DEPARTMENT OF COMPUTER APPLICATIONS
Programme: B.C.A.,

PO No.	Programme Outcomes Upon completion of the B.C.A. Degree Programme, the graduate will be able to
PO-1	emerge with competency in the subject of Computer Applications and apply fundamental 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 and an ability to use the techniques, skills, and modern computer application tools
PO-3	acquire distinct traits and ethics with high professionalism to gain a broader insight into the domain concerned for nation building
PO-4	work in team to build, system, component/processes to meet the desired needs of IT industries and other employment sectors
PO-5	able to design computer applications to meet desired needs within realistic constraints such as economic and ethical to design and implement by evaluating a computer-based system or program to meet desired needs

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	train the students on the state-of-the-art tools and techniques and facilitate them to comprehend, analyze, design and create feasible solutions/innovative products for real life problems
PSO-5	be successful to pursue higher education and rise to the challenges of the Industry and Research.

Course Title	C PROGRAMMING	
CODE	**18CSUC101 / 18CAUC101**	
CO No.	**Course Outcomes**	**Knowledge Level**
CO-1	Demonstrate the basic concepts of Algorithms to solve problems	K2
CO-2	Define the fundamentals of C Programming	K1
CO-3	Distinguish between branching and looping concept	K4
CO-4	Develop C programs using Array Data structure, Functions, Structure, Union and Pointers to solve complex problems	K3
CO-5	Apply File concepts to data storage and manipulation	K3

Course Title	C PROGRAMMING LAB	
CODE	**18CSUCP01/ 18CAUCP01**	
CO No.	**Course Outcomes**	**Knowledge Level**
CO-1	Demonstrate branching and looping constructs	K2
CO-2	Distinguish between Iteration and Recursion	K4
CO-3	Construct C programs using arrays and functions	K3
CO-4	Make use of Pointers in C Programs	K3
CO-5	Build C programs for Biological Problems	K3

Course Title	MATHEMATICS – I (NUMERICAL METHODS AND BIO STATISTICS) (Derivations not included – Problems only)	
CODE	**18CSUA101/18CAUA101/ 18ITUA101/18CTUA101**	
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	DIGITAL FUNDAMENTALS AND ARCHITECTURE	
CODE	**18CSUC202/18CAUC202**	
CO No.	**Course Outcomes**	**Knowledge Level**
CO-1	Acquire knowledge on number systems and Boolean algebra	K2
CO-2	Interpret logic functions, circuits, truth tables, and Boolean algebra expressions for logic gates	K3
CO-3	Simplify the Boolean expressions and circuits using Karnaugh Maps	K3
CO-4	Outline the fundamentals of combinational logic design, Flip-Flop, computer buses, I/O Peripherals and various data transfer techniques	K2

CO-5	Outline the concept of Memory Organization and mapping Techniques	K2

Course Title	**LINUX AND PERL PROGRAMMING**	
CODE	**18CSUC203/ 18CAUC203**	
CO No.	**Course Outcomes**	**Knowledge Level**
CO-1	Explain the structure of Linux Operating System	K2
CO-2	Develop Linux utilities to perform File processing, Directory handling, User Management and display system configuration	K3
CO-3	Develop shell scripts using pipes, redirection, filters and Pipes	K2
CO-4	Understand the concepts of process, backup and compression	K3
CO-5	Develop Perl scripts using array, hash data structures and Regular expressions	K3

Course Title	LINUX AND PERL PROGRAMMING	
CODE	18CSUC203/ 18CAUC203	
CO No.	Course Outcomes	Knowledge Level
CO-1	Explain the structure of Linux Operating System	K2
CO-2	Develop Linux utilities to perform File processing, Directory handling, User Management and display system configuration	K3
CO-3	Develop shell scripts using pipes, redirection, filters and Pipes	K2
CO-4	Understand the concepts of process, backup and compression	K3
CO-5	Develop Perl scripts using array, hash data structures and Regular expressions	K3

Course Title	LINUX AND PERL PROGRAMMING LAB	
CODE	18CSUCP02/18CAUCP02	
CO No.	Course Outcomes	Knowledge Level
CO-1	Develop Linux utilities to perform File processing, Directory handling and User Management	K3
CO-2	Develop shell scripts using pipes, redirection, filters and Pipes	K3
CO-3	Develop shell scripts to display system configuration	K3
CO-4	Develop simple Perl scripts	K3
CO-5	Develop simple Perl scripts applicable to Bioinformatics	K3

Course Title	DATA STRUCTURES AND ALGORITHMS	
CODE	18CSUC304/ 18CAUC304	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand the basic concepts of data structures and algorithms	K1-K2
CO-2	Construct and analyze of stack and queue operations with illustrations	K2-K4
CO-3	Enhance the knowledge of Linked List and dynamic storage management.	K2-K3
CO-4	Demonstrate the concept of trees and its applications.	K2-K3
CO-5	Design and implement various sorting and searching algorithms for applications and understand the concept of file rganizations.	K1-K4

Course Title	OBJECT ORIENTED PROGRAMMING WITH JAVA	
CODE	18CSUC305 / 18CAUC305 / 18CTUC305	
CO No.	Course Outcomes	Knowledge Level
CO-1	Demonstrate the concept of object oriented programming through Java	K1, K2
CO-2	Illustrate the syntax and semantics of Java	K2
CO-3	Apply the concept of Inheritance, Modularity, Concurrency, Exceptions handling and data persistence for developing java program	K3
CO-4	Develop java programs for applets and graphics programming	K3
CO-5	Understand the fundamental concepts of AWT controls, layouts and events	K1,K2

Course Title	COMPUTER NETWORKS	
CODE	18CSUC510 / 18CAUC510	
CO No.	Course Outcomes	Knowledge Level
CO-1	Demonstrate different Network models.	K2
CO-2	Identify and differentiate the functionalities and devices of each layer in the network model	K1-K2
CO-3	Understand the purpose and services of different protocols	K1-K2
CO-4	Analyze various routing algorithms.	K2-K3
CO-5	Secure data communication using various security measures	K4

Course Title	SOFTWARE ENGINEERING	
CODE	18CSUC511/18CAUC511/ 19ITUC306 /18CTUC511	
CO No.	Course Outcomes	Knowledge Level
CO-1	Recognize basic software engineering methods, practices and their appropriate application	K1
CO-2	Understand common life cycle models to plan and deliver an effective Software engineering process	K2
CO-3	Describe the concepts from Software engineering, spanning all aspects of activities in Software engineering process	K2
CO-4	Identify the implementation issues such as modularity and coding standards	K2
CO-5	Compare and study the software testing approaches	K3

Course Title	PYTHON PROGRAMMING	
CODE	18CSUC512 / 18CAUC512/18CTUC614	
CO No.	Course Outcomes	Knowledge Level
CO-1	Apply decision making and repetition structures in program design.	K2
CO-2	Develop functions to improve readability of programs	K1
CO-3	Design the programs using Python data types such as tuples, strings, lists and dictionaries	K4
CO-4	Adopt file and exception handling mechanisms	K3
CO-5	Ability to build python program to solve real world problems	K3

Course Title	PYTHON PROGRAMMING LAB	
CODE	18CSUC512 / 18CAUC512/18CTUC614	
CO No.	Course Outcomes	Knowledge Level
CO-1	Demonstrate branching and looping concepts	K2
CO-2	Develop code using Lists and Tuples	K4
CO-3	Construct programs using Strings and Functions	K3
CO-4	Build Code for Problems using Dictionary and Sets	K3
CO-5	Make use of Class in Python Programs	K3

Course Title	COMPUTER GRAPHICS AND MULTIMEDIA	
CODE	**18CAUE511**	
CO No.	**Course Outcomes**	**Knowledge Level**
CO-1	Understand the concept on Output Primitives and kind of Attributes.	K2
CO-2	Gain a more profound understanding of measurement and of 2 Dimensional geometry.	K2
CO-3	Learn the Types of text, Coloring the text and File formats.	K3
CO-4	Evaluate the Nature sound waves and audio types.	K3
CO-5	Demonstrate the use of animation, video control, and scanned images.	K3

Course Title	E-COMMERCE	
CODE	**18CAUE531**	
CO No.	**Course Outcomes**	**Knowledge Level**
CO-1	Demonstrate the basic concepts of E-Commerce and world wide web	K1
CO-2	Define the E-strategies, Tactics, Managerial and customer related issues.	K2
CO-3	Explore the Website Evaluation, Usability Testing and hosting the website.	K4
CO-4	Evaluate electronic payment systems and apply E-Security protection in E-commerce.	K3
CO-5	Discuss about ethical and legal issues in E-commerce	K3

Course Title	PREDICTIVE ANALYTICS	
CODE	18CSUE521/18CAUE521/18ITUE531/18CTUE521	
CO No.	Course Outcomes	Knowledge Level
CO-1	Know about the fundamentals concepts of big data	K1
CO-2	Gain knowledge about data mining and predictive analytics.	K1
CO-3	Analyze various types of Predictive Models and develop a Predictive Model	K3
CO-4	Analyze various types of social networks and mapping of social networks	K3

Course Title	DTP DESIGN TOOLS(PAGEMAKER, PHOTOSHOP & CORELDRAW) LAB	
CODE	18CSUSP03 / 18CAUSP03/ 18ITUSP03/ 18CTUSP03	
CO No.	Course Outcomes	Knowledge Level
CO-1	Use various tools to design and produce publications using Pagemaker that requires a combination of text and graphics.	K2
CO-2	To import text and artwork from other computer application packages	K2
CO-3	Creates pixel based raster images using Photoshop tools with multiple image-editing functions fall under the categories of drawing; painting; measuring and navigation; selection; typing; and retouching	K3
CO-4	Apply effects or adjust images	K2
CO-5	Create big banners and any large entities using vector-based software Coreldraw	K3

Course Title	OPEN SOURCE TECHNOLOGIES	
CODE	**18CSUC613/18CAUC613/ 18CTUC613/ 18ITUC613**	
CO No.	**Course Outcomes**	**Knowledge Level**
CO-1	Acquire knowledge on open source, principles and its methodology.	K2
CO-2	Develop the knowledge of different software licenses and their usage.	K2
CO-3	Practice the concepts of control structures and functions in PHP applications	K2-K3
CO-4	Use string handling and array operations in PHP applications	K2-K3
CO-5	Apply the connectivity between PHP and MySQL database and develop web pages using PHP, HTML and MySQL	K4

Course Title	ANDROID PROGRAMMING	
CODE	**18CSUC512 / 18CAUC512 / 18CTUC614**	
CO No.	**Course Outcomes**	**Knowledge Level**
CO-1	Demonstrate the Android Platform, Architecture and Features	K1 – K2
CO-2	Design User Interface and Develop Activity for Android Applications	K1 – K2
CO-3	Use Indent, Broadcast Receivers and Internet Services in Android Applications	K3
CO-4	Apply Multimedia, Camera and Location Based Services in Android Applications	K3
CO-5	Develop and Implement Database Applications using JSON	K3 – K5

Course Title	ANDROID PROGRAMMING LAB	
CODE	18CSUCP05/18CAUCP05/18CTUCP06	
CO No.	Course Outcomes	Knowledge Level
CO-1	Demonstrate the functions of UI components	K2
CO-2	Create User Interfaces for any mobile application	K3-K5
CO-3	Construct Mobile apps incorporating message sending, camera activation, audio playing and google maps features	K3-K5
CO-4	Build Mobile apps with database using SQLite	K3-K5
CO-5	Create simple applications using JSON	K3-K5

Course Title	WIRELESS APPLICATION PROTOCOL	
CODE	18CSUE612 / 18CAUC613 / 18CTUE632	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand the basic concepts of wireless application protocol.	K1-K2
CO-2	Explain the architecture, functioning, and protocols, of various WAP.	K2-K4
CO-3	Enhance the knowledge of gateway and hosting for WAP pages.	K2-K3
CO-4	Demonstrate the concept of wireless markup language and its applications.	K2-K3
CO-5	Demonstrate an ability to evaluate security issues associated with wireless application protocol.	K1-K4

Course Title	SOFTWARE PROJECT MANAGEMENT	
CODE	18CAUE612	
CO No.	Course Outcomes	Knowledge Level
CO-1	Identify suitable software process model for software projects.	K2
CO-2	Differentiate different software product development techniques.	K2
CO-3	Apply appropriate software cost estimation technique for a given project.	K3
CO-4	Apply software project management principles for a software project.	K3
CO-5	Develop software metrics for measuring and managing software processes.	K4

Course Title	INTERNET OF THINGS AND ITS APPLICATIONS	
CODE	18CAUE632 / 18CTUC622/ 18ITUC612	
CO No.	Course Outcomes	Knowledge Level
CO-1	To understand the physical, logical design of IoT and to identify various IoT levels	K1
CO-2	To describe conceptual framework, architectural views ,technology behind IoT and design principles for connected devices	K2
CO-3	To understand the Physical Servers and different types of applications in various domains	K1
CO-4	To demonstrate the design methodology and building blocks of IoT devices	K2
CO-5	To understand IoT privacy, security, vulnerabilities solutions and business models with applications	K1

Course Title	Skill Based Subject IV - PHP and MySQL Lab	
CODE	18CSUSP04/ 18CAUSP04/ 18CTUSP04/ 18ITUSP04	
CO No.	Course Outcomes	Knowledge Level
CO-1	Implement control structures	K3
CO-2	Apply the string functions and array operations	K3
CO-3	Implement the concepts of user defined functions	K3
CO-4	Demonstrate the connectivity with MySQL database	K4
CO-5	Develop web pages using PHP, HTML and MySQL	K4