Department of Computer Science and Engineering

B.E. 3rd Sem

Course: Engineering Mathematics- III

Course Code: (3KS01)

At the end of Engineering Mathematics-III course the student will be able to:

CO NO.	Course Outcome	Level
CO 1	Apply the knowledge of Ordinary Linear Differential equations to solve engineering problems.	L3
CO 2	Apply Laplace Transform to solve ordinary linear Differential Equations.	L3
CO 3	Apply Fourier Transform to connect the time domain and Frequency domain	L3
CO 4	Identify and solve certain forms of partial difference equations as applied to discrete systems.	L2
CO 5	Comprehend knowledge of complex analysis in terms of complex variables, harmonic functions and conformal mapping	L2
CO 6	Apply knowledge of vector calculus to calculate the area, line and volume integral off surface.	L3

Course: Discrete Structure and Graph TheoryCourse Code: (3KS02)

At the end of Discrete Structure and Graph Theory course, the students will be able to:

CO NO.	Course Outcome	Level
CO 1	Apply mathematical induction and other techniques to prove mathematical results.	L3
CO 2	Analyze and express logic sentence in terms of predicates, quantifiers, and logical connectives.	L4
CO 3	Discover the solution for a given problem using deductive logic and prove the solution based on logical inference.	L1
CO 4	Classify algebraic structure for a given mathematical problem.	L2
CO 5	Perform combinatoric analysis to solve counting problems and perform operation on tree.	L4
CO 6	Develop the given problem as graph network and solve with the techniques of graph theory.	L5

Course: Object Oriented Programming

Course Code: (3KS03)

At the end of Object-Oriented Programming course, the student will be able to:

CO NO.	Course Outcome	Level
CO 1	Apply Object Oriented approach to design software.	L3
CO 2	Implement programs using classes and objects.	L3
CO 3	Illustrate the forms of inheritance and use them in programs.	L3
CO 4	Analyze polymorphic behavior of objects.	L4
CO 5	Design and develop GUI programs.	L5
CO 6	Develop Applets for web applications.	L5

Course: Data Structures

Course Code: (3KS04)

At the end of Data Structures course the student will be able to:

CO NO.	Course Outcome	Level
CO 1	Describe basic mathematical and algorithmic concepts of data structures.	L1
CO 2	Demonstrate operations like insertion, deletion, searching and traversing on various data structures.	L3
CO 3	Discuss and employ the concepts of linked list.	L3
CO 4	Apply concepts of stacks and queues for different expressions and notations.	L3
CO 5	Implement and examine the concepts of trees and related algorithms.	L4
CO 6	Construct graphs and evaluate sorting algorithms.	L5

Course: Analog & Digital Electronics

Course Code: (3KS05)

At the end of Analog & Digital Electronics course the student will be able to:

CO NO.	Course Outcome	Level
CO 1	Explain basic concepts of semiconductor devices and its application.	L2
CO 2	Explain different types of Field Effect Transistors.	L2
CO 3	Compare different Number Systems and basics of conversion of number systems.	L2
CO 4	Compute different minimization techniques to obtain minimized expression.	L3
CO 5	Design combinational circuits.	L5
CO 6	Design and develop sequential circuits.	L5

Lab: Object Oriented Programming

Lab Code: (3KS06)

At the end of Object-Oriented Programming lab course, the student will be able to:

LO NO.	Laboratory Outcome	Level
LO 1	Use of operators, different constructs to implement Java Programs	L3
LO 2	Apply various concepts of classes and objects for implementing java programs	L3
LO 3	Create various GUI applications with event handling using AWT controls.	L5

Lab: Data Structures

Lab Code: (3KS07)

At the end of Data Structure Lab course, the students will be able to:

LO NO.	Laboratory Outcome	Level
LO 1	Explain Linear and Non-linear DS and its memory representation, data representation.	L2
LO 2	Demonstrate different operations on data structures such as insertion, deletion, searching and traversing.	L3
LO 3	Describe various techniques for representation of the data in the real world.	L1

Lab: Analog & Digital Electronics

Lab Code: (3KS08)

At the end of Analog and Digital Electronics lab course the student will be able to:

LO NO.	Laboratory Outcome	Level
LO 1	Illustrate diode and transistor characteristics.	L3
LO 2	Construct the circuit for different logic gates and verify its truth table.	L4
LO 3	Design combinational circuits like Adder, Subtractor, Multiplexer, Demultiplexer, Encoder, Decoder and Comparator.	L6
LO 4	Design Sequential circuits like shift register and counters.	L6

Lab: C Skill Lab-I

Lab Code: (3KS09)

At the end of C Skill Lab-I course the student will be able to:

LO NO.	Laboratory Outcome	Level
LO 1	Describe the Numbers, Math functions, Strings, List, Tuple and Dictionaries in python	L1
LO 2	Interpret different Decision Making statements, Functions in python	L4
LO 3	Summarize different file handling operation	L5

B.E. 4th Sem

Course: Artificial Intelligence

Course Code: (4KS01)

At the end of Artificial Intelligence course, the student will be able to:

CO NO.	Course Outcome	Level
CO 1	Explain concepts of Artificial Intelligence and different types of intelligent agents and their architecture.	L2
CO 2	Formulate problems as state space search problem & efficiently solve them.	L5
CO 3	Summarize the various searching techniques, constraint satisfaction problem and example problems - game playing techniques.	L5
CO 4	Apply AI techniques in applications which involve perception, reasoning and learning.	L3
CO 5	Apply AI and adversarial search techniques for games	L3
CO 6	Compare the importance of knowledge, types of knowledge, issues relate to knowledge acquisition and representation.	L4

Course: Data Communication and Networking Course Code: (4KS02)

At the end of Data Communication and Networking course the student will be able to:

CO NO.	Course Outcome	Level
CO 1	Describe the functions of each layer in OSI and TCP/IP model.	L1
CO 2	Explain the functions of Application layer and Presentation layer paradigms and Protocols.	L1
CO 3	Describe the Transport layer and Transport layer services.	L2
CO 4	Categorize the routing protocols and analyze how to assign the IP addresses for the given network.	L4
CO 5	Describe the functions of data link layer and explain the protocols.	L2
CO 6	Explain the types of transmission media with real time applications.	L2

Course: Operating System

Course Code: (4KS03)

At the end of Operating System course, the student will be able to:

CO NO.	Course Outcome	Level
CO 1	Explain memory management issues like external fragmentation, internal fragmentations.	L2
CO 2	Illustrate multithreading and its significance.	L3
CO 3	Demonstrate various protection and security mechanisms of OS.	L3
CO 4	Analyze and solve the scheduling algorithms.	L4
CO 5	Analyze the deadlock situation and resolve it.	L4
CO 6	Discuss various types of operating Systems.	L2

Course: Microprocessor and Assembly Language Programming

Course Code: (4KS04)

At the end of Microprocessor and Assembly Language Programming course the student will be able to:

CO NO.	Course Outcome	Level
CO 1	Describe 8086 microprocessor and its architecture; also learn instruction processing during the fetch-decode-execute cycle.	L1
CO 2	Design and Test assembly language programs using 8086 microprocessor instruction set.	L5
CO 3	Demonstrate the implementation of standard programming constructs, including control structures and functions, in assembly language.	L2
CO 4	Illustrate and realize the Interfacing of memory & various I/O devices with 8086 microprocessors.	L3
CO 5	Describe in details concept of 8086 Interrupt and its types.	L2
CO 6	Explain the basic concepts of Internet of Things.	L2

Course: Theory of Computation

Course Code: (4KS05)

At the end of Theory of Computation course, the student will be able to:

CO NO.	Course Outcome	Level
CO 1	Construct finite state machines to solve problems in computing.	L5
CO 2	Write regular expressions for the formal languages	L3
CO 3	Construct and apply well defined rules for parsing techniques in compiler	L5
CO 4	Construct and analyze Push Down, Turing Machine for formal languages.	L5
CO 5	Express the understanding of the Chomsky Hierarchy.	L2
CO 6	Express the understanding of the decidability and un-decidability problems.	L2

Lab: Data Communication and Networking

Lab Code: (4KS06)

At the end of Data Communication and Networking course the student will be able to:

LO NO.	Laboratory Outcome	Level
LO 1	Describe the functions of each layer in OSI and TCP/IP model	L2
LO 2	Classify the routing protocols and analyze how to assign the IP addresses for the given network	L2
LO 3	Explain the types of transmission media with real time applications	L2

Lab: Operating System

Lab Code: (4KS07)

At the end of Operating System lab course, the student will be able to:

LO NO.	Laboratory Outcome	Level
LO 1	Describe and implement the basic concepts of OS with its commands.	L2
LO 2	Write code to implement CPU scheduling algorithms such as FCFS, Round Robin, SJF, and Priority.	L5
LO 3	Illustrate Page replacement algorithms and contiguous memory allocation strategies.	L3

Lab: Microprocessor and Assembly Language Programming

Lab Code: (4KS08)

At the end of Microprocessor and Assembly Language Programming course the student will be able to:

LO NO.	Laboratory Outcome	Level
LO 1	Design and develop programs in Assembly Language Programming	L5
LO 2	Design and Test assembly language programs using 8086 microprocessor instruction set.	L5
LO 3	Illustrate and realize the Interfacing of memory & various I/O devices with 8086 microprocessors.	L3

Course C Skill Lab-II Course Code: (4KS09)

At the end of C Skill Lab-II course, the student will be able to:

LO NO.	Laboratory Outcome	Level
LO 1	Use scripting languages to develop web applications.	L3
LO 2	Apply various operations on the web page.	L3
LO 3	Illustrate the selection sort algorithm to sort a list of student records.	L3