Department of PG Computer Science
Nesamony Memorial Christian College, Marthandam
M. Sc. Computer Science
Course Outcome

					Semester – I M. Sc. Computer Science
Part	**Course Name**	**Course Code**	**Credit**	**Hours**	**Course Outcome**
Part - A	Core – I: **Analysis & Design of Algorithms**	VCSC11	4	5	On the successful completion of the course, students will be able to: **CO1** Get knowledge about algorithms and determine their time complexity. Demonstrate specific search and sort algorithms using t h e divide and conquer technique. **CO2** Gain a good understanding of the Greedy method and its algorithm. **CO3** Able to describe graphs using dynamic programming techniques. **CO4** Demonstrate the concept of backtracking & branch and bound technique. **CO5** Explore the traversal and searching technique and apply it to trees and graphs.
	Core - II: **Object Oriented Analysis and Design & C++**	VCSC12	4	5	On the successful completion of the course, students will be able to: **CO1** Understand the concept of Object-Oriented development and modeling techniques **CO2** Gain knowledge about the various steps performed during object design **CO3** Abstract object-based views for generic software systems **CO4** Link OOAD with C++ language **CO5** Apply the basic concept of OOPs and familiarize students with writing C++ program
	Core - III: **Python Programming**	VCSC13	4	4	On the successful completion of the course, students will be able to: **CO1** Understand the basic concepts of Python Programming **CO2** Understand File operations, Classes and Objects **CO3** Acquire Object Oriented Skills in Python **CO4** Develop web applications using Python **CO5** Develop Client Server Networking applications
	Core Practical - 1: **Algorithm Lab**	VCSL11	3	4	On the successful completion of the course, students will be able to: **CO1** Understand the concepts of object-oriented concerning C++ **CO2** Able to understand and implement OOPS concepts

					CO3 Implementation of data structures like Stack, Queue, Tree, and List using C++ **CO4** Application of the data structures for Sorting and searching using different techniques.
	Core Practical - 2: **Python Lab**	VCSL12	3	4	On the successful completion of the course, students will be able to: **CO1** Able to write programs in Python using OOPS concepts **CO2** To understand the concepts of File operations and Modules in Python **CO3** Implementation of lists, dictionaries, sets and tuples as programs **CO4** To develop web applications using Python
	Elective - I: **Advanced Software Engineering**	VCSE11	3	4	On the successful completion of the course, students will be able to: **CO1** Understand about Software Engineering process **CO2** Understand about Software project management skills, design and quality management **CO3** Analyze Software Requirements and Specification **CO4** Analyze Software Testing, Maintenance and Software Re-Engineering **CO5** Design and conduct various types and levels of software quality for software project
	Elective - II: **Advanced Computer Network**	VCSE15	3	4	On the successful completion of the course, student will be able to: **CO1** Understand fundamental underlying principles of computer networking **CO2** Understand details and functionality of layered network architecture. **CO3** Apply mathematical foundations to solve computational problems in computer networking **CO4** Analyze and evaluate performance of various communication protocols. **CO5** Compare and create new routing algorithms
	Semester – II		**M. Sc. Computer Science**		
Part - A	Core – IV: **Data Mining and Warehousing**	VCSC21	4	5	On the successful completion of the course, students will be able to: **CO1** Understand the basic data mining techniques and algorithms **CO2** Understand the Association rules, Clustering techniques and Data warehousing contents **CO3** Compare and evaluate different data mining techniques like classification, prediction, Clustering and association rule mining **CO4** Design data warehouse with dimensional modeling and apply OLAP operations **CO5** Identify appropriate data mining algorithms to solve real-world problems
	Core - V: **Advanced Java Programming**	VCSC22	4	5	On the successful completion of the course, students will be able to: **CO1** Understand the advanced concepts of Java Programming **CO2** Understand JDBC and RMI concepts **CO3** Apply and analyze Java in Database **CO4** Handle different events in Java using the delegation event model, event listener and class **CO5** Design interactive applications using Java Servlet, JSP and JDBC

	Core Practical - 3: **Data Mining Lab using R**	VCSL21	3	4	On the successful completion of the course, students will be able to: **CO1** Able to write programs using R for Association rules, Clustering techniques **CO2** To implement data mining techniques like classification, prediction **CO3** Able to use different visualization techniques using R **CO4** To apply different data mining algorithms to solve real-world applications
	Core Practical - 4: **Advanced Java Lab**	VCSL22	3	4	On the successful completion of the course, students will be able to: **CO1** Understand the implement concepts of Java using HTML forms, JSP & JAR **CO2** Must be capable of implementing JDBC and RMI concepts **CO3** Able to write Applets with Event event-handling mechanism **CO4** To Create interactive web-based applications using servlets and JSP
	Elective - III: **Cloud Computing**	VCSE23	3	4	On the successful completion of the course, students will be able to: **CO1** Understand the concepts of the Cloud and its services **CO2** Collaborate Cloud for Event & Project Management **CO3** Analyze on cloud in –Word Processing, Spread Sheets, Mail, Calendar, Database **CO4** Analyze cloud in social networks **CO5** Explore cloud storage and sharing
	Elective - IV: **Internet Of Things**	VCSE24	3	4	On the successful completion of the course, students will be able to: **CO1** Understand about IoT, its Architecture and its Applications **CO2** Comprehend the IoT evolution with its architecture and sensors **CO3** Assess the embedded technologies and develop prototypes for the IoT products **CO4** Evaluate the use of Application Programming Interface and design an API for IoT in real-time **CO5** Design IoT in real-time applications using today's internet & wireless Technologies
	SEC - I: **Statistical Tools**	VCSSE21	2	4	**CO1** Ability to use the statistical tools for analysis.
	Semester – III M. Sc. Computer Science				
Part - A	Core –VI: **Digital Image Processing**	WCSM31	4	5	On the successful completion of the course, students will be able to: **CO1** Understand the fundamentals of Digital Image Processing **CO2** Understand the mathematical foundations for digital image representation, image acquisition, image transformation, and image enhancement **CO3** Apply, Design and Implement and get solutions for digital image processing problems **CO4** Apply the concepts of filtering and segmentation for digital image retrieval **CO5** Explore the concepts of the Multi-resolution process and recognize the objects in an efficient manner

Core -VII: **Network Security and Cryptography**	WCSM32	4	4	On the successful completion of the course, students will be able to: **CO1** Understand the process of the cryptographic algorithms **CO2** Compare and apply different encryption and decryption techniques to solve problems related to confidentiality and authentication **CO3** Apply and analyze appropriate security techniques to solve network security problem **CO4** Explore suitable cryptographic algorithms **CO5** Analyze different digital signature algorithms to achieve authentication and design secure applications	
Core - VIII: **Data Science & Analytics**	WCSM33	4	4	On the successful completion of the course, students will be able to: **CO1** Understand the concept of data science and its techniques **CO2** Review data analytics **CO3** Apply and determine appropriate Data Mining techniques using R to real time applications **CO4** Analyze clustering algorithms **CO5** Analyze regression methods in AI	
Core Practical - 5: **Digital Image Processing Using MatLab**	WCSL31	3	4	On the successful completion of the course, students will be able to: **CO1** To write programs in MATLAB for image processing using the techniques **CO2** To able to implement Image Enhancements & Restoration techniques **CO3** Capable of using Compression techniques in an Image **CO4** Able to manipulate the image and Segment it	
Mini Project: **Web Application Development & Hosting**	WCSP31	6	6	On the successful completion of the course, students will be able to: **CO1** To define the problem **CO2** Design the Project using Software tools **CO3** Capable of implementing the problem with techniques **CO4** Report Formation	
Elective - V: **Big Data Analytics**	WCSE31	3	4	On the successful completion of the course, students will be able to: **CO1** Acquire knowledge of the basics of Big Data **CO2** Work with big data tools **CO3** Design efficient algorithms for mining data from large volumes **CO4** Explore the cutting-edge tools and technologies to analyse Big Data **CO5** Appreciate Big Data Processing concepts and Data visualization techniques	

	SEC - II: **Cloud Computing Tools**	WCSSE31	2	3	**CO1** Ability to use the tools for simulating cloud computing applications
	Internship/ Industrial Activity/ Research Updation Activity		2		On the successful completion of the course, students will be able to: **CO1** to build the necessary skills **CO2** to gain industry working Experience **CO3** a high capacity for analysis to solve problems **CO4** Report Formation
				Semester – IV **M. Sc. Computer Science**	
Part - A	**Project with Viva Voce**	WCSP41	16	30	On the successful completion of the course, students will be able to: **CO1** To define the problem **CO2** Design the Project using Software tools **CO3** Capable of implementing the problem with techniques **CO4** Report Formation
	Extension Activity		1		On the successful completion of the course, students will be able to: **CO1** To define the problem **CO2** Design the work to be carried **CO3** Capable of implementing the work **CO4** Report Formation