

**Pillai HOC College of Engineering and Technology, Rasayani**

Department of Electronics and Computer Science

Class/Sem: S.E/III

Course Name: Applied Mathematics-III

The students will be able to:

Course Code	Course Outcome Statements
ECC301.1	Apply the concept of Laplace transform to solve the real integrals in engineering problems.
ECC301.2	Apply the concept of inverse Laplace transform of various functions in engineering problems.
ECC301.3	Expand the periodic function by using Fourier' series for real life problems and complex engineering problems.
ECC301.4	Find orthogonal trajectories and analytic function by using basic concepts of complex variables.
ECC301.5	Illustrate the use of matrix algebra to solve the engineering problems.
ECC301.6	Apply the concepts of vector calculus in real life problems.

The students will be able to:

Course Code	Course Outcome Statements
ECC302.1	Explain the working of semiconductor devices.
ECC302.2	Interpret the characteristics of semiconductor devices.
ECC302.3	Analyze Electronics circuits using BJT and FET (DC & AC analysis).
ECC302.4	Compare various biasing circuits & configurations of BJT and MOSFETs.
ECC302.5	Select best circuit for the given specifications/ application.
ECC302.6	Describe the working of advanced nanoelectronic devices.

The students will be able to:

Course Code	Course Outcome Statements
ECC303.1	Perform code conversion and able to apply Boolean algebra for the implementation and minimization of logic functions.
ECC303.2	Analyze, design and implement Combinational logic circuits.
ECC303.3	Analyze, design and implement Sequential logic circuits.
ECC303.4	Design and implement various counter using flip flops and MSI chips.
ECC303.5	Understand TTL & CMOS logic families, PLDs, CPLD and FPGA.
ECC303.6	Understand basics of Verilog Hardware Description Language and its programming with combinational and sequential logic circuits.

Class/Sem: S.E/III

Course Name: Data Structures and Algorithms

The students will be able to:

Course Code	Course Outcome Statements
ECC304.1	Implement various linear data structures.
ECC304.2	Implement various nonlinear data structures.
ECC304.3	Select appropriate sorting and searching techniques for a given problem and use it.
ECC304.4	Develop solutions for real world problems by selecting appropriate data structure and algorithms.
ECC304.5	Analyze the complexity of the given algorithms.

Class/Sem: S.E/III

Course Name: Database Management Systems

The students will be able to:

Course Code	Course Outcome Statements
ECC305.1	Recognize the need of database management system.
ECC305.2	Design ER and EER diagram for real life applications.
ECC305.3	Construct relational model and write relational algebra queries.
ECC305.4	Formulate SQL queries.
ECC305.5	Apply the concept of normalization to relational database design.
ECC305.6	Concurrency and recovery.

Class/Sem: S.E/III

Course Name: Skill base Lab - OOPM:  
(C++ & Java)

The students will be able to:

Course Code	Course Outcome Statements
ECL305.1	Use C++ in programming.
ECL305.2	Use different control structures.
ECL305.3	Understand fundamental features of an object-oriented language: object classes and interfaces, exceptions and libraries of object collections.
ECL305.4	Understand Java Programming.
ECL305.5	To develop a program that efficiently implements the features and packaging concept of java in laboratory.
ECL305.6	To implement Exception Handling and Applets using Java.

The students will be able to:

Course Code	Course Outcome Statements
ECM301.1	Identify problems based on societal /research needs.
ECM301.2	Apply knowledge and skill to solve societal problems in a group.
ECM301.3	Develop interpersonal skills to work as member of a group or leader.
ECM301.4	Draw the proper inferences from available results through theoretical/ experimental simulations.
ECM301.5	Analyze the impact of solutions in societal and environmental context for sustainable development.
ECM301.6	Use standard norms of engineering practices
ECM301.7	Excel in written and oral communication.
ECM301.8	Demonstrate capabilities of self-learning in a group, which leads to life-long learning.
ECM301.9	Demonstrate project management principles during project work.

The students will be able to:

Course Code	Course Outcome Statements
ECC401.1	Use the concepts of Complex Integration for evaluating integrals, computing residues & evaluate various contour integrals.
ECC401.2	Demonstrate the use of Correlation and Regression to the engineering problems in data science, machine learning and AI.
ECC401.3	Illustrate understanding of the concepts of probability and expectation for getting the spread of the data and distribution of probabilities.
ECC401.4	Apply the concept of vector spaces and orthogonalization process in Engineering Problems.
ECC401.5	Use the concept of Quadratic forms and Singular value decomposition in various Engineering applications.
ECC401.6	Find the extremals of the functional using the concept of Calculus of variation.

The students will be able to:

Course Code	Course Outcome Statements
ECC402.1	Evaluate the performance of amplifiers through frequency response.
ECC402.2	Analyze differential amplifiers for various performance parameters
ECC402.3	Express mathematically the performance parameters in terms of circuit parameters.
ECC402.4	Choose appropriate circuit for the given specifications/ applications.
ECC402.5	Describe various applications and circuits based on operational amplifiers.
ECC402.6	Design an application with the use of integrated circuits.

Class/Sem: S.E/IV

Course Name: Controls and Instrumentation

The students will be able to:

Course Code	Course Outcome Statements
ECC403.1	Derive the transfer functions for the given control systems.
ECC403.2	Analyze the performance of control systems based on the time domain and frequency domain specifications.
ECC403.3	Judge the stability of the given control systems using appropriate stability criteria.
ECC403.4	Understand and explain the working principle of sensors and transducers.
ECC403.5	Explain various parameters of data acquisition systems.
ECC403.6	Describe instrument communication standards.

Class/Sem: S.E/IV

Course Name: Microprocessors and Microcontrollers

The students will be able to:

Course Code	Course Outcome Statements
ECC404.1	Explain 16-bit Microprocessor architectures and fundamental concepts of Microcontrollers.
ECC404.2	To develop programming skills for Microprocessors and Microcontrollers.
ECC404.3	To interface various devices in Microprocessor and Microcontroller systems.
ECC404.4	To design and implement Microprocessor and Microcontroller based systems.

Class/Sem: S.E/IV

Course Name: Discrete Structures and Automata Theory

The students will be able to:

Course Code	Course Outcome Statements
ECC405.1	Understand the notion of mathematical thinking, mathematical proofs and to apply them in problem solving.
ECC405.2	Reason Logically.
ECC405.3	Perform operations with Sets, Relations, Functions, Graphs and their applications.
ECC405.4	Design Deterministic Finite Automata (DFA) and Non-deterministic Finite Automata (NFA) and pushdown Automata with understanding of power and limitations.
ECC405.5	Design Context Free Grammar and perform the operations like simplification and normal forms.
ECC405.6	Apply Discrete Structures and Automata Theory concepts into solving real world computing problems in the domain of Formal Specification, Verification, Artificial Intelligence etc.

Class/Sem: S.E/IV

Course Name: Skill-Based Lab: Python  
Programming

The students will be able to:

Course Code	Course Outcome Statements
ECL404.1	Describe syntax and semantics in Python.
ECL404.2	Illustrate different file handling operations.
ECL404.3	Interpret object-oriented programming in python.
ECL404.4	Design GUI Applications in Python.
ECL404.5	Express proficiency in the handling Python libraries for data science.
ECL404.6	Develop machine learning applications using python.

The students will be able to:

Course Code	Course Outcome Statements
ECM401.1	Identify problems based on societal /research needs.
ECM401.2	Apply Knowledge and skill to solve societal problems in a group.
ECM401.3	Develop interpersonal skills to work as member of a group or leader.
ECM401.4	Draw the proper inferences from available results, through theoretical/ experimental simulations.
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