

MADURAI KAMARAJ UNIVERSITY

(University with Potential for Excellence)

B.Sc., Computer Science (Digital Forensic Science and Cyber Security) – Semester

CHOICE BASED CREDIT SYSTEM REVISED SYLLABUS

(This will be effective from the academic year 2018 – 2019 & 2023-2024)

PROGRAM NAME: B.Sc Computer Science [Digital Forensic Science and Cyber Security]

PROGRAM CODE: SCTP

Outcome of the Program:

- Conduct Digital Investigations that confirm to accepted professional standards and are based on the investigative process: identification, preservation, examination, analysis and reporting.
- Cite and adhere to the highest professional and ethical standards of conduct, including impartiality and the protection of personal privacy.
- Identify and document potential security breaches of computer data that suggest violations of legal, ethical, moral, policy and/or societal standards.

Semester I

Subject: Core I-C Programming							
Subject Code: SCTPC11							
CO1	To learn how to write a basic programs in C programming and learn about the basic methods in C programming						
CO2	To learn the syntax and semantics of the functions and structures and unions						
CO3	To learn how to design C classes for code reuse.						
CO4	To learn about the user-defined functions, return values and their types, function calling						
CO5	To learn about the accessing the address of a variables, initialization of pointer variables						



Subject Name :Core II - Programming in C Lab							
Subject Code : SCTPC1P							
CO1	To learn how to write inline functions for efficiency and performance.						
CO2	To learn the syntax and semantics of the C programming language.						
CO3	To learn how to design C classes for code reuse.						
CO4	To learn how to use Structures						
CO5	To learn how to use pointer						
Subject: Allied - I- Discrete Mathematical Structures							
Subject Code:SCTPT11							
CO1	Construct mathematical arguments of set theory, Relations, functions operations and groups.						
CO2	Verify the correctness of truth table implications and equivalent of formulae.						
CO3	Demonstrate the ability to solve problems in inverse of matrix, rank of a matrix						
CO4	Solve problems in graph theory, degrees and sub graphs.						
CO5	Construction of eulerian graphs, Hamiltonian graphs						
Subject: Office Automation							
Subject Code: SCTPS11							
CO1	To learn and create the word document to prepare your resume by formatting the text alignment and font style						
CO2	To learn and create the Worksheet in Excel to prepare salary bill by showing Basic pay, DA, HRA, Gross Salary, PF, Tax and Net salary						
CO3	To learn and create a PowerPoint presentation to explain various aspects of your college using auto play						
CO4	To learn and create a table for sorting marks of students and enter the fields like Reg.No, name, mark1, mark2, and mark3, total=mark1+mark2+mark3 and avg(tot/3) in MS ACCESS						
CO5	To learn and create a form to enter the data directly into this form requires as Basic pay, DA, HRA,GROSS SALARY, PF, INCOME TAX AND NET SALARY						
Subject: Problem Solving Techniques							



Subject Code: SCTPF11									
CO1	Understand the systematic approach to problem solving								
CO2	Know the approach and algorithms to solve specific fundamentals								
CO3	Understand the efficient approach to solve specific fundamentals problem								
CO4	Understand the efficient array –related techniques to solve specific problems.								
CO5	Understand the efficient methods to solve specific problems related to text processing understand recursion work.								

Semester II

Subject: Core-I Data Structures and Computer Algorithms									
Subject Code: SCTPC21									
CO1	Search – Algorithm to search an item in a data structure.								
CO2	A data structure is a particular way of organizing data in a computer so that it can be used effectively.								
CO3	Almost every enterprise application uses various types of data structures in one or the other way.								
CO4	Data Structures needed to understand the complexity of enterprise level applications and need of algorithms, and data structures.								
CO5	Processor speed although being very high, falls limited if the data grows to billion records.								

Subject: Core-II-Data structures and computer Algorithms lab with C/C++									
Subject Code:SCTLC2P									
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: Allied -I-Numerical Methods	
Subject Code:SCTPT21	
CO1	Know how to solve various problem on numerical methods
CO2	Use approximation to solve problems .
CO3	Differential and integration concept are applied.
CO4	Apply, direct methods for solving liner system.
CO5	Numerical solution of ordinary differential equations.
Subject: Skill based-Quantitative Aptitude	
Subject Code:SCTPS21	
CO1	To gain knowledge on LCM and HCF and its related problems
CO2	To get an idea of age, profit and loss related problem solving
CO3	Able to understand time series simple and compound interests
CO4	Understanding the problem related to probability and series .
CO5	Able to understand graphs,charts.
Subject: Skill Based – Advanced Excel Lab	
Subject Code: SCTPS2P	
CO1	Handle numeric data and summarize into categories and subcategories
CO2	Filtering sorting and grouping data or subsets of data
CO3	Handling large amount of data
CO4	Create pivot tables to consolidate data from multiple files
CO5	Presenting data in the form of chart and graphs



Semester III

Subject: Core-I- Operating System design and implementation							
Subject Code: SCTLC31							
CO1	A successful student will be able to understand the basic components of a computer operating system, and the interactions among the various components						
CO2	The course will cover an introduction on the policies for scheduling, deadlocks, memory management, synchronization, system calls, and file systems.						
CO3	An operating system is a software programme required to manage and operate a computing device like smart phones, tablets, computers, supercomputers, web servers, cars, network towers, smart watches, etc.						
CO4	It is the operating system that eliminates the need to know coding language to interact with computing devices.						
CO5	An Operating System (OS) is an interface between a computer user and computer hardware.						

Subject: Core-II- Operating System design and implementation Lab							
Subject Code: SCTLC3P							
CO1	A successful student will be able to understand the basic components of a computer operating system, and the interactions among the various components						
CO2	The course will cover an introduction on the policies for scheduling, deadlocks, memory management, synchronization, system calls, and file systems.						
CO3	An operating system is a software programme required to manage and operate a computing device like smart phones, tablets, computers, supercomputers, web servers, cars, network towers, smart watches, etc.						



Subject : Core –I-Ethical hacking Fundamentals

Subject Code: SCTL41

CO1	To understand hacking methods
CO2	Using Attacks and methodology, web and networking
CO3	Use of report and mitigation
CO4	Apply, networking hacking methods
CO5	To understand the basic hacking penetration

Subject: Core-I- Ethical Fundamentals lab							
Subject Code: SCTL4P							
CO1	To introduce the ethical hacking methodologies						
CO2	To understand the basic concept of hacking						
CO3	To gain knowledge about ethical hacking testing						
CO4	To apply all hacking methods						
CO5	To gain knowledge ethical hacking testing						

Subject: Core-II-Computer Network

Subject Code:SCTL42

CO1	A computer network, also referred to as a data network, is a series of interconnected nodes that can receive and exchange data, voice and video 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 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 specialised or general-purpose hosts.
CO5	Hostnames serve as memorable labels for the nodes, rarely changed after initial assignment.

Subject: Numerical Methods

Subject Code:SCTLA41



CO1	Know how to solve various problem on numerical methods
CO2	Use approximation to solve problems .
CO3	Differential and integration concept are applied.
CO4	Apply, direct methods for solving liner system.
CO5	Numerical solution of ordinary differential equations.
Subject: PHP Programming	
Subject Code: SCTLS4P	
CO1	Know how to solve various problem on numerical methods
CO2	Use approximation to solve problems .
CO3	Differential and integration concept are applied.
CO4	Apply, direct methods for solving liner system.
CO5	Numerical solution of ordinary differential equations.

Semester V

Subject: Core-I-Relational Database management system	
Subject Code: SCTLC51	
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:Corell-Computer Forensics and investigations
Subject Code:SCTLC52

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-III: Software Engineering

Subject Code: SCTLC53

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.

Subject : Core-I: Computer Forensics Lab				
Subject Code: SCTLC5P				
CO1	To understand hacking methods			
CO2	Using Attacks and methodology, web and networking			
CO3	To gain knowledge on network data and analysis			
CO4	To password encryption techniques			
CO5	To internet forensics and malware analysis			



Subject: Elective-I- Fundamentals of Information Security

Subject Code: SCTLT51

CO1	Acquire background on well known network security protocols such as IPSec, SSL, and WEP.
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: Core-II- Python Programming Lab

Subject Code: SCTL55P

CO1	To understand the problem solving approaches
CO2	To learn the basic programming constructs in python
CO3	To practice various computing strategies for python-based solution to real world problem
CO4	To use python data structure –lists, tuples, dictionaries
CO5	To do input/output with files in python.



Semester VI

Subject: Core-I- Technological methods in Forensics science					
Subject Code:SCTLC61					
CO1	Explain the origins of forensic science.				
CO2	Explain the difference between scientific conclusions and legal decision-making				
CO3	To use digital forensics and the relationship of digital forensics				
CO4	To traditional forensic science, traditional science and the appropriate use of scientific methods.				
CO5	Learning about the origin, identification, and advanced concepts of fingerprint development				
Subject: Core-II- Web Applications Security Lab					
Subject Code:SCTLC6P					
CO1	Exhibit knowledge to secure corrupted systems, protect personal data, and secure computer networks in an Organization.				
CO2	Practice with an expertise in academics to design and implement security solutions.				
CO3	Understand key terms and concepts in Cryptography, Governance and Compliance.				
CO4	Develop cyber security strategies and policies				
CO5	Understand principles of web security and to guarantee a secure network				



Subject: Core-II- Cryptography					
Subject Code:SCTLC62					
CO1	Understand the basic of concepts of cryptography				
CO2	To gain knowledge on cryptography				
CO3	Impart the concept of Cyber law				
CO4	To gain knowledge on networking cryptography				
CO5	To apply the cryptography and encryption and techniques				

Subject: Skill based-II- Quantitative Aptitude					
Subject Code:SCTLS61					
CO1	To understand the basic concepts of numbers				
CO2	Understand any apply the concepts of percentage profit & loss				
CO3	To study the basic concept of time and work,intrests				
CO4	To learn the concept of permutation, probability, discounts				
CO5	To study about the concept of data representation, graph				

Subject: Elective I- Cyber Criminology					
Subject Code:SCTLC62					
CO1	Understand Cyber Space, Cyber Crime, InformationTechnology, Internet & Services.				
CO2	List and discuss variousforms of Cyber Crimes				
CO3	Explain Computer and Cyber Crimes				
CO4	Understand Cyber Crime at Global and Indian Perspective				
CO5	Describe the ways of precaution and prevention of Cyber Crime as well as Human Rights.				

