concepts to deal with symmetric key and asymmetric key cryptography
3	Inspect the use of the different cryptographic operations of symmetric cryptographic algorithms
4	Inspect the use of the different cryptographic operations of public key cryptography
5	Examine the various Authentication schemes to simulate different applications
6	Make use of various Security practices and System security standards

**SUBJECT CODE/NAME: CS8791 – CLOUD COMPUTING**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Inspect the main concepts, key technologies, strengths and limitations of cloud Computing
2	Identify the key and enabling technologies that help in the development of cloud
3	Examine the use of architecture of compute and storage cloud, service and delivery models
4	Examine the core issues of cloud computing such as resource management and security
5	Build and Make use of current cloud technologies
6	Examine the appropriate technologies, algorithms and approaches for implementation and use of cloud

**SUBJECT CODE/NAME: GE8077 – TOTAL QUALITY MANAGEMENT**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Develop an understanding on quality management philosophies and frameworks
2	Develop in-depth knowledge on various principles of total quality management
3	Make use of quality tools and techniques such as seven management tools, Six Sigma, Benchmarking, FMEA
4	Make use of quality tools and techniques such as cost of quality, QFD, Taguchi Loss function, TPM and performance measures
5	Outline the various quality management standards
6	Summarize the various environmental management system standard

**SUBJECT CODE/NAME: CS8079 – HUMAN COMPUTER INTERACTION**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Examine the effective dialog for HCI
2	Inspect interactive design process in human computer interaction
3	Inspect software design process in human computer interaction
4	Examine various models and theories related to human computer interaction
5	Utilize the HCI implications for designing multimedia/ ecommerce/ e-learning Web sites
6	Build meaningful user interface

**SUBJECT CODE/NAME: OME752 – SUPPLY CHAIN MANAGEMENT**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Summarize the role of logistics in supply chain management
2	Explain the concept of supply chain network design
3	Interpret the logistics in supply chain management
4	Explain the concept of sourcing and coordination in supply chain management
5	Summarize the role of information technology in supply chain management

**SUBJECT CODE/NAME: IT8711 – FOSS & CLOUD COMPUTING LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Develop applications using gcc, make, version control system
2	Examine the working of web applications after deployed in Paas environment
3	Inspect various virtualization tools such as Virtual Box, VMware workstation
4	Test for implementing new schedulers through simulation in cloud environment
5	Make use of a generic cloud environment that can be used as a private cloud.
6	Inspect the manipulation of large data sets in a parallel environment

**SUBJECT CODE/NAME: IT8761 – SECURITY LABORATORY**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Develop code for classical Encryption Techniques to solve the problems.
2	Examine cryptosystems by applying symmetric and public key encryption algorithms
3	Test the use of the code for authentication algorithms
4	Examine a signature scheme using Digital signature standard
5	Inspect the network security system using open source tools for IDS
6	Inspect the network security system using open source tools for automated attack and penetration tools, defeating malware

**SEMESTER – VIII****SUBJECT CODE/NAME: GE8076 –PROFESSIONAL ETHICS IN ENGINEERING**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Create awareness on human values and apply ethics in society.
2	Identify an ethical issue and assess variety of moral issues using ethical theories in engineering.
3	Analyze engineering, social experimentation and engineers as responsible experimenters
4	Infer engineers' safety and their responsibilities, professional rights, employee rights, and intellectual property rights.
5	Interpret various types of ethics like business ethics, environmental ethics and computer ethics.
6	Take part an engineer's as managers, consulting engineers, engineers as expert witness and advisors.

**SUBJECT CODE/NAME: IT8005 – ELECTRONIC COMMERCE**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Design Website using HTML CSS and JS.
2	Design Responsive sites.
3	Construct Web Apps, manage, maintain and support Web Apps.
4	Summarize the basic concepts and technologies used in the field of management information systems.
5	Identify the ethical, social, and security issues of information systems.
6	Examine how some of the technologies detailed in the course are used in concert to realize atypical commercial system.

**SUBJECT CODE/NAME: IT8811 – PROJECT WORK**

<b>Course Outcomes</b>	<b>At the end of this course students will be able to</b>
1	Determine appropriate methodologies for solving problems related to real life situations using the engineering knowledge.
2	Comprehend the existing solutions and summarize problem definition.
3	Determine design strategies for providing solution to a problem.
4	Acquire skills of collaboration and working in teams.
5	Select and Evaluate different tools and techniques for validating the solution to the problem under consideration.
6	Communicate ideas clearly both orally and in written.

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HOD/IT  
12/05/21

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