

R.M.K. ENGINEERING COLLEGE
RSM Nagar, Kavaraipettai – 601 206

Department of Information Technology

Course Outcomes – ODD Semester 2018-19

Sl. No.	Semester	Theory/Practical	Course Code / Course Name
1)	3	Theory	MA8351 – Discrete Mathematics
2)	3	Theory	CS8351 - Digital Principles and System Design
3)	3	Theory	CS8391 – Data Structures
4)	3	Theory	CS8392 – Object Oriented Programming
5)	3	Theory	EC8394– Analog and Digital Communications
6)	3	Practical	CS8381 - Data Structures Laboratory
7)	3	Practical	CS8383 - Object Oriented Programming Laboratory
8)	3	Practical	CS8382 - Digital Systems Laboratory
9)	3	Practical	HS8381 - Interpersonal Skills/Listening &Speaking
10)	5	Theory	CS6551- Computer Networks
11)	5	Theory	IT6501 - Graphics and Multimedia
12)	5	Theory	CS6502 - Object Oriented Analysis and Design
13)	5	Theory	IT6502 - Digital Signal Processing
14)	5	Theory	IT6503 - Web Programming
15)	5	Theory	EC6801 - Wireless Communication
16)	5	Practical	IT6511 - Networks Laboratory
17)	5	Practical	IT6512 - Web Programming Laboratory
18)	5	Practical	IT6513 - Case Tools Laboratory
19)	7	Theory	IT6701 - Information Management
20)	7	Theory	CS6701 – Cryptography and Network Security
21)	7	Theory	IT6702 - Data Ware Housing and Data Mining
22)	7	Theory	CS6703 – Grid and Cloud Computing
23)	7	Theory	IT6004 - Software Testing
24)	7	Practical	IT6711 - Data Mining Lab
25)	7	Practical	IT6712 - Security Lab
26)	7	Practical	IT6713 - Grid and Cloud Computing Lab

Third Semester B.Tech.

MA8351 – Discrete Mathematics

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Find the pcnf & pdnf, rules of inference theory and proof methods.
CO2	Understanding the mathematical Induction, pigeonhole principle, Permutations and combinations, Generating functions, Inclusion and exclusion principle and Applying its applications.
CO3	Apply the concepts and techniques of Graphs and graph models
CO4	Be exposed to concepts and properties of algebraic structures such as groups, rings and fields.
CO5	Understanding lattices and Boolean algebra
CO6	Develop knowledge in Logic, Graphs and algebraic system in engineering.

CS8351 - Digital Principles and System Design

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Simplify Boolean functions using KMap
CO2	Design and Analyze Combinational Circuits.
CO3	Design and Analyze Synchronous Sequential Circuits.
CO4	Design and Analyze Asynchronous Sequential Circuits.
CO5	Implement designs using Programmable Logic Devices.
CO6	Write HDL code for combinational and Sequential Circuits.

CS8391 – Data Structures

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Implement abstract data types using arrays and linked list and understand their applicability.
CO2	Apply the different linear data structures like stack, queue to various computing problems.
CO3	Implement different types of trees and apply them to problem solutions.
CO4	Discuss graph structure and understand various operations on graphs and their applicability.
CO5	Analyze the various sorting and searching algorithms.
CO6	Understand hash functions and open addressing and predict their applicability.

CS8392 – Object Oriented Programming

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Develop Java programs using OOP principles
CO2	Develop Java programs using the concepts of inheritance and interfaces
CO3	Build Java applications using exceptions and I/O streams
CO4	Develop Java applications with threads and generics classes
CO5	Develop interactive Java programs using swings
CO6	Develop an application based upon the concepts of Java.

EC8394 – Analog and Digital Communication

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Identify and understand analog communication technique.
CO2	Identify and understand data and pulse communication technique.
CO3	Identify and understand digital communication technique.
CO4	Apply source and error control coding
CO5	Gain knowledge on multi user radio communication.
CO6	Understand about spread spectrum and multiple spectrums.

Laboratory

CS8381 - Data Structures Laboratory

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Write functions to implement linear and non-linear data structure operations
CO2	Suggest appropriate linear / non-linear data structure operations for solving a given problem

CO3	Appropriately use the linear / non-linear data structure operations for a given problem
CO4	Apply appropriate hash functions that result in a collision free scenario for data storage and retrieval.

CS8383 - Object Oriented Programming Laboratory

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Develop and implement Java programs for simple applications that make use of classes Packages and interfaces.
CO2	Develop and implement Java programs with arraylist, exception handling and multithreading.
CO3	Design applications using file processing, generic programming and event handling.

CS8382 - Digital Systems Laboratory

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Implement simplified combinational circuits using basic logic gates.
CO2	Implement combinational circuits using MSI devices.
CO3	Implement sequential circuits like registers and counters.
CO4	Simulate combinational and sequential circuits using HDL.

HS8381 - Interpersonal Skills / Listening & Speaking

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Listen and respond appropriately.
CO2	Participate in group discussions.
CO3	Make effective presentations.
CO4	Participate confidently and appropriately in conversations both formal and informal.

Fifth Semester B.Tech

CS6551 – Computer Networks

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Identify the components required to build different types of networks.
CO2	Choose the required functionality at each layer for given application.
CO3	Understand media access control and internetworking.
CO4	Gain knowledge on various routing mechanism.
CO5	Identify solution for each functionality at each layer.
CO6	Trace the flow of information from one node to another node in the network.

IT6501 – Graphics and Multimedia

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Draw output primitives and explain transformation techniques also view the objects in 2D aspects.
CO2	To Draw 3D objects and analyze the projection technique and visualize 3D objects.
CO3	Describe the multimedia architecture and data interface standards.
CO4	Explain file handling mechanism and storage and retrieval technologies.
CO5	Interpret multimedia authorization and UI standards.
CO6	Describe the concepts of distributed systems and hypermedia messaging.

CS6502 – Object Oriented Analysis and Design

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Identify the key activities in managing a software project.
CO2	Compare different process models.
CO3	Gain knowledge about requirements engineering and Analysis Modeling.
CO4	Apply systematic procedure for software design and deployment.
CO5	Compare and contrast the various testing and maintenance strategies.
CO6	Understand the major considerations for enterprise integration and deployment.

IT6502 - Digital Signal Processing

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Classify the different types of signals and systems.
CO2	Understand the sampling theorem and reconstruction of continuous signal.
CO3	Apply z-transform and inverse Z transform in discrete time systems
CO4	Make use of DFT and FFT to analyze Discrete time signals and systems.
CO5	Design IIR and FIR filters to meet frequency domain specifications
CO6	Explain the finite word length effects

IT6503 - Web Programming

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Design web pages.
CO2	Use technologies of Web Programming.
CO3	Apply object oriented aspects to Scripting.
CO4	Create databases with connectivity using JDBC.
CO5	Build web based application using sockets.
CO6	Build web based applications using XML and Java web services.

EC6801 - Wireless Communication

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Characterize wireless channels
CO2	Gain knowledge on fading effects on wireless channels.
CO3	Design a cellular system
CO4	Design and implement various signaling schemes for fading channels
CO5	Compare multipath mitigation techniques and analyze their performance
CO6	Design and implement systems with transmit/receive diversity and MIMO systems and analyze their performance

Laboratory

IT6511 - Networks Laboratory

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Understand socket programming
CO2	Understand simulation tools
CO3	Implement network protocols
CO4	Analyze the routing protocols

IT6512 - Web Programming Laboratory

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	To be familiar with web page design using HTML/DHTML and Style Sheet
CO2	Exposed to creation of User Interface using Java frames and Applets
CO3	Create Dynamic Web Page and Server side scripting
CO4	Create Database Application
CO5	To be familiar with web page design using HTML/DHTML and Style Sheet

IT6513 - Case Tools Laboratory

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Analysis the real world domain problems
CO2	Design using Modeling tools
CO3	Understanding Mapping design to Code
CO4	Testing and validating the application
CO5	Deploy the Mini project (application)

Seventh Semester B.Tech.

CS6701 – Cryptography and Network Security

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Imbibe knowledge on the concepts of finite fields and number theory.
CO2	Solve security policies using block ciphers and public key cryptography.
CO3	Understand the importance of using hash functions and digital signatures.
CO4	Compare various Cryptographic Techniques.
CO5	Design Secure applications and systems.
CO6	Inject secure coding in the developed applications.

IT6701 – Information Management

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Understand core relational database topics including logical and physical design and modeling.
CO2	Understand the principles of data security and privacy.
CO3	Design and implement a complex information system that meets regulatory requirements; define and manage an

	organization's key master data entities.
CO4	Design, Create and maintain data warehouses.
CO5	Be exposed to recent advances in NOSQL, Big Data and related tools.
CO6	Understand the issues in information lifecycle management

CS6703 – Grid and Cloud Computing

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Describe grid computing techniques to solve large scale scientific problems.
CO2	Explain the concept of virtualization.
CO3	Use the grid and cloud tool kits.
CO4	Summarize the security models in the grid and the cloud environment.
CO5	Understand how grid computing helps in solving large scale problems..
CO6	Understand the security issues in the grid and the cloud environment.

IT6702 – Data Ware Housing and Data Mining

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Gain knowledge on various data warehouse architectures
CO2	Ability to use business analysis tools.
CO3	Apply data mining techniques and methods to process large data sets.
CO4	Ability to decide on appropriate data Mining technology and use data mining tools.
CO5	Compare and contrast the various classifiers.
CO6	Understand the latest trends and scope in Data Mining

IT6004- Software Testing

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Understand the fundamental concepts of software testing principles, process and strategies.
CO2	Gain Knowledge on various test case design strategies.
CO3	Classify the various levels of testing.
CO4	Summarize the structure for testing teams and identify the skills needed by a test specialist.
CO5	Understand the software test automation and identify the skills needed for automation and Illustrate the test metrics and measurements.

Laboratory

IT6711 - Data Mining Lab

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	To be Familiar with the algorithms of Data Mining
CO2	Acquainted with the tools and techniques used for Knowledge Discovery in Databases
CO3	Exposed to Web Mining and Text Mining
CO4	Compare Various Data Mining Algorithms

IT6712 - Security Laboratory

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Implement the classical substitution and transposition techniques.
CO2	Implement the various security algorithms
CO3	Use different Digital signature algorithms
CO4	Use different open source tools for network security and analysis

IT6713 - Grid & Cloud Computing Laboratory

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Use the grid and cloud tool kits.
CO2	Design and implement applications on the Grid
CO3	Design and Implement applications on the Cloud.
CO4	Design and Implement applications on the Hadoop.

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Course Outcomes – Even Semester 2018-19

Sl. No.	Semester	Theory/Practical	Course Code / Course Name
1)	4	Theory	MA8391 - Probability and Statistics
2)	4	Theory	CS8491 - Computer Architecture
3)	4	Theory	CS8492 - Database Management Systems
4)	4	Theory	CS8451 - Design and Analysis of Algorithms
5)	4	Theory	CS8493 - Operating Systems
6)	4	Theory	GE8291 - Environmental Science and Engineering
7)	4	Practical	CS8481 - Database Management Systems Laboratory
8)	4	Practical	CS8461 - Operating Systems Laboratory
9)	4	Practical	HS8461 - Advanced Reading and Writing
10)	6	Theory	CS6601 - Distributed Systems
11)	6	Theory	IT6601 - Mobile Computing
12)	6	Theory	CS6659 - Artificial Intelligence
13)	6	Theory	CS6660- Compiler Design
14)	6	Theory	IT6602 - Software Architectures
15)	6	Theory	GE6757 - Total Quality Management
16)	6	Practical	IT6611 - Mobile Application Development Laboratory
17)	6	Practical	IT6612 - Compiler Laboratory
18)	6	Practical	GE6674 - Communication and Soft Skills - Laboratory
19)	8	Theory	IT6801 - Service Oriented Architecture
20)	8	Theory	GE6075 - Professional Ethics in Engineering
21)	8	Theory	CS6010 - Social Network Analysis
22)	8	Theory	IT6013 - Software Quality Assurance
23)	8	Project	IT6811 – Project Work

Fourth Semester B.Tech.

MA8391 - Probability and Statistics

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon.
CO2	Understand the basic concepts of one and two dimensional random variables and apply in engineering applications.
CO3	Apply the concept of testing of hypothesis for small and large samples in real life problems.
CO4	Apply the basic concepts of classifications of design of experiments in the field of agriculture and statistical quality control.
CO5	Have the notion of sampling distributions and statistical techniques used in engineering and management problems.
CO6	Understands the basics of distributions and statistical methods for life problems and research.

CS8491 - Computer Architecture

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Understand the basics structure of computers, operations and instructions
CO2	Design arithmetic and logic unit.
CO3	Understand pipelined execution and design control unit
CO4	Understand parallel processing architectures
CO5	Understand the various memory systems and I/O communication

CS8492 - Database Management Systems

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Classify the modern and futuristic database applications based on size and complexity
CO2	Map ER model to Relational model to perform database design effectively
CO3	Write queries using normalization criteria and optimize queries
CO4	Compare and contrast various indexing strategies in different database systems
CO5	Appraise how advanced databases differ from traditional databases.

CS8451 - Design and Analysis of Algorithms

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Explain the Analysis of Algorithm Efficiency and Compare the Mathematical analysis for Recursive and Non-recursive algorithms
CO2	Identify the efficiency of Brute Force And Divide-And-Conquer technique algorithms.
CO3	Identify the efficiency of Dynamic Programming And Greedy Technique algorithms.
CO4	Solve the problems using Iterative Improvement technique.
CO5	Solve the problems using Backtracking and Branch and Bound Technique.
CO6	Outline the limitations of Algorithm power.

CS8493 - Operating Systems

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Gain Knowledge in various concepts, structures and functions of Operating Systems
CO2	Analyze various scheduling algorithms, deadlock, prevention and avoidance algorithms
CO3	Compare and contrast various memory management schemes
CO4	Understand the functionality of file systems
CO5	Perform administrative tasks on Linux Servers
CO6	Compare iOS and Android Operating Systems

GE8291 - Environmental Science and Engineering

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Public awareness of environment at infant stage.
CO2	Ignorance and incomplete knowledge has lead to misconceptions.
CO3	Development and improvement in standard of living has lead to serious environmental disasters.

Laboratory

CS8481 - Database Management Systems Laboratory

COs	Course Outcome: The students, after the completion of the course, are expected to
CO1	Use typical data definitions and manipulation commands.
CO2	Design applications to test Nested and Join Queries
CO3	Implement simple applications that use Views
CO4	Implement applications that require a Front-end Tool
CO5	Critically analyze the use of Tables, Views, Functions and Procedures

CS8461- Operating Systems Laboratory

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Compare the performance of various CPU Scheduling Algorithms
CO2	Implement Deadlock avoidance and Detection Algorithms
CO3	Implement Semaphores
CO4	Create processes and implement IPC
CO5	Analyze the performance of the various Page Replacement Algorithms
CO6	Implement File Organization and File Allocation Strategies

HS8461 - Advanced Reading and Writing

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Write different types of essays.
CO2	Write winning job applications.
CO3	Read and evaluate texts critically.
CO4	Display critical thinking in various professional contexts.

Sixth Semester B.Tech

CS6601 - Distributed Systems

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Illustrate the trends in Distributed Systems.
CO2	Apply and build applications based on Remote Procedure call and remote method invocation and objects.
CO3	Classify the working of peer to peer network.
CO4	Infer knowledge on issues related to File system services.
CO5	Apply synchronization and replication techniques.
CO6	Interpret process and resource management systems.

IT6601 - Mobile Computing

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Explain the basics of mobile telecommunication system
CO2	Choose the required functionality at each layer for given application
CO3	Identify solution for each functionality at each layer.
CO4	Use simulator tools and design Ad hoc networks
CO5	Develop a mobile application.

CS6659 - Artificial Intelligence

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Formulate Identify search strategies and solve any given problem.
CO2	Represent knowledge using predicate logic.
CO3	Infer knowledge by applying various Inference algorithm.
CO4	Be able to solve any real time problem using SIRIPS Algorithm.
CO5	Be able to understand and develop expert system for any real time applications.

CS6660- Compiler Design

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Describe the various phases of Compiler and their significance to Compiler Construction
CO2	Apply the lexical rules for various types of underlying grammars of programming languages
CO3	Apply the semantic rules to various types of parsing algorithms
CO4	Apply optimization rules to various programming structures
CO5	Construct the target codes using different code generation algorithms

IT6602 - Software Architectures

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Ability to understand the software architectural requirements, drivers and to explain about the influence of software architecture on business and technical activities.
CO2	Able to analyze the quality attribute workshop and to apply the concept to prepare the documentation on quality attribute.
CO3	Ability to understand, identify the key architectural structures and to use the views to specify architecture.

CO4	Ability to use & evaluate the styles to specify architecture.
CO5	Ability to design document for a given architecture.
CO6	Ability to understand the software architectural requirements, drivers and to explain about the influence of software architecture on business and technical activities.

GE6757 - Total Quality Management

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Understands the need for quality, quality management principles and TQM framework.
CO2	Understands the quality planning, leaderships, employee's motivational factor, team work and continuous process improvement.
CO3	Apply the traditional and new management tools and techniques to enhance quality.
CO4	Understand and apply concepts of six sigma, QFD and TPM.
CO5	Understand the need of various Quality Systems and Auditing on implementation of TQM.

Laboratory

IT6611 - Mobile Application Development Laboratory

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Design and Implement various mobile applications using emulators.
CO2	Deploy applications to hand-held devices

IT6612 - Compiler Laboratory

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Implement the different Phases of compiler using tools
CO2	Analyze the control flow and data flow of a typical program
CO3	write a optimized program
CO4	develop an assembly language program equivalent to a source language program
CO5	Implement the different Phases of compiler using tools

GE6674 - Communication and Soft Skills - Laboratory

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Take International examination such as IELTS and TOEFL.
CO2	Make Presentations and Participate in Group Discussions.
CO3	Successfully answer questions in interviews.

Eighth Semester B.Tech. IT6801 - Service Oriented Architecture

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Be exposed to fundamentals of XML.
CO2	Build applications based on XML.
CO3	Gain knowledge on service oriented architecture characteristics, layers and benefits.
CO4	Understand the key principles behind SOA.
CO5	Develop web services using technology elements.
CO6	Build SOA-based applications for intra-enterprise and inter-enterprise applications.

GE6075 - Professional Ethics in Engineering

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Create awareness on human values and apply ethics in society.
CO2	To Identify an ethical issue and assess variety of moral issues using ethical theories in engineering.
CO3	To analyze engineering, social experimentation and engineers as responsible experimenters.
CO4	To realize engineer's safety and their responsibilities, professional rights, employee rights, and intellectual property rights.
CO5	To interpret various types of ethics like business ethics, environmental ethics and computer ethics.
CO6	To take part an engineer's as managers, consulting engineers, engineers as expert witness and advisors.

CS6010 - Social Network Analysis

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Examine semantic web related applications
CO2	To illustrate knowledge using ontology.
CO3	Relating mining communities in Web Social Networks
CO4	Predict human behavior in social web and related communities
CO5	Apply and Visualize social networks

IT6013 - Software Quality Assurance

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Understands the need for software Quality
CO2	Apply the concepts in preparing the quality plan & documents.
CO3	Utilize the concepts in software development life cycle.
CO4	Assess the quality of software product.
CO5	Analyze the software metrics and costs of software quality
CO6	Demonstrate their capability to adopt quality standards.

Laboratory

IT6811 - Project Work

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	To develop an ability to solve a specific problem right from its identification and literature review till the successful solution of the same.
CO2	To train the students in preparing project reports and to face reviews and viva voce examination
CO3	To be exposed to real world problems