

SEMESTER	SUBJECT CODE	SUBJECT NAME	CO No.	COURSE OUTCOMES
S1	RLMCA101	<b>Problem Solving and Computer Programming</b>	CO1	To write algorithms and to draw flowcharts for solving problems.
			CO2	To convert the algorithms/flowcharts to C programs
			CO3	To decompose a problem into functions and to develop modular reusable code.
			CO4	To use arrays, Strings and structures to write C programs.
			CO5	To use pointers and operations with pointers in C programs.
			CO6	To use File handling methods in C Programs.
	RLMCA103	<b>Discrete Mathematics</b>	CO1	Have a better understanding of sets and application of set theory.
			CO2	Acquire the knowledge of GCD and congruence's.
			CO3	Understand permutations, combinations & its applications.
			CO4	Understand different recurrence relations and solution.
			CO5	Know various graphs and learn different applications.
			CO6	Acquire the knowledge of prepositional logic & rules of inferences.
	RLMCA105	<b>Applied Probability and Statistics</b>	CO1	To acquire an introduction to Statistics and Data.
			CO2	Understand the basic probability theory.
			CO3	To learn about the discrete random variables and the most important discrete probability distributions.
			CO4	To learn about the continuous random variables and the most important continuous probability distributions.
			CO5	To get an overall view of statistical inference.
			CO6	To learn the basic ideas of hypothesis testing.
	RLMCA107	<b>Principles of Management</b>	CO1	To understand management as a process
			CO2	Critically analyse and evaluate management theories and practices
			CO3	Plan and make decisions for organizations
			CO4	Design staffing and related HRD functions
			CO5	Awareness about various quality standards
			CO6	Understand the basics of various marketing techniques
RLMCA109		CO1	Recognize different types of number systems as they relate to computers.	

		<b>Digital Fundamentals</b>	CO2	Construct and recognize truth tables and circuits using logic gates and simple combinations of them. Understand K-Maps and arithmetic circuits design.
			CO3	Apply, Design and realize the functionality of the computer with basic gates and other components using combinational logic.
			CO4	Understand the functionality of various Flip-flops
			CO5	Construct and realize counters and shift registers
			CO6	Get an overall idea about single board computers like Arduino, Raspberry Pi
			<b>RLMCA131</b>	<b>Programming Lab</b>
	CO2	Outline the sequence control and data control.		
	CO3	Implementing the function and storage class concepts.		
	CO4	Apply the concepts of arrays, strings, structure & union using programming language.		
	CO5	Implementation of pointers.		
	CO6	Apply the usage of files in C Programming.		
	<b>RLMCA133</b>	<b>Applied Statistics Lab</b>	CO1	To introduce students to modern statistical tools
			CO2	Prepare students for big data analysis course
			CO3	Students will be able to apply statistical methods to real life problems
			CO4	Students may experiment with real as well as artificial data sets.
			CO5	To learn how to compute confidence intervals for the mean when the standard deviation is known.
			CO6	To learn how to calculate the correlation between two variables.
	<b>S2</b>	<b>RLMCA102</b>	<b>Object Oriented Programming</b>	CO1
CO2				To give an outlook regarding inheritance and polymorphism
CO3				Students will acquire knowledge regarding arrays, strings, interfaces and packages
CO4				Students will learn exception handling and multi-threading
CO5				To give an idea about input-output streams
CO6				Students will be able to do applet programming and network programming
<b>RLMCA104</b>		<b>Data Structures</b>	CO1	To understand the basic concepts of data structures, also get the concepts of multidimensional arrays.

			CO2	Able to understand the concept Stack operations and perform expression evaluation using stack
			CO3	To understand the concepts of various types of queues ,its operations & applications.
			CO4	Students will capable of implementing stack & queue using linked list
			CO5	The students will be able to implement tree & graph traversals
			CO6	To learn the working of various sorting & searching algorithms. Also able to find the efficiency of various algorithms.
			CO1	Understand the basic elements of Computer, different operating systems.
	<b>RLMCA106</b>	<b>Operating Systems</b>	CO2	Distinguish between a program and a process and understand 3-state and 5-state
			CO3	Apply, Design and realize the functionality of the computer with basic gates and other components using combinational logic.
			CO4	To understand deadlock and use bankers algorithm for the avoidance of the
			CO5	To understand memory allocation, page replacement algorithms and apply the page replacement algorithms for a set of frames
			CO6	To analyze how files are stored in secondary storage and the different allocation
			CO1	To understand a mathematical model of a real world problem
	<b>RLMCA108</b>	<b>Operations Research</b>	CO2	To learn how to solve the dual problems.
			CO3	To learn about various optimization methods that are employed to solve the mathematical models to find a solution.
			CO4	To learn the different Queuing models
			CO5	To learn the game theory and dominance property.
			CO6	To understand simulation techniques and models-the virtual running of a real world problem.
			CO1	To understand the structure & working of digital computer.
	<b>RLMCA112</b>	<b>Computer Organization and Architecture</b>	CO2	To acquire the knowledge of assembly languages, I/O Operations.
			CO3	To understand the execution of instruction in a computer and the role of control signals.
			CO4	To identify I/O Operations and interfaces.
			CO5	To acquire knowledge about memory organization.
			CO6	To identify and describe cache and virtual memory functions

	<b>RLMCA132</b>	<b>Object Oriented Programming Lab</b>	CO1	Students will be able to get the working concept of Classes and Objects
			CO2	Students will be able to get the working concept of Inheritance , Method overriding, and Method Overloading.
			CO3	Students will be able to get the working concept of Arrays, Strings Abstract classes ,Interfaces and Packages
			CO4	Students will be able to get the working concept of exception handling and multi-threading
			CO5	Students will be able to get the working concept of files
			CO6	Students will be able to get the working concept of applets and socket programming
	<b>RLMCA134</b>	<b>Data Structures Lab</b>	CO1	To solve different problems using array data structures
			CO2	To implement Stack operations and perform expression evaluation using stack
			CO3	To implement different types of Queues .
			CO4	To implement Linked list
			CO5	To implement tree & graph data structures
			CO6	To implement different types of sorting and searching algorithms.
<b>S3</b>	<b>RLMCA201</b>	<b>Computer Networks</b>	CO1	To understand the basic communication model & history of internet
			CO2	To understand different protocols in internet & socket programming
			CO3	To understand flow control mechanism
			CO4	To understand the routing algorithms
			CO5	To understand error detection
			CO6	To understand trouble shooting tools and configuration management
	<b>RLMCA203</b>	<b>Software Engineering</b>	CO1	LEARN THE THEORY AND FOUNDATION OF SOFTWARE ENGINEERING
			CO2	LEARN THE DIFFERENT PROCESS MODELS AND CHOOSE THE BEST MODEL FOR THEIR PROJECT
			CO3	BE ABLE TO CONSTRUCT REQUIREMENT MODELS
			CO4	BE ABLE TO UNDERSTAND THE DIFFERENT DEVELOPMENT PRACTICES AND ITS ADVANTAGES
			CO5	BE ABLE TO CREATE TEST CASES AND IMPLEMENT DIFFERENT TESTING STRATEGIES

			CO6	UNDERSTAND THE ENVIRONMENT AND WORK CULTURE IN A SOFTWARE ORGANIZATION
<b>RLMCA205</b>	<b>Database Management Systems</b>	CO1	Understand the fundamentals of Database Management Systems including data models and database manipulations	
		CO2	Evaluation and Application of Relational Algebra Operations	
		CO3	Understanding and Analysing of SQL Queries ,Application of Stored Procedures,functions and procedures	
		CO4	Design and construction of Database Tables by applying Normalisation Techniques	
		CO5	Analysis of different concurrencycontrol problems and methods to overcome it,including Deadlock,Starvation and Time Stamping	
		CO6	Get an overall idea about Data Mining concepts and its applications	
		<b>RLMCA207</b>	<b>Design and Analysis of Algorithms</b>	CO1
CO2	To familiarize the Divide and Conquer design technique and different problems solved using DAndC			
CO3	To learn the Greedy Strategy and problems solved using Greedy Method			
CO4	To understand the Dynamic Programming Approach for algorithm design			
CO5	To familiarize the 2 important algorithm design techniques based on State Space tree			
CO6	Categorize the problems into different classes based on the complexity			
<b>RLMCA209</b>	<b>Web Programming</b>	CO1	To understand the concepts of the World Wide Web	
		CO2	To understand and practice markup languages HTML	
		CO3	To understand and practice embedded dynamic scripting on client side Internet Programming - JavaScript	
		CO4	To understand and practice web development techniques on client-side	
		CO5	To design front end web page and connect to the back end databases	
		CO6	Able to do Client-side & Server-side scripting –PHP & MySQL	
<b>RLMCA231</b>	<b>Database Lab</b>	CO1	Design and implement a database schema for a given problem domain.	
		CO2	Populate and query a database using SQL DDL /DML commands	
		CO3	Analysing and Using a popular RDBMS for data access and updating	
		CO4	Evaluate and Normalize a database	

			CO5	Understanding and developing Stored Procedures,Triggers and functions
			CO6	Develop sample applications
	<b>RLMCA233</b>	<b>Web Programming Lab</b>	CO1	Generation of dynamic web pages.
			CO2	Explore markup languages features and create interactive web pages using them.
			CO3	Learn and design client-side validation using scripting languages.
			CO4	Design front end web page responding to events
			CO5	Client side & Server-side scripting to develop a web applications
			CO6	Design front end web page and connect to the back-end databases.
<b>S4</b>	<b>RLMCA202</b>	<b>Application Development and Maintenance</b>	CO1	To impart the practical aspects of Application Development and Maintenance
			CO2	To analyse basic GIT concepts and to implement it
			CO3	To understand the basics of continuous development and focus on industry practices around continuous integration and continuous development
			CO4	Estimate and evaluate the Commit Stage Principles and practises.
			CO5	To understand Pragmatic Programming approach and to adhere to its principles.
			CO6	To understand and adhere to best practices while developing applications
	<b>RLMCA204</b>	<b>Big Data Technologies</b>	CO1	To understand the concept of Big data
			CO2	To understand Big Data Storage & Processing Concepts
			CO3	To understand HADOOP & be able to work with big data platform.
			CO4	To understand the Map-Reduce Fundamentals
			CO5	To understand Big Data Storage Technologies
			CO6	To understand the Big Data Analysis Techniques
	<b>RLMCA206</b>	<b>Mobile Computing</b>	CO1	To learn the concepts of Mobile Communication and Computing Technologies
			CO2	To learn the concepts of generations of wireless communications
			CO3	To learn mobile OS concepts.
			CO4	To learn mobile application development
			CO5	To learn Emulators and Development Environment
			CO6	To learn android UI design and database connectivity
	<b>RLMCA208</b>		CO1	To introduce the basic concepts and techniques of Machine Learning.

		<b>Introduction to Machine Learning</b>	CO2	To develop skills for using machine learning algorithms for solving practical problems.
			CO3	Analyse the Classification and Regression Methods of Machine Learning
			CO4	To understand and analyse the application of Neural Networks
			CO5	To develop skills for using Standard Vector Machines and Kernel methods
			CO6	To recognize machine learning problems and apply suitable algorithms.
			<b>RLMCA274</b>	<b>Business Intelligence and its Applications</b>
	CO2	To impart knowledge on design of BI solutions for different BI targets and users.		
	CO3	To learn the role that software tools/applications play in BI		
	CO4	To select appropriate DM tools and methods to manipulate and achieve data.		
	CO5	To understand Warehouse implementation methodologies and tools		
	<b>RLMCA232</b>	<b>System Design Lab</b>	CO1	To Introduce Shell Scripting
			CO2	To do network programming using Socket Programs.
			CO3	To sensitize the need for Version control
			CO4	Use GIT and gain knowledge in using version control
			CO5	Develop programs for client- server communications using various network protocols(TCP/UDP).
			CO6	To Develop Shell Programs for system administration
	<b>RLMCA234</b>	<b>Mobile Application Development Lab</b>	CO1	Understands the concepts of Activities, Services, Broadcast Receivers and Content providers, UI Components
			CO2	Understands the concepts of Application Structure
			CO3	Understands mobile OS Basic UI design concepts.
			CO4	Understands mobile application development
			CO5	Understands Emulators and Development Environment
CO6			Understands android UI design and database connectivity	
<b>S5</b>	<b>RLMCA301</b>	<b>Web Data Mining</b>	CO1	UNDERSTAND THE QUANTITATIVE EVALUATION METHODS FOR DATA MINING TECHNIQUES
			CO2	UNDERSTAND THEORETICAL AND PRACTICAL ASPECTS OF INFORMATION AND DATA MINING

			CO3	UNDERSTAND THE QUANTITATIVE EVALUATION METHODS FOR THE IR SYSTEMS
			CO4	UNDERSTAND THE PREPROCESSING TASK FOR TEXT AND WEB PAGE
			CO5	UNDERSTAND THEORETICAL ASPECTS OF WEB SEARCH
			CO6	UNDERSTAND THE WEB USAGE MINING METHODS AND TECHNIQUES
	<b>RLMCA303</b>	<b>E-Commerce</b>	CO1	To understand the concept of E-Commerce, how Internet and Web features support E-Commerce & identify the difference b/w E-commerce and E-Business
			CO2	To familiarize various Business models
			CO3	To Understand the key dimensions of E-Security, Security threats and different Technology solutions.
			CO4	To Understand the different types of Payment systems
			CO5	To Understand the features of E- Payment systems
			CO6	To Understand the concepts and technologies of E- marketing systems
	<b>RLMCA305</b>	<b>Cryptography and Cyber Security</b>	CO1	Understand the number theory concepts in Cryptography.
			CO2	Understand the number theory concepts in Cryptography.
			CO3	Build cryptosystems using various Symmetric and Asymmetric encryption techniques.
			CO4	Apply the concepts of different message authentication and digital signature techniques to applications for ensuring secure transactions.
			CO5	Understand the concepts of crypto currencies and bitcoins
			CO6	Apply security services to applications at Application Transport and Network layer.
	<b>RLMCA369</b>	<b>Python Programming</b>	CO1	Understand the basic concepts & various data structures available in Python programming.
			CO2	Design modular Python programs using functions.
			CO3	Implement OOPs Concepts using Python
			CO4	Familiarize Database Connectivity with Python
			CO5	Develop web based applications using Python
CO6			Create applications using Django	
<b>RLMCA391</b>	<b>Artificial Intelligence</b>	CO1	Understand how to solve AI problems and the techniques used for Artificial Intelligence	
		CO2	Ability to design Algorithms using A.I techniques	
		CO3	Learn the different knowledge representation schemes used in A.I and Game Playing methods	

			CO4	Evaluating the symbolic method of communication of A.I and the application of it.
			CO5	Understanding the different planning techniques and different types of Learning.
			CO6	Analysing Expert System characteristics, architecture and and its applications
	<b>RLMCA 341</b>	<b>SEMINAR</b>	CO1	To enable the students to gain knowledge in any of the technically relevant current topics on computer science/information technology/research
			CO2	To impart confidence in presenting the topic and preparing a report.
	<b>RLMCA 351</b>	<b>MINI PROJECT</b>	CO1	To apply the software engineering principles on a real software project
			CO2	To develop a software product using the Agile methodology.
<b>S6</b>	<b>RLMCA352</b>	<b>Project and Viva Voce</b>	CO1	To apply the software engineering principles on a real software project
			CO2	To develop a software product using the Agile methodology.