

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

Department of Computer Science and Engineering

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	EC 8395 – Communication Engineering
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	MA6566 – Discrete Mathematics
11)	5	Theory	CS6501- Internet Programming
12)	5	Theory	CS6502 – Object Oriented Analysis and Design
13)	5	Theory	CS6503 – Theory of Computation
14)	5	Theory	CS6504 – Computer Graphics
15)	5	Practical	CS6511- Case Tools Laboratory
16)	5	Practical	CS6512 - Internet Programming Lab
17)	5	Practical	CS6513 - Computer Graphics Lab
18)	7	Theory	CS6701 – Cryptography and Network Security
19)	7	Theory	CS6702 – Graph Theory and Applications
20)	7	Theory	CS6703 – Grid and Cloud Computing
21)	7	Theory	CS6704 – Resource Management Techniques
22)	7	Theory	CS6007 – Information Retrieval
23)	7	Theory	IT6801 – Service Oriented Architecture
24)	7	Practical	CS6711 - Security Lab
25)	7	Practical	CS6712-Grid and Cloud Computing Lab

Course Outcomes – EVEN Semester 2018-19

Sl. No.	Semester	Theory/ Practical	Course Code / Course Name
1)	4	Theory	CS8494 – Software Engineering
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	MA8402 - Probability and Queuing Theory
6)	4	Theory	CS8493 - Operating Systems
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	CS6600 – Compiler Design
13)	6	Theory	CS6659 – Artificial Intelligence
14)	6	Theory	IT6502 - Digital Signal Processing
15)	6	Theory	GE6757 – Total Quality Management
16)	6	Practical	CS6611 - Mobile Application Development Laboratory
17)	6	Practical	CS6612 - Compiler Laboratory
18)	6	Practical	GE6674 - Communication and Soft Skills - Laboratory Based
19)	8	Theory	GE6075–Professional Ethics in Engineering
20)	8	Theory	CS6801 - Multi-Core Architectures and Programming
21)	8	Theory	CS6010-Social Network Analysis
22)	8	Practical	CS6811- Project Work

ODD Semester 2018-19

3rd Semester B.E. CSE

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.
CO2	Apply the different linear data structures like stack and 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 the hashing technique and hash functions.

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.

EC 8395 – Communication Engineering

COs Course Outcome : The students, after the completion of the course, are expected to

....

CO1 Describe the concepts of analog modulation systems

CO2 Illustrate pulse communication techniques.

CO3 Summarize the concepts of digital modulation systems

CO4 Implement the source coding and Error control techniques.

CO5 Explain the basic principles in the generation spread spectrum signals

CO6 Explain the methods for multiple access in communication systems.

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

CO2 Develop and implement Java programs with arraylist

CO3 Develop and implement Java programs for simple applications that make use of classes

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

5th Semester B.E. CSE

MA6566 – Discrete Mathematics

COs Course Outcome : The students, after the completion of the course, are expected to

....

CO1 Summarize the concept of elementary mathematical logical arguments.

CO2 Apply basic counting techniques to solve combinatorial problems.

CO3 Associate the applications of Graph theory models and data structures.

CO4 Describe the concepts and properties of algebraic structures such as groups, rings and fields.

CO5 Extend the concepts of Boolean algebra in the area of lattices.

CO6 Apply the knowledge of argumenal discrete mathematical problems.

CS6501- Internet Programming

COs Course Outcome : The students, after the completion of the course, are expected to

....

CO1 Understand and apply the basic java programming concepts

CO2 Create a basic website using HTML and Cascading Style Sheets

CO3 Design and implement dynamic web page with validation using JavaScript objects and by applying different event handling mechanisms

CO4 Design and implement server side programs using servlets, JDBC and JSP

CO5 Design and implement simple web page in PHP, and to present data in XML format

CO6 Design a simple web page using AJAX

CS6502 – Object Oriented Analysis and Design

COs Course Outcome : The students, after the completion of the course, are expected to

....

CO1 Explain OOAD concepts and various UML diagrams.

CO2 Select an appropriate design pattern

CO3 Illustrate about domain models and conceptual classes

CO4 Compare and contrast various testing techniques

CO5 Develop Code from Design

CO6 Demonstrate various designing Techniques

CS6503 – Theory of Computation

COs Course Outcome : The students, after the completion of the course, are expected to

....

CO1 Design finite state machines for acceptance of strings

CO2 Classify different types of grammars, Build grammars for a given language and vice versa

CO3 Develop pushdown automata accepting strings

CO4 Design Turing machine

CO5 Distinguish Decidability and Un-decidability of various problems

CO6 Design finite state machines for acceptance of strings

CS6504 – Computer Graphics

COs Course Outcome : The students, after the completion of the course, are expected to

....

CO1 Demonstrate the overview of graphics system and make use of various drawing algorithms of output primitives

CO2 Experiment with the geometric transformations and different algorithms for viewing and clipping in two dimensional graphics related problems.

CO3 Explain the methods to represent two dimensional objects in computer graphics

CO4 Experiment with the geometric transformations and different algorithms for viewing and clipping in three dimensional graphics related problems.

CO5 Classify the basic illumination models and different colour models that plays important role in computer graphics

CO6 Summarize the animation and realism effects in computer graphics.

Laboratory

CS6511- Case Tools Laboratory

COs Course Outcome : The students, after the completion of the course, are expected to

....

CO1 Design and implement projects using OO concepts.

CO2 Use the UML analysis and design diagrams.

CO3 Apply appropriate design patterns.

CO4 Create code from design.

CO5 Compare and contrast various testing techniques.

CS6512 - Internet Programming Laboratory

COs Course Outcome : The students, after the completion of the course, are expected to

....

CO1 Design Web pages using HTML/XML and style sheets.

CO2 Create user interfaces using Java frames and applets.

CO3 Create dynamic web pages using server side scripting.

CO4 Write Client Server applications.

CO5 Use the frameworks JSP Strut, Hibernate, Spring.

CO6 Create applications with AJAX.

CS6513 - Computer Graphics Laboratory

COs Course Outcome : The students, after the completion of the course, are expected to

....

CO1 Create 3D graphical scenes using open graphics library suits.

CO2 Implement image manipulation and enhancement.

CO3 Create 2D animations using tools.

7th Semester B.E. CSE

CS6701 – Cryptography and Network Security

COs Course Outcome : The students, after the completion of the course, are expected to

....

CO1 Illustrate the principles of number theory and compare various cryptographic techniques.

CO2 Demonstrate how Block Ciphers such as DES, AES, Triple DES, RC5 and public key crypto-systems are implemented.

CO3 Apply hash function and digital signatures to implement authentication protocols

CO4 Illustrate the role of firewall in implementing trusted systems

CO5 Analyze how applications can be secured

CO6 Illustrate secure coding in the developed applications

CS6702 – Graph Theory and Applications

COs Course Outcome : The students, after the completion of the course, are expected to

....

CO1 Explain the precise and accurate mathematical definitions of objects in graph theory.

CO2 Identify spanning trees, cut sets, isomorphism and different representations of a planar graph

CO3 Explain chromatic characteristics and directed graphs.

CO4 Solve problems on permutations and combinations.

CO5 Make use of the knowledge of generating functions to solve problems.

CO6 Solve problems on recurrence relations

CS6703 – Grid and Cloud Computing

COs Course Outcome : The students, after the completion of the course, are expected to

....

CO1 Describe the 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 scientific problems

CO6 Understand the security issues in the grid and the cloud environment.

CS6704 – Resource Management Techniques

COs Course Outcome : The students, after the completion of the course, are expected to

....

CO1 Use Simplex method to solve optimization problems

CO2 Solve the problems to find minimum cost and shortest route

CO3 Apply integer programming to solve real-life applications

CO4 Apply the methods to solve Non-linear programming problems

CO5 Use CPM for project management

CO6 Use PERT for project management

CS6007 – Information Retrieval

COs Course Outcome : The students, after the completion of the course, are expected to

....

CO1 Explain the various components and open source frameworks of information retrieval

CO2 Summarize the various models for information retrieval system

CO3 Interprets the functions of web search engines

CO4 Demonstrate the link analysis concepts to provide better search results

CO5 Use the concepts of specialized search to provide recommendation systems to users

CO6 Apply the text mining algorithms to web documents

IT6801 – Service Oriented Architecture

COs Course Outcome : The students, after the completion of the course, are expected to

....

CO1 Explain the fundamentals of XML

CO2 Develop applications based on XML

CO3 Discuss the key principles of SOA

CO4 Describe the web services concepts

CO5 Develop and test web services

CO6 Solve enterprise problems using SOA

Laboratory

CS6711 - Security Laboratory

COs Course Outcome : The students, after the completion of the course, are expected to

....

CO1 Implement the cipher techniques.

CO2 Develop the various security algorithms.

CO3 Use different open source tools for network security and analysis.

CS6712 - Grid and 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

EVEN Semester

4th Semester – B.E. CSE

CS8494 – Software Engineering	
COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Identify the key activities in managing a software project and recognize different process model
CO2	Explain the concepts of Requirements Engineering and Analysis Modeling.
CO3	Outline the systematic procedures for software design and deployment.
CO4	Compare various testing and maintenance methods
CO5	Interpret the project schedule, estimate project cost and effort required.
CO6	Outline various risk management activities and identifying risks through RMMM Plan.

CS8491 – Computer Architecture	
COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Demonstrate the basic structure and operation of a computer, Instructions and Addressing mode.
CO2	Describe the various operations of ALU using fixed point and floating point representations.
CO3	Develop the model for the pipelining and handling hazards.
CO4	Illustrate parallelism and multi core processor.
CO5	Evaluate the memory hierarchical system including cache memory and virtual memory.
CO6	Discuss the different ways of communicating with I/O devices and I/O interfaces.

CS8492–Database Management Systems	
COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Discuss the fundamental concepts of relational database and SQL
CO2	Use ER model for Relational model mapping to perform database design effectively
CO3	Summarize the properties of transactions and concurrency control mechanisms
CO4	Outline the various storage and optimization techniques
CO5	Compare and contrast various indexing strategies in different database systems
CO6	Explain the different advanced 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.

MA8402 - Probability and Queuing Theory

COs	Course Outcome : The students, after the completion of the course, are expected to

CO1	Find the distribution and measures of Discrete and continuous random variables
CO2	Evaluating the measures of two dimensional Discrete and continuous random variables
CO3	Apply the concept of random processes to characterize a random signal.
CO4	Examine Queuing Models and find the characteristics of Queuing system
CO5	Analyzing series Queues and Queuing networks

CS8493-Operating Systems

COs	Course Outcome : The students, after the completion of the course, are expected to

CO1	Explain the overall view of the computer system and operating system.
CO2	Apply various CPU scheduling algorithms, synchronization primitives and deadlock handling methods
CO3	Compare and contrast various memory management schemes and file system functionalities
CO4	Analyze the performance of the various page replacement algorithms and interpret the file system implementation, sharing and protection mechanisms.
CO5	Analyze the performance of the various disk scheduling algorithms
CO6	Demonstrate administrative tasks on Linux servers and to be familiar with the basics of Mobile OS like iOS and Android

Laboratory

CS848- 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.

6th Semester B.E. CSE

CS6601 - Distributed Systems

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Discuss the various trends and examples in distributed systems
CO2	Explain how communication takes place in distributed systems via IPC and indirect communication methods
CO3	Explain the role of remote method invocation process to implement communication in distributed systems.
CO4	Make use of the peer-to-peer system and file system concepts that are intended to implement in distributed system.
CO5	Discuss how the time and global states and fault tolerant services are involved in distributed systems
CO6	Discuss the management of process and resources in distributed systems.

IT6601 – Mobile Computing

COs Course Outcome : The students, after the completion of the course, are expected to

....

- CO1 Describe the basic concepts of mobile computing.
- CO2 Identify the required functionality at each layer for given application
- CO3 Explain the basics of mobile telecommunication system
- CO4 Illustrate the characteristics and Design Issues of mobile ad hoc networks
- CO5 Recognize about different mobile platforms and application development.

CS6600 – Compiler Design

COs Course Outcome : The students, after the completion of the course, are expected to

....

- CO1 Understand the basics of compilers and programming languages.
- CO2 Design a lexical analyzer and use LEX tool.
- CO3 Learn various parsing techniques, design a syntax analyzer and use YACC tool.
- CO4 Design different types of translations with type conversions.
- CO5 Understand the various storage allocation strategies.
- CO6 Apply the various optimization techniques and design code generator.

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 algorithms
- CO4 Able to solve any real time problem using STRIPS planning algorithm
- CO5 Able to understand and develop expert systems for any real time application

IT6502 Digital Signal Processing

COs Course Outcome : The students, after the completion of the course, are expected to

....

- CO1 Understand the properties of Signals and Systems.
- CO2 Analyze the sampling process and analysis of discrete time systems using Z transform.
- CO3 Apply DFT & FFT to analyze discrete time signal.
- CO4 Design IIR filter by impulse invariance and bilinear transformation technique.
- CO5 Construct FIR filter and develop the windowing technique.
- CO6 Examine the finite word length effects and minimize the quantization errors.

GE6757 – Total Quality Management

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Explain the customer care management systems
CO2	Apply the leadership qualities in management
CO3	Explain the Benchmark in manufacturing system
CO4	Execute the Quality Management principles using six sigma
CO5	Explain the ISO Auditing system

Laboratory

CS6611 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

CS6612 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	Optimize a given program
CO4	Generate an assembly language program equivalent to a source language program

GE6674 Communication and Soft Skills - Laboratory Based

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.

8th Semester B.E. CSE

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 engineers' 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 engineers as managers, consulting engineers, engineers as expert witness and advisors.

CS6801 - Multi-Core Architectures and Programming

COs	Course Outcome : The students, after the completion of the course, are expected to
CO1	Understand the different Computer Architectures of multi-core systems access the performance of parallel programs
CO2	Design and Analyze the performance of the parallel programs
CO3	Compare and contrast various synchronization and synchronization primitives used in parallel programs
CO4	Design and develop shared memory programming using OpenMP
CO5	Design and develop distributed memory programming using MPI
CO6	Apply parallel programming constructs , namely OpenMP and MPI to solve problems

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	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

Laboratory

CS6811- PROJECT WORK

COs **Course Outcome : The students, after the completion of the course, are expected to**

...

CO1 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