

2021-2022

21CAU01	CORE: I PROGRAMMING IN C	SEMESTER	LEVEL
CO1	Recall the basics of C Tokens, Operators, Array and Files	I	K1
CO2	Summarize the concepts of input and output functions, decision making and looping, string functions, and pointers		K2
CO3	Classify Arrays and functions		K3
CO4	Analyze the functions of Pointers, Structures and files		K4
CO5	Determine the usage of pointers and files		K5
21CAU02	CORE : II PROGRAMMING IN C-PRACTICAL	SEMESTER	LEVEL
CO 1	Define the basics of arithmetic operations using C tokens.	I	K 1
CO 2	Choose the True/ False statements for checking ODD / EVEN numbers.		K 2
CO 3	Calculate simple interest, Employee pay Bill, area of shapes and factorial value		K 3
CO 4	Experiment matrix addition		K 4
CO 5	Validating the file operations		K 5
21CAU03	CORE : III DIGITAL COMPUTER FUNDAMENTALS	SEMESTER	LEVEL
CO 1	Recall the basic computer components and micro-operations	I	K 1
CO 2	Explain number conversions, Boolean algebra and logic circuits		K 2
CO 3	Utilize the components of register, input/output and Flip flops		K 3
CO 4	Analyze the Boolean expressions using Boolean algebra		K 4
CO 5	Evaluate the storage concepts using digital logic		K 5

21FCU01	FOUNDATION: I ENVIRONMENTAL STUDIES	SEMESTER	LEVEL
CO 1	Define environment, ecosystem, biodiversity, environmental pollution and social issues.	I	K 1
CO 2	Explain the natural resources, types of ecosystem, geographical classification of India, causes of environmental pollution and the problems related to the society.		K 2
CO 3	Identify the information related to environment and the resources to protect it.		K 3
CO 4	Analyze the classification of natural resources, energy flow in the ecosystem, threats to biodiversity, disaster management and the role of information technology in environment and human health.		K 4
CO 5	Assess the environmental issues with a focus on sustainability.		K 5
21CAU05	CORE: V PROGRAMMING IN JAVA	SEMESTER	LEVEL
CO 1	Outline the basic concepts of Java Programming Language	II	K 1
CO 2	Explain the concepts of tokens, control structures and looping, arrays, applet programming and Exception handling		K 2
CO 3	Apply java programming for practical solutions		K 3
CO 4	Analyze wide range of Applications by using java programming		K 4
CO 5	Determine the usage of all given concepts in the development of programming solutions		K 5
21CAU06	CORE: VI PROGRAMMING IN JAVA- PRACTICAL	SEMESTER	LEVEL
CO 1	Outline the basic concepts of Java Programming Language	II	K 1
CO 2	Explain the concepts of tokens, control structures and looping, arrays, applet programming and Exception handling		K 2
CO 3	Apply java programming for practical solutions		K 3
CO 4	Analyze wide range of Applications by using java programming		K 4
CO 5	Determine the usage of all given concepts in the development of programming solutions		K 5

21CAU06	CORE: VII OFFICE AUTOMATION	SEMESTER	LEVEL
CO 1	Utilize the basics options of MS-Word in preparation of documents	II	K 1
CO 2	Demonstrate the concepts in MS-Word such as Accessing, overview of toolbars, saving files, Using help and resources, rulers, format painter.		K 2
CO 3	Apply the various accounting features in MS-Excel, Accessing, overview of toolbars, Saving excel files, Using help and Resources.		K 3
CO 4	Analyze the importance of MS-Excel such as Spreadsheet tool		K 4
CO 5	Assess MS-Powerpoint layouts and presentations		K 5
21FCU02	FOUNDATION: II YOGA AND ETHICS	SEMESTER	LEVEL
CO 1	Recollect the basic terminologies in yoga and value education	II	K 1
CO 2	Demonstrate the importance of yoga, mental exercises, principles of life and components of values.		K 2
CO 3	Apply the techniques of dynamic & mental exercises and philosophical values in real life		K 3
CO 4	Classify the different types of asanas, stages of mind, analysis of thought, ethical values and social values.		K 4
CO 5	Evaluate how the yoga and value education make a person strong both physically and mentally		K 5
21CAU09	CORE: IX DATA STRUCTURES	SEMESTER	LEVEL
CO 1	Recall the various data structures, algorithms and sorting methods	III	K 1
CO 2	Describe the basic concepts of data structures, sorting and symbol table		K 2
CO 3	Use appropriate data structures for varied problems		K 3
CO 4	Examine different data structures and algorithms to find best solution for the real time applications		K 4
CO 5	Recommend a specific data structure and sorting algorithm for an application.		K 5

21CAU10	CORE: X OPEN SOURCE TECHNOLOGY	SEMESTER	LEVEL
CO 1	Remember the basics of Open Source Software & Linux	III	K 1
CO 2	Demonstrate the concepts of Android		K 2
CO 3	Utilize the syntax of PHP Language		K 3
CO 4	Analyze an insight on MYSQL Database		K 4
CO 5	Assess General introduction on Open Source Grid Computing		K 5
21CAU11	CORE: XI PRACTICAL:III OPEN SOURCE TECHNOLOGY -PRACTICAL	SEMESTER	LEVEL
CO 1	Remember the basics of Shell script in Linux	III	K 1
CO 2	Demonstrate the concepts of Shell script and C program		K 2
CO 3	Utilize the syntax of PHP Language		K 3
CO 4	Analyze an insight on forms & cookies		K 4
CO 5	Assess an insight on MYSQL Database		K 5
21CAU12	CORE : XII SYSTEM SOFTWARE	SEMESTER	LEVEL
CO 1	Recognize the machine architecture and working process of Assembler, linker, loader, Macro Processor and compiler	III	K 1
CO 2	Demonstrate the functions of Assembler, Linker, Loader, Macro Processor and Compiler		K 2
CO 3	Apply the instructions and features of machine architecture		K 3
CO 4	Categorize the design options with system software process		K 4
CO 5	validate all the machine operations through system software issues		K 5
21AEU01	ABILITY ENHANCEMENT:I INFORMATION SECURITY	SEMESTER	LEVEL
CO 1	Recall the fundamental concepts of Information Security, Risk and Security policies	III	K 1
CO 2	Discuss the concepts of Risks, vulnerabilities, ethical and privacy issues		K 2
CO 3	Apply the ideas in security planning and construct the policies		K 3

CO 4	Categorize the Privacy, Ethical Issues, Laws, Software Issues and Crimes		K 4
CO 5	Summarize Cryptography, cipher text and threats in information security		K 5
21NMU01A	NON-MAJORELECTIVE:I INDIAN WOMEN AND SOCIETY	SEMESTER	LEVEL
CO1	Know women status in Indian society as an academic discipline	III	K1
CO2	Interpret the various roles of women, challenges and issues faced by them in the society		K2
CO3	Find out solutions to their legal issues and product themselves from the violence against women emphasize on women entrepreneurship for their empowerment		K3
CO4	Critically analyze the lifestyle and challenges of women		K4
CO5	Discuss the importance of women health and issues related to women in general		K5
21CAU14	CORE: XIV RELATIONAL DATABASE MANAGEMENT SYSTEMS	SEMESTER	LEVEL
CO1	Recall the basic concepts of database system.	IV	K1
CO2	Explain Normalization and Query language.		K2
CO3	Apply appropriate SQL queries and PL/SQL Programs for database application.		K3
CO4	Analyze different normal forms to design effective database design.		K4
CO5	Verify data in tables against appropriate constraints.		K5
21CAU15	CORE: XV PRACTICAL:IV SQL AND PL/SQL- PRACTICAL	SEMESTER	LEVEL
CO1	Recall the basic concepts of database system.	IV	K1
CO2	Demonstrate the use of Queries.		K2
CO3	Apply appropriate SQL queries and PL/SQL Programs for database application.		K3
CO4	Examine different looping structures to design effective program		K4
CO5	Assess the data in tables against appropriate constraints.		K5

21CAU16	CORE : XVI OPERATING SYSTEM	SEMESTER	LEVEL
CO1	Recall the fundamental concepts of operating system	IV	K1
CO2	Demonstrate the functions of deadlock and storage management		K2
CO3	Utilize the policies of scheduling		K3
CO4	Analyze memory management and deadlock		K4
CO5	Evaluate the concepts of storage management		K5
21CAU17	CORE: XVII ALLIED : IV BUSINESS ACCOUNTING	SEMESTER	LEVEL
CO1	Recall the important definitions in financial, cost and management accounting	IV	K1
CO2	Explain the concepts of financial, cost and management accounting		K2
CO3	Apply the accounting principles in solving the business problems		K3
CO4	Analyze the accounting standards through different types of accounts		K4
CO5	Evaluate the accounting methods in various problems		K5
21SECAU01	SKILL ENHANCEMENT : I PRACTICAL :V PROGRAMMING IN TALLY -PRACTICAL	SEMESTER	LEVEL
CO1	Recall the importance of company creation in Tally	IV	K1
CO2	Explain the concepts of ledgers and voucher details		K2
CO3	Apply the accounting principles in solving the business problems		K3
CO4	Analyze the accounting standards through different types of accounts		K4
CO5	Evaluate the accounting methods in various problems		K5

21AEU02	ABILITY ENHANCEMENT: II CONSUMER RIGHTS	SEMESTER	LEVEL
CO1	Memorize the procedure of redress of consumer complaints, and the role of different agencies in establishing product and service standards	IV	K1
CO2	Explain the Consumer Protection Law in India		K2
CO3	Impart sound practical grounding about the practice of consumer law and the procedure Followed		K3
CO4	Evaluate the regulations and legal actions that helps to protect consumers		K4
CO5	Analyse the knowledge and skills needed for a career in this field		K5
21CAU18	CORE : XVIII PROGRAMMING IN PYTHON	SEMESTER	LEVEL
CO1	Recall syntax and semantics of various programming constructs.	V	K1
CO2	Illustrate the process of structuring data using lists, tuples, and dictionaries		K2
CO3	Identify appropriate programming structure for a given problem.		K3
CO4	Convert an algorithm into a python program		K4
CO5	Infer the object oriented concepts in python		K5
21CAU19	CORE : XIX PRACTICAL:VI PROGRAMMING IN PYTHON - PRACTICAL	SEMESTER	LEVEL
CO1	Recall syntax and semantics of various programming constructs.	V	K1
CO2	Illustrate the process of structuring data using lists, tuples, and dictionaries		K2
CO3	Identify appropriate programming structure for a given problem.		K3
CO4	Convert an algorithm into a python program		K4
CO5	Infer the object oriented concepts in python		K5

21CAU20	CORE: XX COMPUTER GRAPHICS	SEMESTER	LEVEL
CO1	Describe the basics of computer graphics	V	K1
CO2	Explain applications, principles, commonly used and techniques of computer graphics and algorithms for Line-Drawing, Circle- Generating and Ellipse Generating.		K2
CO3	Apply two dimensional Geometric Transformations		K3
CO4	Analyze the attributes of output primitives		K4
CO5	Examine and appraise the two-dimensional viewing		K5
21CAU21	CORE: XXI MINI PROJECT	SEMESTER	LEVEL
CO1	Remember the thrust areas of project	V	K1
CO2	Demonstrate the problem pertaining to the domain		K2
CO3	Apply various algorithms in their relevant field		K3
CO4	Explore the real time applications		K4
CO5	Evaluate demographic variable and factors influencing software development		K5
21CAU22A	CORE: XXII ELECTIVE: I DATA MINING	SEMESTER	LEVEL
CO1	Remember the basics of Data Mining concepts	V	K1
CO2	Explain the techniques of Data Mining		K2
CO3	Classify the algorithms for mining the data efficiently		K3
CO4	Analyze clustering techniques and algorithms		K4
CO5	Evaluate the challenges of data mining in real world applications		K5
21CAU22B	CORE: XXII ELECTIVE: I INTRODUCTION TO COMPILER DESIGN	SEMESTER	LEVEL
CO1	Recall the basics of compilers and lexical analysis	V	K1
CO2	Infer the concepts of syntactic specification of programming languages and parsing techniques		K2
CO3	Apply the syntax and symbol tables in compiler design		K3
CO4	Analyze runtime storage and error recovery		K4
CO5	Interpret General introduction on code optimization		K5

21CAU22C	CORE: XXII ELECTIVE: I INTERNET OF THINGS	SEMESTER	LEVEL
CO1	Recall the general concepts of Internet of Things(IoT).	V	K1
CO2	Illustrate various IoT sensors and applications		K2
CO3	Apply design concepts to IoT solutions		K3
CO4	Compare various IoT architectures		K4
CO5	Evaluate Design issues in IoT applications		K5
21CSUOE1	CORE:XXIII OPEN ELECTIVE INTERNET FOR EVERYONE	SEMESTER	LEVEL
CO1	Outline the basic concept of the Internet, World Wide Web and Web browsers	V	K1
CO2	Explain the Knowledge of Finding Information in the Internet and awareness on Internet Security and Privacy		K2
CO3	Apply tips for effective use of Email, Advantages and Disadvantages of Email		K3
CO4	Analyze the Possibilities of Social Networking, Learning discussion forum software & effective use of video conferencing		K4
CO5	Evaluate the learn Blogging & Making Money in the Internet		K5
21ITUOE1	CORE:XXIII OPEN ELECTIVE BASICS OF COMPUTER TECHNOLOGY	SEMESTER	LEVEL
CO1	Recall the basics of Computer	V	K1
CO2	Illustrate the concepts of data communication and Computer networks		K2
CO3	Utilize Middleware and Gateways		K3
CO4	Analyze the concept of Mobile Computing		K4
CO5	Examine the DBMS Architecture		K5

21CAUOE1	CORE:XXIIIOPEN ELECTIVE MACHINE LEARNING	SEMESTER	LEVEL
CO1	Remember the Machine Learning Fundamentals	V	K1
CO2	Understanding the Machine Learning Concepts		K2
CO3	Summarize the Impact of Machine Learning Applications		K3
CO4	AnalyzeMachine Learning Support to Business Goals		K4
CO5	Evaluatethe Knowledge of Machine Skills		K5
21SEU02	SKILL ENHANCEMENT : II LIFE SKILLS	SEMESTER	LEVEL
CO1	Identify the common communication problems, what good communication skills are and what they can do to improve their abilities	V	K1
CO2	Demonstrate communication through the digital media		K2
CO3	Prepare themselves to situations as an individual and as a team.		K3
CO4	Analyse various leadership models, strengths and abilities to create their leadership vision		K4
CO5	Appraise their potential as human beings and conduct themselves properly in the ways of theworld.		K5
21PECAU01	PROFICIENCY ENHANCEMENT CASE TOOLS (SELF STUDY)	SEMESTER	LEVEL
CO1	Outline the concepts of data modeling and its tools	V	K1
CO2	Describe DFD, DDT, Ubridge, and UML		K2
CO3	Analyze real time problems and draw appropriate data modeling diagrams		K3
CO4	Apply the relevant modeling tools to represent the problem using diagrams		K4
CO5	Assess the software development life cycle with DFD and UML diagrams		K5

21PECAU01	PROFICIENCY ENHANCEMENT CASE TOOLS (SELF STUDY)	SEMESTER	LEVEL
CO1	Outline the concepts of data modeling and its tools	V	K1
CO2	Describe DFD, DDT, U bridge, and UML		K2
CO3	Analyze real time problems and draw appropriate data modeling diagrams		K3
CO4	Apply the relevant modeling tools to represent the problem using diagrams		K4
CO5	Assess the software development life cycle with DFD and UML diagrams		K5
21CAU24	CORE:XXIV MOBILE COMPUTING	SEMESTER	LEVEL
CO1	Outline the emergence of Mobile technology and its architecture	VI	K1
CO2	Identify the features of various technologies		K2
CO3	Apply the knowledge on mobile computing through telephony		K3
CO4	Examine the different Mobile networks		K4
CO5	Determine data services in mobility		K5
21CAU25	CORE:XXV PROGRAMMING IN VB.NET	SEMESTER	LEVEL
CO1	Outline the basic concepts of .Net Frame work, class and objects	VI	K1
CO2	Explain the concepts of data types, control statements, looping statements, arrays, structures, procedures and functions		K2
CO3	Illustrate the importance of windows form, interfaces, packages, inheritance and exception handling		K3
CO4	Analyze the various .NET controls and database controls		K4
CO5	Evaluate the use of ADO.Net connection		K5

21CAU26	CORE:XXVI PROGRAMMING IN VB.NET - PRACTICAL	SEMESTER	LEVEL
CO1	Recall the basic concepts of class and objects using console application	VI	K1
CO2	Illustrate the concepts of data types, control statements, looping statements, arrays, structures, procedures and functions using programs		K2
CO3	Build applications using windows form, interfaces, packages, inheritance and exception handling		K3
CO4	Analyze the usage of various .NET controls		K4
CO5	Examine the use of ADO.Net connection for real world applications		K5
21CAU27A	CORE:XXVII ELECTIVE-II NETWORK SECURITY	SEMESTER	LEVEL
CO1	Recall the various definitions involved in Symmetric Encryption	VI	K1
CO2	Illustrate various Public key cryptographic techniques		K2
CO3	Experiment with Secure Socket Layer		K3
CO4	Examine authentication applications		K4
CO5	Sketch IP Security and web Security		K5
21CAU27B	CORE:XXVII ELECTIVE :II BIG DATA ANALYTICS	SEMESTER	LEVEL
CO1	Recall the definitions in Big Data and Data Analytics	VI	K1
CO2	Explain NoSQL, Hadoop and Map Reduce Concepts with algorithms		K2
CO3	Apply Data Stream Management, Frequent Itemset Mining in clustering techniques		K3
CO4	Analyze Big Data Challenges, link analysis and Recommendation systems		K4
CO5	Evaluate Hadoop architecture and types of Big Data approach		K5

21CAU27C	CORE:XXVII ELECTIVE :II WEB SERVICES	SEMESTER	LEVEL
CO1	Outline the basics concepts of web services	VI	K1
CO2	Explain web service architecture and its design		K2
CO3	Model the appropriate web service architecture that can be used for real time applications		K3
CO4	Analyze wide range of applications of web services		K4
CO5	Recommend specific web service design for a real time problem		K5
21CAU28A	CORE:XXVIII ELECTIVE :III INFORMATICS	SEMESTER	LEVEL
CO1	Recall the special terms in Basics of Informatics	VI	K1
CO2	Demonstrate security and Ethics issues related to informatics.		K2
CO3	Apply technology informatics skills to solve specific industry data and information management problems, with a focus on usability and designing for users.		K3
CO4	Ideate informatics products and services.		K4
CO5	Conduct informatics Analysis and visualization applied to different real-world fields.		K5
21CAU28B	CORE:XXVIII ELECTIVE :III GREEN COMPUTING	SEMESTER	LEVEL
CO1	Label the problems concerning with e-waste and its consequences on environment	VI	K1
CO2	Describe the components involved and how effectively we can achieve cost saving without harming environment		K2
CO3	Inspect the procedural aspects towards going green.		K3
CO4	Categorize the means of green compliance		K4
CO5	Specify the certifications necessary for hardware devices		K5

21CAU28C	CORE:XXVIII ELECTIVE :III ARTIFICIAL INTELLIGENCE	SEMESTER	LEVEL
CO1	Outline the basic AI problems, techniques and knowledge representation issues	VI	K1
CO2	Explain the AI problem designs and issues, heuristic techniques and knowledge representation methods		K2
CO3	Apply first order predicate logic rules to solve AI problems		K3
CO4	Analyze AI problems using various search techniques		K4
CO5	Assess procedural and declarative knowledge representation methods		K5
21SECAU03	CORE: SKILL ENHANCEMENT : III SOFTWARE TESTING	SEMESTER	LEVEL
CO1	Recall the basics concepts of software testing	VI	K1
CO2	Explain the different software testing methods		K2
CO3	Develop various testing levels for different domains		K3
CO4	Classify various testing techniques that can be used for software testing		K4
CO5	Decide test plans for real time applications		K5