



Department of Computer Science and Engineering

Course Outcomes

Regulation : (MLRS-R20)

At the end of the course, **the students will be able to:**

S. No	Course Name & Code	Year/sem	COURSE OUTCOMES
1	Engineering Mathematics-I 2010001	C111.1	Write the matrix representation of a set of linear equations and to analyze the solution of the system of equations.
		C111.2	Find the Eigen values, Eigen vectors and reduce the quadratic form to canonical form using orthogonal transformations.
		C111.3	Solve the applications on the mean value theorems and find the extreme values of functions of two variables with/ without constraints.
		C111.4	Evaluate the multiple integrals and apply the concept to find areas, volumes for cubes, sphere and rectangular parallelepiped.
		C111.5	Evaluate Multiple integration and its applications.
2	Engineering Chemistry 2010008	C112.1	Gain knowledge of atomic, molecular and electronic changes, band theory related to conductivity.
		C112.2	Understand the principles and concepts of electrochemistry, corrosion, problem of water and its treatments.
		C112.3	Acquire the skills on basic spectroscopy and apply to medical and other fields and gain knowledge on configurational and conformational analysis of molecules and reaction mechanisms.
		C112.4	Acquire the skills pertaining to spectroscopy and to apply them for medical and other fields.
		C112.5	Apply the knowledge of stereochemistry and synthetic aspects useful for understanding reaction pathways.
3	Program for Problem Solving	C113.1	Write algorithms and draw flowcharts for solving problems.
		C113.2	Convert the algorithms/flowcharts to C programs.
		C113.3	Code and test a given logic in C programming language and decompose

			a problem into functions and to develop modular reusable code.
		C113.4	Apply Searching and sorting for the given problems.
		C113.5	Apply structured programming approach in solving problems.
4	Communicative English 2010009	C114.1	Use English Language effectively in spoken and written forms.
		C114.2	Comprehend the given texts and respond appropriately.
		C114.3	Communicate confidently in various contexts in their profession and acquire basic proficiency in English including LSRW skills.
		C114.4	Use prewriting techniques to develop ideas and produce multiple drafts of different types of paragraphs.
		C114.5	Recognize and incorporate basic grammar, mechanics, and sentence variety in writing.
5	Engineering Chemistry Lab 2010073	C115.1	Understand various procedures for performing the experiments.
		C115.2	Explain the different measuring devices and meters to record the data.
		C115.3	Apply the mathematical concepts and equations to obtain quality results.
		C115.4	Evaluate the various parameters for different experiments accurately.
		C115.5	Synthesize the drug molecules and check the purity of organic molecules by thin layer chromatographic (TLC) technique.
6	Communicative English Lab 2010074	C116.1	Gain perception of nuances of English language through audio- visual experience.
		C116.2	Neutralization of accent for intelligibility.
		C116.3	Participate in group activities and improve speaking skills with clarity and confidence which in turn enhances their employability.
		C116.4	Apply effective communication skills in a variety of public and interpersonal settings.
		C116.5	Instill confidence and make them competent enough to express fluently and neutralize their mother tongue influence.

7	Programming for Problem SolvingLab2010571	C117.1	Formulate the algorithms for simple problems.
		C117.2	Develop programs based on condition checking.
		C117.3	Implement pyramid programs and able to perform matrix applications.
		C117.4	Modularize the code with functions to reuse it
		C117.5	Create, read and write to and from simple text and binary files.
8	Environmental Science 2010021	C118.1	Understand the technologies on the basis of ecological principles.
		C118.2	Apply the environmental regulations which in turn help in sustainable development.
		C118.3	Understand the various classifications of ecosystems and natural resources and apply environmental regulations to different acts.
		C118.4	Evaluate the values of social, ethical and aesthetic.
		C118.5	Understand the importance of ecological balance for sustainable development.
	1-2		1-2
9	Engineering Mathematics– II 2020002	C121.1	Identify whether the given differential equation of first order is exact or not
		C121.2	Solve higher differential equation and apply the concept of differential equation to real world problems.
		C121.3	Analyse the nature of sequence and series and apply the del operator to vector and scalar valued functions.
		C121.4	Evaluate the line, surface and volume integrals and converting them from one to another.
		C121.5	Solve the differential equations of first and higher order.
10	Applied Physics 2020006	C122.1	Understand the fundamental concepts on Quantum behaviour of matter in its micro state.
		C122.2	Gain knowledge of fundamentals of Semiconductor devices and their applications.
		C122.3	Design, characterization and study of properties of optoelectronic devices and prepare new materials for various engineering applications.
		C122.4	Understand the phenomena of dielectric and magnetic properties.

		C122.5	Solve non-traditional problems that potentially draw on knowledge in multiple areas of physics.
11	Data Structures 2020502	C123.1	Choose the appropriate data structures that efficiently model the information in a problem.
		C123.2	Assess efficiency trade-offs among different data structure implementations or combinations.
		C123.3	Implement the application of algorithms for searching and sorting and design programs using a variety of data structures- lists, stacks, queues, trees and graphs.
		C123.4	Exploring basic data structures such as linked list, stacks and queues.
		C123.5	Describes searching and sorting techniques.
12	Engineering Workshop 2020372	C124.1	Familiarize with BIS standards and conventions used in engineering graphics.
		C124.2	Draw various engineering curves as ellipse, parabola, cycloids and involutes etc and construct various reduced scales as plain and diagonal scale.
		C124.3	Develop the lateral surfaces of simple solids and create orthographic projections and isometric projections of given engineering components.
		C124.4	Visualize different views like elevation and plan for a given line, plane figures or solid objects.
		C124.5	Apply drafting techniques and use 2D software as AutoCAD to sketch 2D plane figures.
13	Engineering Drawing Practice 2020009	C125.1	Familiarize with BIS standards and conventions used in engineering graphics.
		C125.2	Draw various engineering curves as ellipse, parabola, cycloids and involutes etc and construct various reduced scales as plain and diagonal scale.
		C125.3	Develop the lateral surfaces of simple solids and create orthographic projections and isometric projections of given engineering components.
		C125.4	Visualize different views like elevation and plan for a given line, plane figures or solid objects
		C125.5	Apply drafting techniques and use 2D software e.g., AutoCAD to sketch 2D plane figures.

14	Applied Physics Lab 2020071	C126.1	Understand the concepts of the error and analysis.
		C126.2	Explain the different measuring devices and meters to record the data with precision.
		C126.3	Apply the experimental skills to design new experiments in engineering.
		C126.4	Evaluate the various parameters accurately.
		C126.5	Develop intellectual communication skills through discussion on basic principles of scientific concepts in a group.
15	Data Structures Lab 2020572	C127.1	Develop C programs for computing and real life applications using basic elements like pointers and strings, and data structures like stacks, Queues and linked lists.
		C127.2	Implement searching and sorting algorithms
		C127.3	Understand various concepts of C programming language and apply the searching and sorting algorithms for given problem.
		C127.4	Apply data structures such as stacks and queues for application development.
		C127.5	Develop C programs for computing and real life applications using basic elements like control statements, arrays, functions.
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16	Database Management Systems 2030503	C211.1	Gain knowledge of fundamentals of DBMS database design and normal forms.
		C211.2	Master the basics of SQL for retrieval and management of data.
		C211.3	Acquaint the basics of transaction processing and concurrency control.
		C211.4	Understand the basic concepts and the applications of database systems.
		C211.5	Expertise in the basics of SQL and construct queries using SQL.

17	Business Economics and financial Analysis 2030010	C212.1	Understand the various Forms of Business and the impact of economic variables on the Business.
		C212.2	Understand Demand, Supply, Production, Cost, Market Structure, Pricing aspects.
		C212.3	Analyze the firm's financial position and financial Statements of a Company.
		C212.4	Understand the basic Business types, impact of Firms specifically.
		C212.5	Analyze the Business from the Financial Perspective.
18	Probability And Statistics 2030004	C213.1	Formulate and solve problems involving random variables and apply statistical methods for analysing experimental data.
		C213.2	Apply discrete and continuous probability distributions.
		C213.3	Classify the concepts of data science and its importance.
		C213.4	Infer the statistical inferential methods based on small and large sampling tests.
		C213.5	Interpret the association of characteristics through correlation and regression tools.
19	Digital Logic Design 2030504	C214.1	Understand and explore the basics of computer networks and various protocols.
		C214.2	Understand number systems and codes.
		C214.3	Solve Boolean expressions using Minimization methods and design the sequential and combinational circuits.
		C214.4	Apply reduction methods to solve sequential circuits.
		C214.5	Apply the memory and error detection and correction.
20	Python Programming 2030505	C215.1	Examine Python syntax and semantics and be fluent in the use of Python flow control and functions.
		C215.2	Demonstrate proficiency in handling Strings and File Systems.
		C215.3	Create, run and manipulate Python Programs using core data structures like Lists, Dictionaries.
		C215.4	Develop programs using graphical user interface and handle Strings and Files in Python.
		C215.5	Understand GUI in Python.
21	Database Management Systems Lab 2030573	C216.1	Understand and explore the basics of computer networks and various protocols.
		C216.2	Design database schema for a given application and apply normalization.
		C216.3	Acquire skills in using SQL commands for data definition and data

			manipulation and develop solutions for database applications using procedures, cursors and triggers.
		C216.4	Design ER data model, database design and normalization.
		C216.5	Understand SQL basics for data definition and data manipulation.
22	IT WorkshopLab 2030574	C217.1	Understand PC hardware.
		C217.2	Use tools like MS-word and LATEX.
		C217.3	To train students on PC Hardware, Internet & World Wide Web and Productivity tools including Word, Excel, Power Point and Publisher.
		C217.4	Internet & World Wide Web.
		C217.5	Power Point(LaTeX/MS)
23	Python Programming Lab 2030575	C218.1	Examine Python syntax and semantics and be fluent in the use of Python flow control and functions.
		C218.2	Demonstrate proficiency in handling Strings and File Systems.
		C218.3	Create, run and manipulate Python Programs using core data structures like Lists, Dictionaries and develop programs using Graphical user interface .
		C218.4	Handle Strings and Files in Python.
		C218.5	Understand Multithread programming in Python.
24	Gender Sensitization 2030022	C219.1	Understand important issues related to gender in contemporary India.
		C219.2	Sensitized to basic dimensions of the biological, sociological, psychological and legal aspects of gender.
		C219.3	Attain a finer grasp of how gender discrimination works in our society and how to counter it acquire insight into the gendered division of labour and its relation to politics and economics.
		C219.4	Develop the moral value in Men and Women student to work and live together as equals.
		C219.5	Understand egalitarian interactions between men and women.

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25	Discrete Mathematics 2040506	C221.1	Apply mathematical logic to solve problems.
		C221.2	Understand sets, relations, functions, and discrete structures.
		C221.3	Apply logical notation to define and reason about fundamental mathematical concepts such as sets, relations, and functions.
		C221.4	Model and solve real-world problems using graphs and trees.
		C221.5	Apply Graph Theory for solving problems.
26	Basic Electrical Engineering 2040201	C222.1	Analyse Electrical circuits to compute and measure the parameters of Electrical Energy.
		C222.2	Comprehend the working principles of Electrical DC Machines.
		C222.3	Test various electrical switchgear, single phase transformers and assess the ratings needed for given application.
		C222.4	Understand the basics in Electrical circuits.
		C222.5	Explain the working principles of Electrical Machines and single phase transformers.
27	Computer Organization & Microprocessors 2040507	C223.1	Understand the basic components and the design of CPU, ALU and Control Unit.
		C223.2	Analyze memory hierarchy and its impact on computer cost/performance.
		C223.3	Identify the advantage of instruction level parallelism and pipelining for high performance Processor design.
		C223.4	Write assembly language programs to solve problems.
		C223.5	Understand the parallelism both in terms of single and multiple processors.
28	Design and Analysis of Algorithms 2040508	C224.1	Analyze the performance of algorithms.
		C224.2	Choose appropriate data structures and algorithm design methods for a specified application.
		C224.3	Understand how the choice of data structures and the algorithm design methods impact the performance of programs.
		C224.4	Describes major algorithmic techniques - divide-and-conquer, backtracking, dynamic programming, greedy, branch and bound methods -and mention problems for which each technique is appropriate.
		C224.5	Explains the difference between tractable and intractable problems, and introduces the problems that are P, NP and NP complete.

29	JAVA programming 2040509	C225.1	Solve real world problems using OOP techniques.
		C225.2	Understand the use of abstract classes.
		C225.3	Understand the concept of inheritance and its types and develop multithreaded applications with synchronization.
		C225.4	Develop applets for web applications.
		C225.5	Design GUI based applications
30	Basic Electrical Engineering Lab 2040271	C226.1	Understand basic electrical laws.
		C226.2	Analyze the response of different types of electrical circuits for different excitations.
		C226.3	Identify the measurement, calculation and relation between the basic electrical parameters and calculate the impedance and current of different circuits
		C226.4	Understand the basic characteristics of transformers and electrical machines.
		C226.5	Analyze the performance characteristics of DC and AC electrical machines.
31	Design and Analysis of Algorithms through Java Lab 2040576	C227.1	Develop the feasible and optimal solutions using Greedy and dynamic programming.
		C227.2	Develop the feasible and optimal solutions using Backtracking and Dynamic programming.
		C227.3	Solve the real time problems to obtain feasible and optimal solutions by using the different design methods.
		C227.4	Understand the fundamentals of Computer Algorithms.
		C227.5	Create the various menus in Eclipse or Net bean platform.
32	Computer Organization & Microprocessors Lab using MASAM 2040577	C228.1	Understand and apply the MASM software.
		C228.2	Write Assembly language program to evaluate the expressions
		C228.3	Write ALP program to get the input and use 8086 ALP for basic operations.
		C228.4	Write ALP program using macros and procedures
		C228.5	Write ALP program for string manipulation

33	Constitution of India 2040023	C229.1	Understand Meaning of the constitution law and constitutionalism.
		C229.2	Understand Historical perspective of the Constitution of India.
		C229.3	State Salient features and characteristics of the Constitution of India.
		C229.4	Develop the knowledge on Federal structure and distribution of legislative and financial powers between the Union and the States.
		C229.5	Gain Knowledge on Parliamentary Form of Government in India – The constitution powers and status of the President of India.
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34	OPERATING SYSTEMS 2050510:	C311.1	Infer the issues to be considered in the design and development of operating system
		C311.2	Demonstrate the usage of Unix commands, system call interface for process management, interprocess communication and I/O in Unix
		C311.3	Create control access to a computer and the files that shared
		C311.4	Resolve user problems with standard operating environments.
		C311.5	Gain practical knowledge of how programming languages, operating systems, and architectures interact and how to use each effectively.
35	COMPUTER NETWORKS 2050511	C312.1	Understand the TCP/IP and OSI models with merits and demerits.
		C312.2	Understand and explore the basics of computer networks and various protocols.
		C312.3	Understand the World Wide Web concepts.
		C312.4	Administrate a network and flow of information further
		C312.5	Understand easily the concept of network security, mobile and ad hoc networks.
35	FORMAL LANGUAGES AND AUTOMATA THEORY	C313.1	Understand the concept of abstract machines and their power to recognize the languages.
		C313.2	Employ finite state machines for modeling and solving computing problems.

		C313.3	Design context free grammars for formal languages.
		C313.4	Gain proficiency with mathematical tools and formal methods.
		C313.5	Classify machines by their power to recognize languages.
36	SOFTWARE ENGINEERING 2050513	C314.1	Translate end-user requirements into system and software requirements
		C314.2	Understand structure the requirements in a Software Requirements Document (SRD).
		C314.3	Identify and apply appropriate software architectures and can assessment of the problem
		C314.4	Develop a simple testing report
		C314.5	Design the high level design of a system and be able to critically compare alternative choices.
37	INFORMATION RETRIEVAL SYSTEMS 2050544	C315.1	Apply IR principles to locate relevant information large collections of data
		C315.2	Design different document clustering algorithms
		C315.3	Implement retrieval systems for web search tasks and can Understand the important concepts and algorithms in IRS
		C315.4	Understand the data/file structures that are necessary to design, and implement information retrieval (IR) systems
		C315.5	Design an Information Retrieval System for web search tasks.
38	COMPUTER NETWORKS LA B 2050578	C316.1	Implement data link layer framing methods
		C316.2	Analyze error detection and error correction codes.
		C316.3	Implement and analyze routing and congestion issues in network design.
		C316.4	Implement Encoding and Decoding techniques used in presentation layer

		C316.5	Workwithdifferent networktools
39	OPERATINGSYSTEMSLAB 2050579	C317.1	Understand the design aspects of operating system concepts through simulation
		C317.2	Use basic Unix commands, system call interface for process management
		C317.3	Implement interprocess communication and I/O in Unix and implement operating system concepts such as scheduling, deadlock management
		C317.4	Simulate and implement operating system file management and memory management.
		C317.5	Implement C programs using Unix system calls
40	SOFTWAREENGINEERINGLAB 2050580	C318.1	writetheproblemstatementforthegivensystem.
		C318.2	Developtheproblemstatementforthegivensystem.
		C318.3	Capturetherequirementsspecificationforanintendedsoftwaresystemusing DFD
		C318.4	Capturetherequirementsspecificationforanintendedsoftwaresystemusing Usecasemodeling.
		C318.5	DrawtheStructuralandbehavioraldiagramsforspecified specification
41	INTELLECTUALPROPERTYRIGHTS 2020024	C319.1	Identify different types of Intellectual Properties (IPs), the right of ownership, scope of protection as well as the ways to create and to extract value from IP.
		C319.2	Recognize the crucial role of IP in organizations of different industrial sectors for the purposes of product and technology development.
		C319.3	Identify activities and constitute IP infringements and the remedies available to the IP owner to prevent infringement of proprietary rights in products and technology development.
		C319.4	Identify critical analysis arguments relating to the development and reform of intellectual property right institutions
		C319.5	Demonstrate a capacity to identify, apply and assess ownership rights and marketing protection under intellectual property law as applicable to information, ideas, new products and product marketing

42	DATAMINING 2060514	C321.1	Understand the types of the data to be mined and present a general classification of tasks and primitive to integrate a data mining system.
		C321.2	Apply pre-processing methods for any given raw data.
		C321.3	Extract interesting patterns from large amounts of data.
		C321.4	Discover the role played by data mining in various fields.
		C321.5	Choose and employ suitable data mining algorithms to build analytical applications
	COMPILER DESIGN 2060515	C322.1	Design a compiler given a set of language features.
		C322.2	Acquire skills in using lex tool & yacc tool for developing a scanner and parser.
		C322.3	Design and implement LL and LR parsers
		C322.4	Design algorithms to do code optimization in order to improve the performance of a program in terms of space and time complexity.
		C322.5	Design algorithms to generate machine code.
	WEB TECHNOLOGIES 2060516	C323.1	Design dynamic web page using PHP language for server-side scripting
		C323.2	Understand what is XML and how to parse and use XML Data with Java
		C323.3	Understand the Common Gateway Interface and life cycle of Servlets
		C323.4	Gain knowledge of client-side scripting, validation of forms
		C323.5	Develop Client-side scripting with Javascript language.
	LINUX PROGRAMMING G 2060545	C324.1	Understand file systems and file structures.
		C324.2	Control the resources with various commands
		C324.3	Design and implement the distributed and networked applications in LINUX environment.

		C324.4	Understand the usage of UNIX inter process communication.
		C324.5	Understand the concepts of multithreaded programming and socket programming.
	MOBILECOMPUTING 2060546	C325.1	Understand the concepts and features of MC Technologies and applications.
		C325.2	Analyze structure and components for MAC Layer in Mobile IP.
		C325.3	Identify the important issues of developing MC Systems and Applications.
		C325.4	Analyze how the underlying wireless and MC networks work, their technical features.
		C325.5	Analysis of various routing protocols and can understand mobile os.
	CRYPTOGRAPHY&NETWORKSECURITY 2046208	C326.1	Apply the concepts of Security Attacks in cryptography and network security.(Change apply to “Identify the security attacks” and level)
		C326.2	Examine symmetric and asymmetric key Ciphers be fluent in the use of Cryptography. (Check for statement connectivity)
		C326.3	Demonstrate the concepts of Cryptographic Hash Functions.
		C326.4	Determine the methods to create Transport-level Security. (Change keyword to predict and level to evaluate)
		C326.5	Identify the commonly used operations involved in E-Mail Security. (check statement)
	DATAMININGLAB 2060581	C327.1	Identify different preprocessing techniques on real world datasets.
		C327.2	Use Association rule Mining Algorithms for any real-world dataset
		C327.3	Predict similarity of attributes by using simple k-means clustering algorithm on any dataset.
		C327.4	Design classification models using j48, id3, Naïve Bayes algorithms.
		C327.5	Chooseandemploysuitable dataminingalgorithmstobuildanalyticalapplications.

	WEBTECHNOLOGIES LAB 2060582	C324.1	Understand how to use LAMP Stack for web applications Use Tomcat Server for Servlets and JSPs.
		C328.2	Write simple applications with Technologies like HTML, javascript, AJAX, PHP, Servlets and JSPs.
		C328.3	Learn how to connect to Database and get results.
		C328.4	Learn how to parse XML tiles using Java (DOM and SAX parsers).
		C328.5	Use Tomcat server for Servlets and JSPs.
	AECS LAB 2060075	C329.1	Communicate effectively in both verbal and written visual, and nonverbal modes, using concrete support and conventional language.
		C329.2	Demonstrate knowledge of professional and ethical responsibilities.
		C329.3	Develop presentation skills, communication skills.
		C329.4	Apply the marvels of technology and engineering to check counterfeiting the currency notes and design authentic polymer notes
		C329.5	Recognize the affects and effects of risk and disaster management.