

MADURAI KAMARAJ UNIVERSITY

University with Potential for Excellence)

Bachelor of Computer Application - Semester

CHOICE BASED CREDIT SYSTEM REVISED SYLLABUS

(This will be effective from the academic year 2023-2024)

PROGRAM NAME: Bachelor of Computer Applications

PROGRAM CODE: SCA8

Outcome of the Program:

- BCA Graduates will have the necessary technical, scientific as well as basic managerial and financial procedure to analyze and solve real world problem within their domain.
- BCA Graduates will have clarity on both conceptual and applications oriented skills in computer accounting in IT applications.
- BCA Graduates will have awareness on ethics, values sustainability creative aspects.
- BCA Graduates will have the ability and the mindset to continuously update and innovate.

Semester I

Subject: Skill Based- Structured Programming in C

Subject Code : SCAPF11

CO1	To Familiarize the students with the programming basics and the fundamentals of C, Data types in C, Mathematical and logical operations.
CO2	To understand the concept using if statements and loops.
CO3	This unit covers the concept of Arrays.
CO4	This unit covers the concept of Functions.
CO5	To understand the concept of implementing pointers.

Subject: Core 1:Python Programming

Subject Code: SCAPC11

CO1	To make students understand the concepts of Python Programming.
CO2	To apply the OOPs concept in PYTHON programming.
CO3	To import knowledge on demand and supply concepts.
CO4	To make the students learn best practices in PYTHON programming.
CO5	To know the costs and profit maximization.

Subject Name : Core 2: Python Programming Lab

Subject Code : SCAPC1P

CO1	Demonstrate the understanding of syntax and semantics.
CO2	Identify the problem and solve using PYTHON programming techniques.
CO3	Identify suitable programming constructs for problem solving.
CO4	Analyze various concepts of PYTHON language to solve the problem in an efficient way.
CO5	Develop a PYTHON program for a given problem and test for its correctness.

Subject: Allied- Digital Logic Fundamentals

Subject Code: SCAPT11

CO1	Classify various gates, binary codes and illustrate laws and theorem's of Boolean Algebra.
CO2	Convert numbers from one radix to another and build logic circuits with optimal design.
CO3	Apply binary addition, subtraction 2's complement arithmetic to implement arithmetic.
CO4	Assess the functioning of multiplexer, decoder, flip flop, register and memory.
CO5	Design a digital circuit using the knowledge acquired from combinational logic, sequential logic, and K-map.

Subject: Skill Based - Office Automation Lab

Subject Code:SCAPS1P

CO1	Possess the knowledge on the basics of computers and its components.
CO2	Gain knowledge on creating documents, spread sheet and presentation.
CO3	Learn the concepts of database and implement the query in database.
CO4	Demonstrate the understanding of different automation tools.
CO5	Utilize the automation tools for documentation, calculation and presentation purpose.

Semester- II

Subject: Core – Object Oriented Programming Concept Using C++

Subject Code: SCAPC21

CO1	Remember the program structure of C with its syntax and semantics.
CO2	Understand the programming principles in C. (data types, operators, branching and looping, arrays, functions, structures, pointers and files)
CO3	Apply the programming principles learnt in real-time problems.
CO4	Analyze the various methods of solving a problem and choose the best method.
CO5	Code, debug and test the problems with appropriate test cases.

Subject :Core – C++ Programming Lab

Subject Code : SCAPC2P

CO1	Remember the program structure of C with its syntax and semantics.
CO2	Understand the programming principles in C (data types, operators, branching and looping, arrays, functions, structures, pointers and files)
CO3	Apply the programming principles learnt in real-time problems.

CO4	Analyze the various methods of solving a problem and choose the best method.
CO5	Code, debug and test the problems with appropriate test cases.

Subject : Financial Accounting

Subject Code : SCAPT21

CO1	To learn basic concepts and conventions and accounting rules
CO2	To describe the main elements of financial accounting information asserts, revenue an expenses
CO3	To learn how to create profit and loss account in the balance sheet
CO4	To learn how to create ledger creation in Tally 9
CO5	To learn how to create voucher, Trial balance, profit and loss account

Subject: Skill Based 2 – Multimedia Systems

Subject Code: SCAPS22

CO1	Understand the concepts, importance, application and the process of developing multimedia.
CO2	To have basic knowledge and understanding about image related processing.
CO3	To understand the framework of frames and bit images to animations.
CO4	Speaks about the multimedia projects and stages of requirement in phase of project.
CO5	Understanding the concept of cost involved in multimedia planning, designing, and producing.

Subject: Skill Based – Introduction to HTML

Subject Code: SCAPS21

CO1	Knows the basic concept in HTML Concepts of resources in HTML.
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CO2	Knows Design concept. Concept of Meta Data. Understand the concept of save the files.
CO3	Understand the page formatting. Concept of list.
CO4	Creating Links. Know the concept of creating link to email address.
CO5	Concept of adding images. Understand the table creation.

Semester-III

Subject: Core - Java Programming

Subject Code: SCAJC31

CO1	Platform Independent Language
CO2	Learn about operators like Arithmetic, Bitwise and Logical Operators
CO3	Learn about loops like while, do while and for Loop
CO4	Learn about Packages in Java
CO5	Learn about Applets and AWT, Swing in java.

Subject: Core - Java Programming Lab

Subject Code: SCAJC3P

CO1	Platform Independent Language
CO2	Learn about string manipulations
CO3	Learn about applet programming
CO4	Learn about AWT/ Swing and event handling
CO5	Learn about JDBC, Servlets, and swing

Subject: Digital Principles and computer organization

Subject Code: SCAJC32

CO1	To design digital circuits using simplified Boolean functions
CO2	To analyze and design combinational circuits
CO3	To analyze and design synchronous and asynchronous sequential circuits
CO4	To understand Programmable Logic Devices
CO5	To write HDL code for combinational and sequential circuits

Subject: E-Commerce

Subject Code:SCAJA31

CO1	E-commerce (electronic commerce) is the buying and selling of goods and services, or the transmitting of funds or data, over an electronic network, primarily the internet.
CO2	These business transactions occur either as business-to-business (B2B), business-to-consumer (B2C), consumer-to-consumer or consumer-to-business.
CO3	Direct to consumer (D2C or DTC) has seen a massive surge since the advent of the pandemic, as brands who didn't embrace D2C e-commerce were caught scrambling to adapt.
CO4	From CPG to wholesale to automotive and more, every industry is now paying attention, hoping to better engage customers and deliver what they want.
CO5	Direct to consumer e-commerce is the newest model of ecommerce. D2C means that a brand is selling directly to their end customer without going through a retailer, distributor, or wholesaler.

Subject: Skill Based - Script Programming Lab

Subject Code: SCAJS3P

CO1	A scripting language or script language is a programming language for a runtime system that automates the execution of tasks
CO2	A scripting language's primitives are usually elementary tasks or API calls, and the scripting language allows them to be combined into more programs.
CO3	Environments that can be automated through scripting include application software, text editors, web pages, operating system shells and embedded systems
CO4	Scripting languages are also sometimes referred to as very high-level programming languages, as they sometimes operate at a high level of abstraction, or as control languages, particularly for job control languages on mainframes.
CO5	The term scripting language is also used in a wider sense, namely, to refer to dynamic high-level programming languages in general; some are strictly interpreted languages

Semester-IV

Subject: Core - Data structure and Computer Algorithm

Subject Code:SCAJC41

CO1	A data structure is a particular way of organizing data in a computer so that it can be used effectively.
CO2	Almost every enterprise application uses various types of data structures in one or the other way.
CO3	Data Structures needed to understand the complexity of enterprise level applications and need of algorithms, and data structures.
CO4	Processor speed although being very high, falls limited if the data grows to billion records.
CO5	Search – Algorithm to search an item in a data structure.

Subject: Data structure and Computer Algorithms Lab

Subject Code:SCAJC4P

CO1	A data structure is a particular way of organizing data in a computer so that it can be
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	used effectively.
CO2	Almost every enterprise application uses various types of data structures in one or the other way.
CO3	Data Structures needed to understand the complexity of enterprise level applications and need of algorithms, and data structures.
CO4	Processor speed although being very high, falls limited if the data grows to billion records.
CO5	Search – Algorithm to search an item in a data structure.

Subject: Operating Systems

Subject Code:SCAJC42

CO1	To learn Introduction about operating system, components and goals.
CO2	To learn Asynchronous concurrent execution and mutual exclusion primitives
CO3	To learn Deadlocks and indefinite postponement and processer scheduling
CO4	Real memory organization, management and virtual memory management
CO5	Disk performance optimization, file and Database System

Subject: Computer Graphics and Multimedia

Subject Code:SCAJA41

CO1	To learn overview of graphics systems and output primitives
CO2	To learn attributes of output primitives two dimensional geometric transformations
CO3	To learn two dimensional viewing, functions, clipping operations and line clipping
CO4	To learn multimedia hardware and software components, multimedia components and animation
CO5	To learn multimedia communication system and information retrieval

Subject : Skill Based Linux Programming Lab

Subject Code : SCAJS4P

CO1	To learn about numbers of users who are have logged in the Linux Operating System
CO2	To Convert the lowercase to uppercase using Utility in Linux Operating System
CO3	To find the given number is palindrome or not using Linux Operating System
CO4	To perform arithmetic operations using case in Linux Operating System
CO5	To create and execute the Electricity bill using Linux Operating System

Semester V

Subject : Core 11:Database Management Systems

Subject Code: SCAJC51

CO1	A database management system (or DBMS) is essentially nothing more than a computerized data-keeping system.
CO2	DBMS Tutorial provides basic and advanced concepts of Database. Our DBMS Tutorial is designed for beginners and professionals both.
CO3	Our DBMS Tutorial includes all topics of DBMS such as introduction, ER model, keys, relational model, join operation, SQL, functional dependency, transaction, concurrency control, etc.
CO4	DBMS provides an interface to perform various operations like database creation, storing data in it, updating data, creating a table in the database and a lot more.
CO5	It uses a digital repository established on a server to store and manage the information.

Subject :Core 12: Software Engineering

Subject Code: SCAJC52

CO1	Software Engineering Tutorial delivers basic and advanced concepts of Software Engineering.
CO2	Software Engineering provides a standard procedure to design and develop software.
CO3	Software subsists of carefully-organized instructions and code written by developers on any of various particular computer languages.
CO4	Computer programs and related documentation such as requirements, design models and user manuals.

CO5	The necessity of software engineering appears because of a higher rate of progress in user requirements and the environment on which the program is working.
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Subject :Core 13: Dot net Programming

Subject Code: SCAJC53

CO1	Introduction to dotnet framework, components of the dotnet framework and introduction visual basic
CO2	Control structures, decision making statements, arrays and functions
CO3	Object oriented programming classes, objects and delegate events
CO4	Dotnet controls, VB.net toolbox forms and buttons
CO5	Dialog boxes and menus and introduction to ADO.Net

Subject Name : Dot Net Programming Lab

Subject Code : SCAJC5P

CO1	To perform number of checking sum of digits
CO2	To perform string manipulation
CO3	To prepare pay bill for employees using functions
CO4	To prepare a EB Bill using Constructor
CO5	To calculate the area of different shapes using function overloading

Subject Name :Information Security

Subject Code : SCAJA53

CO1	Acquire background on well known network security protocols such as IPSec, SSL, and WEP.
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CO2	Understand vulnerability analysis of network security.
CO3	Information Security, sometimes shortened to InfoSec, is the practice of protecting information by mitigating information risks. It is part of information risk management
CO4	It typically involves preventing or reducing the probability of unauthorized/inappropriate access to data, or the unlawful use, disclosure, disruption, deletion, corruption, modification, inspection, recording, or devaluation of information.
CO5	Information security's primary focus is the balanced protection of the confidentiality, integrity, and availability of data (also known as the CIA triad) while maintaining a focus on efficient policy implementation, all without hampering organization productivity.

Subject : Skill based PHP and MySQL Lab

Subject Code: SCAJS5P

CO1	PHP is a popular general-purpose scripting language that is especially suited to web development.
CO2	Fast, flexible and pragmatic, PHP powers everything from your blog to the most popular websites in the world.
CO3	It typically involves preventing or reducing the probability of unauthorized/inappropriate access to data, or the unlawful use, disclosure, disruption, deletion, corruption, modification, inspection, recording, or devaluation of information.
CO4	Enhanced levels of interactivity are made possible by combining multiple forms of media content.
CO5	PHP is an open-source relational database management system.

Semester-VI

Subject : Computer Networks

Subject Code : SCAJC61

CO1	A computer network, also referred to as a data network, is a series of interconnected nodes that can transmit, receive and exchange data, voice and video
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	traffic.
CO2	Computer networks commonly help endpoint users share resources and communicate.
CO3	These interconnections are made up of telecommunication network technologies, based on physically wired, optical, and wireless radio-frequency methods that may be arranged in a variety of network topologies.
CO4	The nodes of a computer network may include personal computers, servers, networking hardware, or other specialised or general-purpose hosts.
CO5	Hostnames serve as memorable labels for the nodes, rarely changed after initial assignment.

Subject: Core 16: Web Programming

Subject Code : SCAJC62

CO1	Introduction to internet principles, basic web concepts and client server model
CO2	Common gateway programming interface and CGI server applet
CO3	Scripting languages and Active X controls
CO4	Server side programming and proxy server firewall
CO5	Servlets and JSP

Subject: Core 17: Web Programming Lab

Subject Code : SCAJC6P

CO1	To demonstrate use the following components Textfields and buttons
CO2	The use of various layouts like flow layout border layout and grid layout
CO3	Create a colour palette with matrix of buttons and set a background and foreground control textarea
CO4	Set the URL of another Server and Download the homepage of the server
CO5	Java using sockets to implement the HTTP request, FTP and SMTP.

Subject : Mobile Computing**Subject Code : SCAJA62**

CO1	Introduction to mobile computing vs wireless networking and MAC Protocols
CO2	Mobile internet protocol and transport layer and then learn to Architecture of TCP/IP
CO3	Mobile Tele communication Systems and Global System for mobile Communication(GSM)
CO4	Mobile Ad-Hoc Networks, Routing, Essential of Traditional routing protocols
CO5	Mobile Platforms and applications , mobile device operating systems, Security issues.

Subject : Skill Based Mobile Application Development Lab**Subject Code : SCAJS6P**

CO1	To develop an application that uses GUI components, fonts and Colours.
CO2	To develop a native calculator application.
CO3	Implement an application that writes data to the SD Card.
CO4	Develop an application that makes use of database.
CO5	Implement an application that creates an alert upon receiving a message.