

DEPARTMENT OF COMPUTER TECHNOLOGY(IT & CT- UG)
Programme: B.Sc., Computer Technology

PO No.	Programme Outcomes Upon completion of the B.Sc. Degree Programme,the graduate will be able to
PO-1	emerge with competency in the subject of Computer Technology and apply knowledge to cater to the needs of Society / Employer / Institution / Own Business Enterprise
PO-2	imbibe analytical/critical/logical/innovative thinking skills in the field of software development, problem solving and hardware designing
PO-3	acquire distinct traits and ethics with high professionalism to gain a broader insight into the domain concerned for nation building
PO-4	develop students with the basic knowledge of Computer Fundamentals, digital systems hardware and operating system.
PO-5	provide students a deep insight into the principles of programming, various cutting edge technologies and tools, thereby creating diverse career opportunities

PSO No.	Programme Specific Outcomes Upon completion of these courses the student would
PSO-1	transform and empower women graduates to meet global challenges through holistic education in terms of recent Teaching-Learning methodologies
PSO-2	groom the graduates towards excellence through building communication skills, handling leadership challenges and negotiating career path ways
PSO-3	heighten the conscious of the graduates on socio-economic concern and to inculcate moral and ethical values to chisel them as better human being
PSO-4	learn future technologies through acquired foundational skills and to develop software solutions for modern business environments by employing appropriate problem solving strategies
PSO-5	analyze the local and global impact of computing on individuals, organizations, and society by applying ethical principles and responsibilities during professional practice

Course Title	C PROGRAMMING WITH DATA STRUCTURES	
CODE	24CTUC101	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand the concepts of C like variables, data types, manage I/O operations and operators	K1
CO-2	Apply functions, strings and Arrays in C using data structure and Implementing structures, unions and pointers	K3
CO-3	Implement the data structure concepts like array, sorting & searching and linked list	K2
CO-4	Acquire the knowledge on data structure concepts such as stacks and queues	K4
CO-5	Understand the concepts of binary tree representation and graph	K4

Course Title	C PROGRAMMING WITH DATA STRUCTURES LAB	
CODE	24CTUCP01	
CO No.	Course Outcomes	Knowledge Level
CO-1	Construct C programs using arrays and operators	K1
CO-2	Demonstrate branching and looping concepts	K2
CO-3	Construct programs using Strings and Functions	K3
CO-4	Make use of pointers in C programs	K4
CO-5	Build Code for Problems in Data structures	K3

Course Title	MATHEMATICS – I (NUMERICAL METHODS AND BIO STATISTICS) (Derivations not included – Problems only)	
CODE	23CAUA101/23ITUA101/23CTUA101	
CO No.	Course Outcomes	Knowledge Level
CO-1	Identify and Apply the matrix operations for solving any matrix related problems	K1 - K3
CO-2	Determine and apply appropriate numerical methods for solving System of Linear Equations	K2 - K4
CO-3	Compare and distinguish the use of differentiation / integration methods and plan for solving scientific problems	K3 - K4
CO-4	Analyze and infer the type of data for using measures of location and measures of dispersion	K2 - K4
CO-5	Recognize and apply the correlation/regression methods for finding the association between the dependent and independent variables	K2 - K3

Course Title	COMPUTER FUNDAMENTALS	
CODE	24CTUC102/24DAUC102	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand the generation, classification and anatomy of digital computer	K1
CO-2	Understand the computer system hardware, instruction cycle and interconnecting units	K3
CO-3	Acquire the knowledge about I/O devices	K2
CO-4	Get an idea about types of software, operating system and programming languages	K1
CO-5	Understand the Internet basics, protocols, addressing, search engines and mailing basics	K3

Course Title	DIGITAL COMPUTER FUNDAMENTALS	
CODE	23CTUC203	
CO No.	Course Outcomes	Knowledge Level
CO-1	Compare and illustrate the memory concepts, peripherals And standard I/O interfaces	K2
CO-2	Study and investigate the sequential networks using counters and Shift registers	K2
CO-3	Acquire number systems and perform various conversions, binary manipulation and complements	K3
CO-4	Apply the knowledge of Boolean algebra to simplify the Boolean Expressions using the standard forms or Karnaugh map method	K3
CO-5	Get knowledge of ALU operations and can design electronic Circuits using different types of adders	K3

Course Title	DIGITAL LAB	
CODE	23CTUCP02	
CO No.	Course Outcomes	Knowledge Level
CO-1	Demonstrate a code conversion and n-bit parallel addition	K3
CO-2	Implement assembly language program for addition of 32-bit Signed numbers, ASCII number, BCD number	K3
CO-3	Construct a Half adder, Full adder, Half subtract or and Full subtractor	K3
CO-4	Illustrate NAND as universal building block, De-Morgan's Laws	K3
CO-5	Implement assembly language program for string comparison and Number of character present in a string	K3

Course Title	MATHEMATICS – II (OPTIMIZATION TECHNIQUES)	
CODE	23CAUA202/23CTUA202	
CO No.	Course Outcomes	Knowledge Level
CO-1	Define the basic skills and knowledge of operations research to solve Linear Programming Problem	K₂
CO-2	Relate and solve different Transportation Models to find the feasible and optimum solutions and apply Hungarian method for assignment problems	K₃
CO-3	Describe various costs in Inventory and apply EOQ models with shortage and without shortage in Inventory control	K₃
CO-4	Examine the appropriate period for replacement of equipments and analyze new simple models, like CPM and PERT to improve decision-making and develop critical thinking	K₃
CO-5	Analyze the characteristics and classification of queuing system and apply them to the problems of finite/infinite models	K₃

Course Title	PC HARDWARE AND TROUBLESHOOTING	
CODE	24CTUC204	
CO No.	Course Outcomes	Knowledge Level
CO-1	Acquire the basic concept and structure of computer hardware components to examine and specify their functions	K₁
CO-2	Identifying the different storage mediums and understand the purpose and functions of the computer peripherals	K₂
CO-3	To manage the data transfer between the hard disk drive and the computer system.	K₃
CO-4	To apply system installation and related problems, upgrade and configure operating systems. Ability to diagnose and resolve common hardware issues that can occur in PC.	K₄
CO-5	To Maintain and Optimize computer system for optimal performance	K₄

Course Title	RDBMS WITH ORACLE	
CODE	23ITUC407/23CTUC305	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand the basic concepts of Relational Data Model, Entity- Relationship Model and process of Normalization	K1
CO-2	Understand and construct database using Structured Query Language (SQL) in Oracle9i environment.	K2
CO-3	Learn basics of PL/SQL and develop programs using Cursors, Exceptions, Procedures and Functions	K2
CO-4	Understand and use built-in functions and enhance the knowledge of handling multiple tables	K3
CO-5	Attain a good practical skill of managing and retrieving of data using Data Manipulation Language (DML)	K2

Course Title	PROGRAMMING IN JAVA	
CODE	23CAUC306 / 23CTUC306	
CO No.	Course Outcomes	Knowledge Level
CO1.	Demonstrate the concept of object oriented programming through Java	K1,K2
CO2.	Illustrate the syntax and semantics of Java	K2
CO3.	Apply the concept of Inheritance, Modularity, Concurrency, exceptions handling and data persistence for developing java program	K3
CO4.	Apply the concept of files	K3
CO5.	Understand the fundamental concepts of AWT controls, layouts and events	K1,K2

Course Title	JAVA PROGRAMMING LAB	
CODE	23CAUCP03 / 23CTUCP03	
CO No.	Course Outcomes	Knowledge Level
CO1	Demonstrate the creation of objects, classes and methods and the concepts of constructor, methods overloading, Arrays, branching and looping	K2
CO2	Develop Java programs using Strings, Interfaces and Packages	K3
CO3	Construct Java programs using Multithreaded Programming and exception Handling	K3
CO4	Build Java programs to handle files	K3
CO5	Create data files and Design a page using AWT controls & Mouse Events in Java programming	K3

Course Title	MICROPROCESSORS AND ITS ARCHITECTURE	
CODE	23ITUA303/23CTUA303	
CO No.	Course Outcomes	Knowledge Level
CO1.	Acquire the knowledge on different processor concepts and Intel 8086 architecture	K1
CO2.	Demonstrate the 8086 instruction sets process and assembly Language programs	K2
CO3.	Infer the Intel 386 and Intel 486 microprocessor	K2
CO4.	Describe IO devices, interfacing chips and 32 and 64 bit processors	K1
CO5.	Understand the techniques of connecting convertors with microprocessor	K1

Course Title	COMPUTER ARCHITECTURE AND ORGANIZATION	
CODE	23CTUC407	
CO No.	Course Outcomes	Knowledge Level
CO1	Gain knowledge on data representations of binary coded form in computer registers and different micro operations and its associated hardware	K2
CO2	Comprehend the operation of ALU and algorithms to implement arithmetic operations	K3
CO3	Express different processor organizations and instruction formats	K2
CO4	Understand Memory hierarchy and types of memory organization	K2
CO5	Describe input/output mechanisms and interfaces	K1

Course Title	C#.NET PROGRAMMING	
CODE	23CTUC408	
CO No.	Course Outcomes	Knowledge Level
CO1	Define the basic concepts of .NET framework	K1
CO2	Understand the general programming structure of C# in developing software solutions based on user requirements	K2
CO3	Develop programming skills by writing console based applications	K3
CO4	Examine the background process with the help of windows application	K3
CO5	Illustrate the concepts of database access	K3

Course Title	C#.NET PROGRAMMING LAB	
CODE	23CTUCP04	
CO No.	Course Outcomes	Knowledge Level
CO1	Identify the basic terminology used in computer programming.	K2
CO2	Understand the execution of the C# program using arrays, control structures and exceptions.	K3
CO3	Use C# to implement object oriented concepts in developing solutions.	K3
CO4	Apply the GUI tools to develop the windows application.	K3
CO5	Demonstrate the use of various controls and connectivity in Windows application.	K3

Course Title	IOT AND ITS APPLICATIONS	
CODE	23ITUA404 / 23CTUA404	
CO No.	Course Outcomes	Knowledge Level
CO1	To understand the basic concepts of IoT, characteristics and enabling technologies	K1
CO2	To describe conceptual framework of transducers, sensors and actuators	K2
CO3	To understand the IoT protocols and its domain specifications	K1
CO4	To demonstrate the design methodology and logical design using python	K2
CO5	To understand IoT Physical Devices and Endpoints of Arduino Uno and Raspberry Pi	K1

Course Title	PYTHON PROGRAMMING	
CODE	22CAUC510/ 22ITUC510/ 22CTUC510	
CO No.	Course Outcomes	Knowledge Level
CO1	Apply decision making and repetition structures in program design.	K2
CO2	Develop functions to improve readability of programs	K1
CO3	Design the programs using Python data types such as tuples, strings, lists and dictionaries	K4
CO4	Adopt file and exception handling mechanisms	K3
CO5	Ability to build python program to solve real world problems	K3

Course Title	PYTHON PROGRAMMING LAB	
CODE	21CAUCP05/21ITUCP05/21CTUCP05	
CO No.	Course Outcomes	Knowledge Level
CO1	Demonstrate branching and looping concepts	K2
CO2	Develop code using Lists and Tuples	K4
CO3	Construct programs using Strings and Functions	K3
CO4	Build Code for Problems using Dictionary and Sets	K3
CO5	Make use of Class in Python Programs	K3

Course Title	OPERATING SYSTEM	
CODE	22CSUC509/ 22CAUC509/ 22CTUC509/22CYUC509	
CO No.	Course Outcomes	Knowledge Level
CO1	Understand the basic concepts of a process and its states	K1
CO2	Acquire the knowledge of real storage and virtual storage	K2
CO3	Procure the facts of processor scheduling by means of various scheduling algorithms	K2
CO4	Understand the basic operations on primary and secondary storage disks	K3
CO5	Get awareness about the functions of a file system. Able to relate UNIX and LINUX operating system	K3

Course Title	MOBILE APPLICATION DEVELOPMENT	
CODE	22CTUE531	
CO No.	Course Outcomes	Knowledge Level
CO1	Understand the basic concepts of mobile applications, requirement gathering and validation	K1
CO2	Demonstrate the architecture of mobile application and embedded system	K2
CO3	Understand the multimedia and web access, integration with GPS and social media	K2
CO4	Demonstrate the concept of android, GoogleMaps, GPS and Wifi	K2
CO5	Illustrate the concept to implementing IOS.	K3

Course Title	CYBER SECURITY AND CYBER LAW	
CODE	22CTUE521	
CO No.	Course Outcomes	Knowledge Level
CO1	Classify hacking, cracking and reconnaissance	K1
CO2	Describe scanning tools and vulnerabilities	K2
CO3	Understand about password cracking and prevention	K2
CO4	Assess the cybercrimes, Session Hijacking	K2
CO5	Practice cyber ethics by learning the Information Technology Act and Indian cyber law	K3

Course Title	ANDROID PROGRAMMING	
CODE	22CSUC612/22CTUC612/ 22DAUC612	
CO No.	Course Outcomes	Knowledge Level
CO1.	Demonstrate the Android Platform, Architecture and Features	K1–K2
CO2.	Design User Interface and Develop Activity for Android applications	K1–K2
CO3.	Use Intent, Broadcast Receivers and Internet Services in Android applications	K3
CO4.	Apply Multimedia, Camera and Location Based Services in android Applications	K3
CO5.	Develop and Implement Database Applications using JSON	K3–K5

Course Title	DATA MINING AND BIG DATA	
CODE	22ITUE521/ 22CTUE612	
CO No.	Course Outcomes	Knowledge Level
CO1	Understand basic Data Mining Principles and Data Warehouse fundamentals	K1
CO2	Compare and evaluate different data mining techniques	K2
CO3	Design and deploy appropriate classification and clustering techniques	K2
CO4	Understand the concept of Big Data and exploring its uses in business context	K3
CO5	Understand the technologies and analytics in Big Data	K2

Course Title	ANDROID PROGRAMMING LAB	
CODE	21CTUCP06/21DAUCP06	
CO No.	Course Outcomes	Knowledge Level
CO1	Demonstrate the functions of UI components.	K2
CO2	Ability to design clean UI for Android Applications	K3-K5
CO3	Construct Mobile apps incorporating message sending, camera activation, audio playing and google maps features	K3-K5
CO4	Build Mobile apps with database using SQLite	K3-K5
CO5	Create simple login applications using PHP and MySQL	K3-K5

Course Title	WIRELESS APPLICATION PROTOCOL	
CODE	22CAUE622/22CTUE622/ 22DAUE622	
CO No.	Course Outcomes	Knowledge Level
CO1	Understand the basic concepts of wireless application protocol.	K1-K2
CO2	Explain the architecture, functioning, and protocols, of various WAP.	K2-K4
CO3	Enhance the knowledge of gate way and hosting for WAP pages.	K2-K3
CO4	Demonstrate the concept of wireless markup language and its applications.	K2-K3
CO5	Demonstrate an ability to evaluate security issues associated with Wireless application protocol.	K1-K4

Course Title	ARTIFICIAL INTELLIGENCE	
CODE	22CSUE632/22CAUE632/22ITUE632/22CTUE632/22DAUE632	
CO No.	Course Outcomes	Knowledge Level
CO1	Describe the key components of the artificial intelligence field	K1
CO2	Describe basic principles of AI in solutions that require problem solving, inference, perception and knowledge representation	K2
CO3	Define Syntax, Semantics and Inference procedure and represent knowledge of the world using logic and infer new facts from that Knowledge	K2
CO4	Understand the procedure and declarative representation of knowledge and programming paradigm for logic	K1
CO5	Demonstrate the working knowledge in PROLOG in order to write simple PROLOG programs and to implement an AI problem to be solved using prolog	K3