

DEPARTMENT OF MATER OF COMPUTER APPLICATIONS

R21 - REGULATIONS

COURSE TITLE	COURSE CODE	CO NO	COURSE OUTCOMES
MATHEMATICAL FOUNDATIONSOF COMPUTER SCIENCE	21MC101	CO 1	List the basics of formulate simple definitions and proofs in discrete mathematics (BL-1)
		CO 2	Explain the binary relations, functions, algebraic system and understand groups related to the computer science (BL-2)
		CO 3	Analyze the Elementary Combinotrics and Pigeon-hole principle (BL-4)
		CO 4	Understand the Coefficients of generating functions and understand the recurrence relations related to computer programming (BL-1)
		CO 5	Apply the basic concepts of graphs and understand the spanning tree (BL-3)
	21MC102	CO 1	Identify methods to solve a problem through computer programming. (BL - 3)
		CO 2	Understand the use of basic elements of C language. (BL - 2)
PROBLEM SOLVING THROUGH C		CO 3	Implement C programming by using various control structures& functions.(BL - 3)
		CO 4	Apply the arrays and pointers for solving problems. (BL - 3)
		CO 5	Develop the C programs by using user- defined data types and files. (BL - 3)
PYTHON PROGRAMMING	21MC103	CO 1	Summarize the fundamental concepts of python programming. (BL - 2)
		CO 2	Apply the basic elements and constructs the python to solve logical problems.(BL-3)
		CO 3	Organize data using different data structures of python. (BL - 3)
		CO 4	Implement the files modules and packages in programming. (BL - 3)
		CO 5	Apply object-oriented concepts to build simple applications. (BL - 3)
DATABASE MANAGEMENT SYSTEMS	21MC104	CO 1	Describe database technologies and database design. (BL-2)
		CO 2	Demonstrate Relational Database Management Systems. (BL-2)
		CO 3	Construct queries, procedures for database creation in RDBMS.(BL-3)
		CO 4	Apply normalization on database design and Demonstrate transaction management.(BL- 3)
		CO 5	Demonstrate concurrency control techniques and techniques for database recovery and indexing. (BL-2)

OPERATING SYSTEMS	21MC105	CO 1	Describe the concept operating system and operating system design. (BL-2)
		CO 2	Analyze Process and CPU Scheduling, Process Coordination with concurrencies. (BL-3)
		CO 3	Identify and evaluate Memory Management and Virtual Memory. (BL-3)
		CO 4	Organize File System Interface. (BL-3)
		CO 5	Understand Mass Storage Structure and Protection Mechanism. (BL-2)
	21MC106	CO 1	Analyze how the functional units of a computer operate, interact, and communicate.(BL-4)
COMPUTER OBCANIZATION AND		CO 2	Identify the representation of numbers and perform arithmetic operations.(BL-3)
ARCHITECTURE		CO 3	Interpret the functional architecture of computing system.(BL-2)
		CO 4	Define a logic for assembly language programming.(BL-1)
		CO 5	Analyze the memory organization of computer system.(BL-4)
COMMUNICATION SKILLS LAB	21MC107	CO 1	To understand the communication concepts and to develop the students' competence in communication at an advanced level
		CO 2	To participate in Team activities that leads to the development of collaborative work skills
		CO 3	To develop strategies appropriately to improve Listening skills and Spoken Skills (BL-2)
		CO 4	To provide the knowledge on Presentation Skills, Group Discussion, Interview Skills and Resume Writing(BL-3)
		CO 5	To improve skills to write resume, cover letter and Technical report(BL-3)
	21MC108	CO 1	Translate algorithms into programs (In C language) (BL - 2)
PROBLEM SOLVING THROUGH C LAB		CO 2	Code and debug programs in C program language using various constructs.(BL-3)
		CO 3	Solve the problems and implement algorithms in C. (BL - 3)
		CO 4	Make use of different data types to handle the real time data (BL - 3)
PYTHON PROGRAMMING LAB	21MC109	CO1	Understanding and use of python- Basic Concepts(BL -2)
		CO2	Solve the concepts of python functions and data structures(BL -3)
		CO3	Understand the concepts of files, modules, multithreading and regular expressions (BL -2)
		CO4	Solve the concepts of class and exception handling (BL -3)
DATABASE MANAGEMENTSYSTEMS	21MC110	CO 1	Utilize SQL for creating database and performing data manipulation operations.(BL-3)

LAB		CO 2	Examine integrity constraints to build
			Build PL/SOL programs including
		CO 3	procedures, functions, cursors and
			triggers.(BL-3)
		CO 4	Apply queries using advanced database design and Normalization. (BL-3)
		CO 1	Understand basic concepts of data structures and algorithm analysis (PL 2)
		CO 2	Develop the applications using stacks and queues. (BL - 3)
DATA STRUCTURES	20MC201	CO 3	Demonstrate use of different types of linked lists. (BL - 2)
		CO 4	Apply the tree data structures for various applications. (BL - 3)
		CO 5	Apply the graph data structures for various applications. (BL - 3)
		CO1	Implement basic Programming concepts. (BL-3)
OBJECT ORIENTED		CO2	Understand the concepts of Arrays and Strings. (BL-2)
PROGRAMMING THROUGH JAVA	21MC202	CO3	Construct programs on classes, inheritance, polymorphism and interfaces. (BL-3)
		CO4	Develop packages, handling of Exceptions and Applets. (BL-3)
		CO5	Construct programs using multi-threading. (BL-3)
		CO1	Memorize the statistics concepts applicable to data science (BL-1)
FOUNDATIONS OF DATA	2114(2202	CO2	Demonstrate data analysis, manipulation and visualization of data using Python libraries such as Pandas, Matplotlib and Plotly etc. (BL-2)
SCIENCE	211110203	CO3	Enumerate machine learning algorithms. (BL-1)
		CO4	Analyze the various applications of data science. (BL-4)
		CO5	To demonstrate the clustering algorithms .(BL-3)
		CO 1	Identify the best suitable Process Methodology for developing a quality- oriented software solution (BL-3)
SOFTWADE		CO 2	Sketch the requirements analysis model for a project work by using various Modeling diagrams. (BL-3)
ENGINEERING	21MC204	CO 3	Apply the standard design principles based on the suitable architectural styles for given specifications. (BL-3)
		CO 4	Describe the standard Golden rules for developing the user interface. (BL-2)
		CO 5	Apply testing principles on software project and identify various software metrics (BL-3)
MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS	21MC205	CO 1	Outline the Managerial Economic concepts for decision making and forward planning. Also know law of demand and its exceptions, to use different forecasting Methods for predicting demand for various products and services. (BL2)
		CO 2	Assess the functional relationship between

			Production and factors of production and list
			out various costs associated with production and able to compute breakeven
			point to illustrate the various uses of
			breakeven analysis. (BL5)
			Outline the different types of business
		CO 3	organizations and provide a framework for
			analyzing money in its functions as a medium of exchange (BI 2)
			Interpret various techniques for assessing
		CO 4	the proposals of project for financial
			position of the business. (BL2)
			Identify the principles of accounting to
		CO 5	record, classify and summarize various
			preparation of final accounts (BL3)
			Define the concepts of object model.
		COI	(BTL-2)
		CO 2	Identify the classes and vocabulary of the
			problem domain. (BTL-2)
OBJECT ORIENTED	21MC212	CO 3	Sketch the class and object diagrams for various applications (RTI 3)
ANAL I SIS AND DESIGN			Apply the basics of behavioral modeling to
		CO 4	behavioral diagrams. (BTL-3)
			Sketch the model various components and
		CO 5	deployment diagram for the
			applications.(BTL-3)
		CO 1	applications (BL -3)
		CO 2	Develop programs on linked list. (BL -3)
DATA STRUCTURES	21MC206	CO 3	Implement operations on binary trees and
LAB	21010200		binary search trees. (BL -3)
		CO 4	(BL -3) Implement searching and sorting algorithms.
			Construct programs using Class, object and
		CO 1	Constructor relationship in Object Oriented Programming (BL -3)
			Implement basic knowledge of Operations.
			Expressions, Control-flow, and Strings with
		CO 2	the help of Java in Object Oriented
OBJECT ORIENTED			Programming. (BL -3)
PROGRAMMING THROUGHIAVA LAB	21MC207		keywords and implement reusability of
		CO 3	code, Encapsulation and polymorphism
			technique in OOPs. (BL -4)
		CO 4	Implements Interface ,exception handling in
			Java(BL - 3)
		00 f	Applet (Web program in java)
		005	programming concept in Java. (BL -3)
		CO1	Create python programs on Numpy,
		01	pandas, MatplotLib and Plotly. (BL -3)
FOUNDATIONS OF DATA	2111/0200	CO2	Write python basic programs using
SCIENCE LAB	2111111200		Apply python control structures for
		CO3	classification techniques. (BL -3)
		CO 4	Implement programs on clustering
	211/1/201		Analyze the complexities of algorithms and
DESIGN AND ANALYSIS	211110301	CO 1	design of algorithms and Divide and conquer

OFALGORITHMS			strategy (BL-4)
		CO 2	Use techniques Greedy, Dynamic Programming, Backtracking, Branch and Bound to solve the problems. (BL-3)
		CO 3	Analyze criteria and specifications to new problems, and choose the appropriate algorithmic design technique to solve the solution. (BL-4)
		CO 4	Illustrate the worst-case time complexity of an algorithm is defined, how asymptotic notation is used to provide a rough classification of algorithms. (BL-2)
		CO 5	Able to identify that a certain problem is NP- Complete or NP Hard(BL-3)
		CO 1	Choose suitable transmission media depending on the requirements.(BL-2)
		CO 2	Determine the errors in data transfer between source and destination.(BL-3)
COMPLITER NETWORKS	21MC202	CO 3	Obtain the skills of sub netting and routing mechanisms. (BL-2)
	21MC302	CO 4	Illustrate reliable, unreliable communication on public networks. (BL-3)
		CO 5	Demonstrate the elements of socket programming, principles of protocols. (BL- 3)
	21MC303	CO 1	Describe applications of Artificial Intelligence .(BL-2)
ARTIFICIAL		CO 2	Evaluate problem solving strategies in AI.(BL-3)
INTELLIGENCE		CO 3	Illustrate problem reduction techniques.(BL-2)
		CO 4	List the logic concepts.(BL-2)
		CO 5	Analyze the current knowledge representation techniques in AI.(BL-3)
	21MC304	CO 1	Gain knowledge to develop dynamic web pages using HTML, CSS(BL-2)
		CO 2	Learn the basics of Java Script(BL-2)
WEB TECHNOLOGIES 21		CO 3	Demonstrate server-side scripting with PHP language(BL-2)
		CO 4	gain knowledge of server-side scripting, validation of forms(BL-2)
		CO 5	Working with XML and processing of XML Data .(BL-3)
BIG DATA ANALYTICS		CO 1	To explore the fundamental concepts of Big Data.(BL-2)
		CO 2	To Learn Basic concepts of Hadoop. (BL-2)
	21MC310	CO 3	To Write Hadoop MapReduce Programs for analyzing Big data. (BL-2)
		CO 4	To Explore Hadoop Environment. (BL-2)
		CO 5	To Learn fundamentals of HBase and Zookeeper. (BL-2)
		CO 1	Analyze the concept of software management economics.(BL-4)
SOFTWARE PROJECT MANAGEMENT	21MC314	CO 2	Determine how to improve software economics.(BL-3)
		CO 3	Analyze life cycle phases in project development and artifact sets.(BL-4)
		CO 4	Define the workflow of the process and project organization responsibilities.(BL-1)

		СО	Illustrate the project metrics and process
		5	instrumentation. (BL-1)
		CO 1	Define basic concepts of networking (BL-3)
COMPUTER NETWORKS LAB	21MC305	CO 2	Apply error detection control techniques(BL-3)
		CO 3	Apply packet routing techniques (BL-3)
		CO 4	Develop Client Server programming (BL-3)
	21MC306	CO 1	State applications of Artificial Intelligence
		CO 2	Enumerate problem solving strategies in AI
ARTIFICIAL		CO 3	Illustrate problem reduction techniques
INTELLIGENCE LAB		CO 4	Apply knowledge representation techniques to solve real world problems(BL -3)
		CO 5	Apply Computational Intelligence techniques to solve real-world problems(BL -3)
		CO1	Build a web page on their own and using validations
WEB TECHNOLOGIES	21MC307	CO2	Apply basic responsive programs using AngularJs(BL -3)
LAD		CO3	Apply the concepts for writing the programs using XML(BL -3)
		CO4	Build the server side applications with database connectivity using forms
		CO 1	Remember the key dimensions of the challenge of Cloud Computing (BL-2)
		CO 2	Apply of the economics , financial, and technological implications for selecting cloud
			computing forown organization (BL-2)
CLOUD COMPUTING	21MC403	CO 3	organizational capacity of employer's for
			initiating and installing cloud-based applications.(BL-2)
		CO	Demonstrate of own organizations' needs for capacity building and training in cloud
		4	computing-related Areas(BL-3)
		CO	Assessment of Cloud resources management
		5	Storage systems in Cloud(BL-2)
SOFTWARE TESTING	21MC407	CO 1	Demonstrate the basic testing procedures. (BL-2)
		CO 2	Student able to write and generate test cases and test suites. (BL-2)
		CO 3	Illustrate the applications manually by applying different testing methods and automation tools. (BL-2)
		CO 4	Apply tools to resolve the problems in Real time environment.(BL-3)
		CO 5	Demonstrate the basic testing State graphs and Charts. (BL-2)