Programme: M. Sc. Computer Science

SEMESTER –I			
CORE I	**DESIGN AND ANALYSIS OF ALGORITHMS**		
Course Code:21PCSC11	**Hrs/week:5**	**Hrs/Semester:75**	**Credits:4**

Course Outcomes:

CO.No.	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	understand the running time and space complexity of algorithms using asymptotic analysis.	1	Un
CO-2	apply divide and conquer to binary search, quick sort, merge sort.	1,7	Ap
CO-3	analyze greedy method to knapsack problem, prims, kruskal algorithms.	1,7	An
CO-4	apply dynamic programming to optimal binary search trees,0/1 knapsack problem and different tree traversals	1,7,4	Ap
CO-5	perform Backtracking to n-queen problem, sum of subsets problem, graph coloring etc.	1,7	Ap
CO-6	apply branch and bound to Travelling sales person problem, 0/1 knapsack problem.	1,7	Ap

SEMESTER I			
CORE II	**DIGITAL IMAGE PROCESSING USING MATLAB**		
Course Code: 21PCSC12	**Hrs/Week: 5**	**Hrs/Sem: 75**	**Credits: 4**

Course Outcomes:

CO. No.	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	develop programming skills and techniques to solve mathematical problem.	8	Ap
CO-2	learn graphic features of MATLAB and they are able to use this feature effectively in the various applications	6	Ap
CO-3	learn different techniques employed for the enhancement of images.	5	Un
CO-4	interpret Image compression, segmentation and representation standards	7	An
CO-5	choose image filtering in various applications	8	Ap
CO-6	analyze different causes for image degradation and overview of image restoration techniques.	7	An

SEMESTER – I			
CORE III MATHEMATICAL FOUNDATIONS FOR COMPUTER SCIENCE			
Course Code : 21PCSC13	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

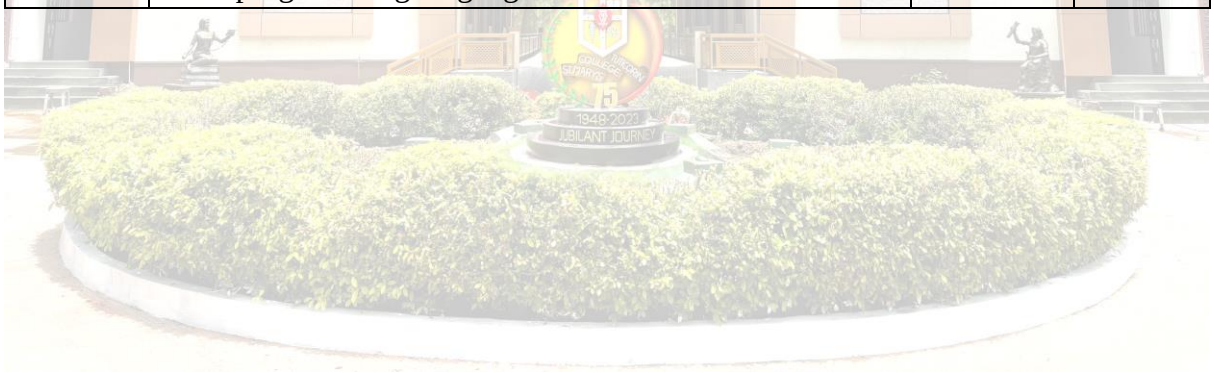
Course Outcomes:

CO. No.	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	test the complementary relationship of skewness with measures of central tendency and dispersion in describing a set of data.	2	An
CO-2	apply 'moments' as a convenient and unifying method for summarizing several descriptive statistical measures.	2	Ap
CO-3	analyze the strength and direction of a linear relationship between two variables using Correlation.	2	An
CO-4	demonstrate how much a dependent variable changes based on adjustments to an independent variable using regression.	2	Ap
CO-5	discover the logical operations and predicate calculus needed for computing skill.	2	An
CO-6	understand the application of various type of graphs in real life problem.	2	Un

SEMESTER –I			
CORE IV	**COMPILER DESIGN**		
Course Code:21PCSC14	**Hrs/week:4**	**Hrs/Semester:60**	**Credits:4**

Course Outcomes:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the basic principles of compiler in high level programming language	1,5	Un
CO-2	represent language tokens using regular expressions, finite automata	5	An
CO-3	apply parsing techniques and able to write Context Free Grammars for various languages	5	Ap
CO-4	apply the knowledge of intermediate code generation to build efficient systems	5	Ap
CO-5	understand the need of intermediate representation for the generation of target code by applying code optimization techniques	5	Ap
CO-6	apply machine independent optimization technique to intermediate code and generate machine code for high level programming language.	5	Ap



SEMESTER – I			
ELECTIVE I A- ADVANCED COMPUTER ARCHITECTURE			
Course Code : 21PCSE11	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcomes:

CO. No	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	understand the fundamental of computer structure.	5	Un
CO-2	perform computer arithmetic operations.	2	Ap
CO-3	apply the concept of cache mapping techniques.	8	Ap
CO-4	correlate the performance of I/O device	2	An
CO-5	conceptualize instruction level parallelism and Analyze different types of pipeline hazard	7	An
CO-6	analyze performance issues in processor and memory design of a digital computer.	7	An

SEMESTER- I			
ELECTIVE I B- CRYPTOGRAPHY AND NETWORK SECURITY			
Course Code: 21PCSE12	**Hrs / week :4**	**Hrs / Sem: 60**	**Credits :4**

Course Outcomes:

CO. No.	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	understand the fundamental concepts of various encryption techniques	6,2	Un
CO-2	demonstrate the process to maintain the Confidentiality, Integrity and Availability of data	6	Ap
CO-3	distinguish between various algorithms for network security to protect against the threats in the networks	4	An
CO-4	apply the concept of Public key cryptography and analyze solutions for effective key management and distribution	2,3	Ap
CO-5	apply and manage to secure a message over insecure channel by various means	6,3	Ap
CO-6	identify and apply the functional IP network security to protect against the threats in the networks and to protect system security	6	Ap

SEMESTER – II			
CORE V	**J2EE**		
Course Code : 21PCSC21	**Hrs / Week : 5**	**Hrs / Sem : 75**	**Credits : 4**

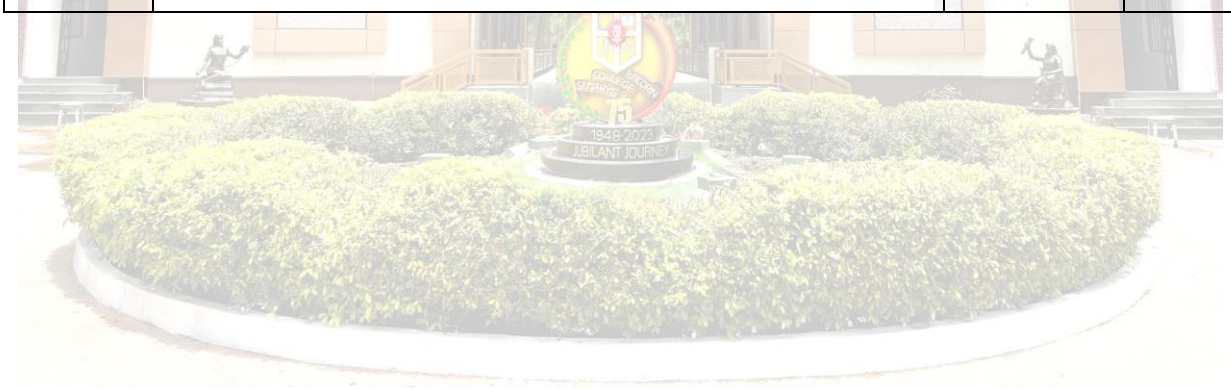
Course Outcomes:

CO. No.	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	make use of a high-level overview of the J2EE architecture	1	Ap
CO-2	identify the services and components which comprise the J2EE specification	5	Un
CO-3	explain how J2EE technology applications are packaged	5	Un
CO-4	acquire the knowledge of EJB and its types and Differentiate Servlet and JSP	7	An
CO-5	build server side java application called Servlet to catch form data sent from client and store it on database	8	Cr
CO-6	build server side java application called JSP to catch form data sent from client, process it and store it on database.	8	Cr

SEMESTER- II			
CORE VI	**DATA MINING & R PROGRAMMING**		
Course Code: 21PCSC22	**Hrs / week :5**	**Hrs / Semester: 75**	**Credits :4**

Course outcomes:

CO. No.	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	classify different data mining tasks and the algorithms most appropriate for addressing them.	4,5	An
CO-2	discover Strengths & Limitations of Data Mining Methods	5,8	An
CO-3	display interesting patterns from large data, to extract and analyse, make predictions and solve problems	4,8	An
CO-4	evaluate models/algorithms with respect to their accuracy	4	Ev
CO-5	demonstrate capacity to perform a self-directed piece of practical work that requires the application of data mining techniques.	1,4	Ev
CO-6	develop hypotheses based on the analysis of the results obtained and test them.	8	Ev



SEMESTER - II			
CORE VII	**DISTRIBUTED DATABASE MANAGEMENT SYSTEM**		
CourseCode : 21PCSC23	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcomes:

CO. No.	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	understand the concept of Distributed DBMS	3	Un
CO-2	apply various architectures of DDBMS and fragmentation techniques in a given problem	8	Ap
CO-3	visualize the steps of query processing	8	Ap
CO-4	compare various Query Optimization Algorithms	7	An
CO-5	organise the approaches to concurrency control in Distributed database	7	An
CO-6	apply various algorithms and techniques for deadlock and recovery in Distributed database	8	Ap

SEMESTER- II			
CORE VIII	**SINGLE BOARD COMPUTERS AND IOT**		
Course Code: 21PCSC24	**Hrs / week :4**	**Hrs / Sem: 60**	**Credits :4**

Course Outcomes:

CO.No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO-1	code program and develop applications using single board computers and to create a good working setup of Raspberry Pi	1,4	Cr
CO-2	understand the concepts of Internet of Things and identifying different IoT technologies	4,3	Un
CO-3	inculcate knowledge on communication middleware and Information security in IoT	6	Un
CO-4	analyze basic protocols in wireless sensor networks	6	An
CO-5	implement State of the Art - IoT Architecture	7	Ap
CO-6	examine the security and privacy issues in IoT	6	An

SEMESTER- II			
ELECTIVE II	**A – ADVANCED COMPUTER NETWORKS**		
Course Code: 21PCSE21	**Hrs / week :4**	**Hrs / Semester: 60**	**Credits :4**

Course Outcomes:

CO. No.	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	describe the evolution and History of Wireless technology	6	Un
CO-2	analyse the wireless propagation channels.	6	An
CO-3	examine the Performance of ARQ Protocols, Ethernet LAN, Token Ring, RIP, TCP and UDP.	6	Ap
CO-4	identify the networking technologies and implementation of protocols like TCP, UDP and IP using OPNET and NS-2	6	An
CO-5	solve technical problems in ARQ protocols, MAC protocols and Routing Algorithm.	4,6	Ap
CO-6	construct the route discovery algorithm to determine the shortest path in an internet represented as a weighted graph.	2,6	Ap

SEMESTER- II			
ELECTIVE II	**B - SOFT COMPUTING**		
Course Code: 21PCSE22	**Hrs / week :4**	**Hrs / Sem: 60**	**Credits :4**

Course Outcomes:

CO. No.	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	understand the concepts of Artificial Intelligence and neural networks and categorize different learning algorithms	1, 8	Un
CO-2	analyze the classification taxonomy of NN and compare different network models	6,8	An
CO-3	comprehend the fuzzy logic and the concept of fuzziness involved in various systems and fuzzy set theory.	2	Ap
CO-4	implement the concepts of fuzzy sets, knowledge representation using fuzzy rules	2	An
CO-5	identify and define approximate reasoning, fuzzy inference systems, and fuzzy logic	2	An
CO-6	analyze the genetic algorithms and their applications	8	An

Semester III			
CORE IX	**SOFTWARE TESTING**		
Course Code: 21PCSC31	**Hrs / week : 4**	**Hrs / Sem: 60**	**Credits :4**

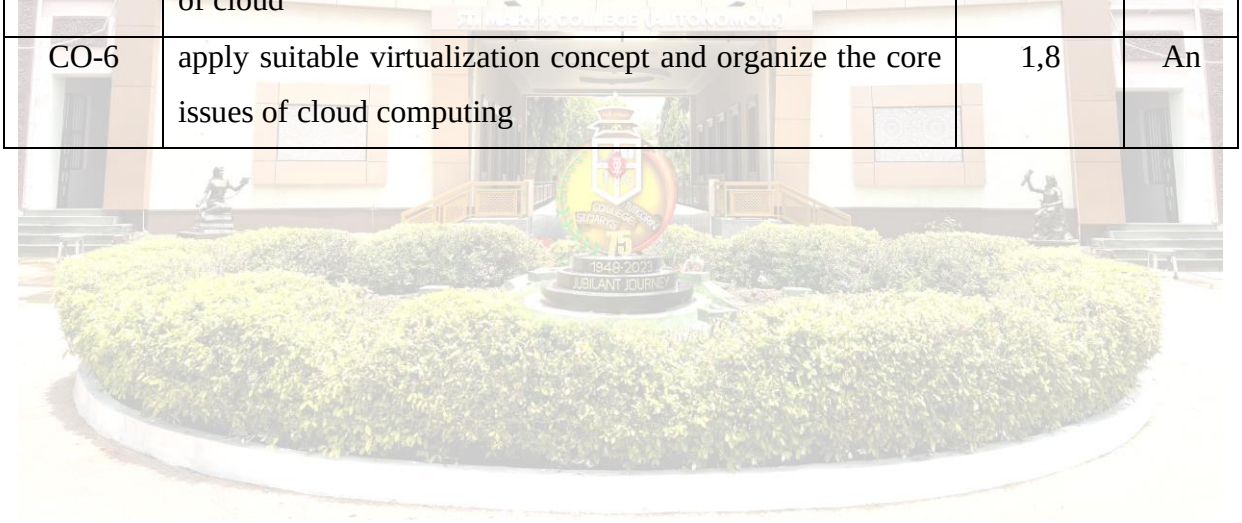
Course Outcomes:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO-1	understand the fundamental concepts and techniques in Software Testing and the categories of the system testing methods	3	Un
CO-2	identify and apply the functional and system testing methods in commercial environment	8	Ap
CO-3	design Test Planning	4	Ap
CO-4	distinguish between methods of judging test case adequacy and how to design tests that will accomplish the obligations of such methods.	7	An
CO-5	demonstrate the process of validation and verification Write code to automate test execution and analysis	8	Ap
CO-6	implement various test processes for quality improvement	8	Ap

SEMESTER – III			
CORE X	**CLOUD COMPUTING AND BIG DATA**		
Course Code : 21PCSC32	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcomes:

CO. No.	Upon completion of this course, students will be able to	PSOs addressed	CL
CO-1	carrying out the decisions based on data analytics.	8	Ap
CO-2	analyze the big data analytic techniques for useful business applications.	8	An
CO-3	identifying the data models in relation to Big Data Storage and Analytics.	5,8	Re
CO-4	implementing Big Data applications using Pig and Hive and working with big data platform	5,8	Ap
CO-5	identify the architecture, infrastructure and delivery models of cloud	1,4	Re
CO-6	apply suitable virtualization concept and organize the core issues of cloud computing	1,8	An



SEMESTER III			
CORE XI	**DATA SCIENCE USING PYTHON**		
Course Code: 21PCSC33	**Hrs / week :4**	**Hrs / Sem: 60**	**Credits : 4**

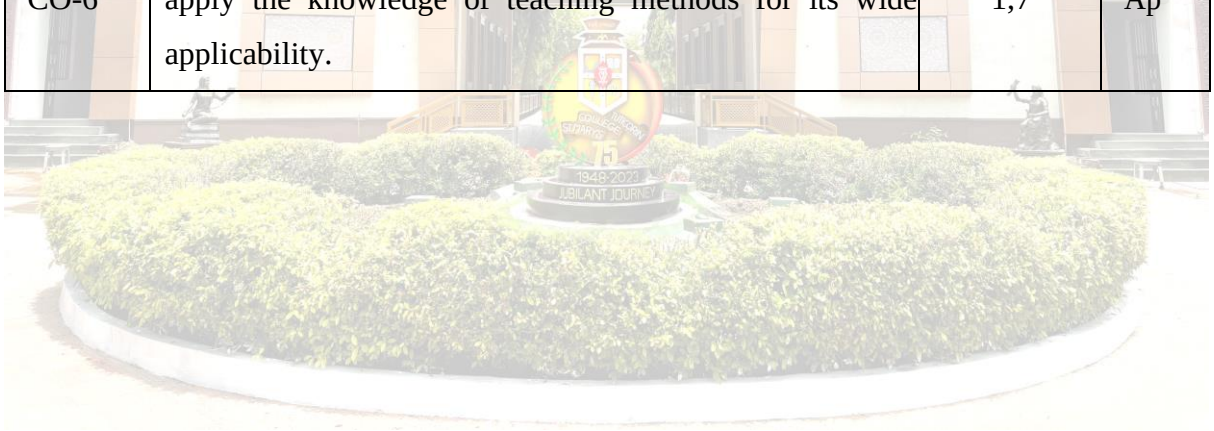
Course Outcomes:

CO. No	Upon Completion of this course, students will be able to	PSO Addressed	CL
CO-1	explore the fundamental concepts of data science	8	An
CO-2	explain how data is collected, managed and stored for data science	5,8	Un
CO-3	evaluate the data analysis techniques for applications handling large data and visualize the inference using various tools	5,8	Ap
CO-4	implement numerical programming, data handling and visualization through NumPy and Pandas	1	Ap
CO-5	understand and demonstrate the usage of universal functions and list of Arrays in NumPy	1	Ap
CO-6	analyze the significance of python program development environment and apply it to solve real world applications	1,7	Un

SEMESTER – III			
CORE XII	**RESEARCH METHODOLOGY**		
Course Code : 21PCSC34	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcomes:

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	demonstrate knowledge of research processes	7	An
CO-2	understand the concepts of defining the research problem and research design and compare between methodologies and methods used in research	2,7	Un
CO-3	explain the concepts and procedures of sampling, data collection, analysis and reporting	5,4	Ap
CO-4	assess the basic function and working of analytical research tools used in computer science research	7,8	Re
CO-5	prepare a research report and examine the plagiarism and its types.	7	Ap
CO-6	apply the knowledge of teaching methods for its wide applicability.	1,7	Ap



SEMESTER- III			
ELECTIVE I	**A- ORGANIZATIONAL BEHAVIOUR**		
Course Code: 21PCSE31	**Hrs / week :4**	**Hrs / Sem: 60**	**Credits :4**

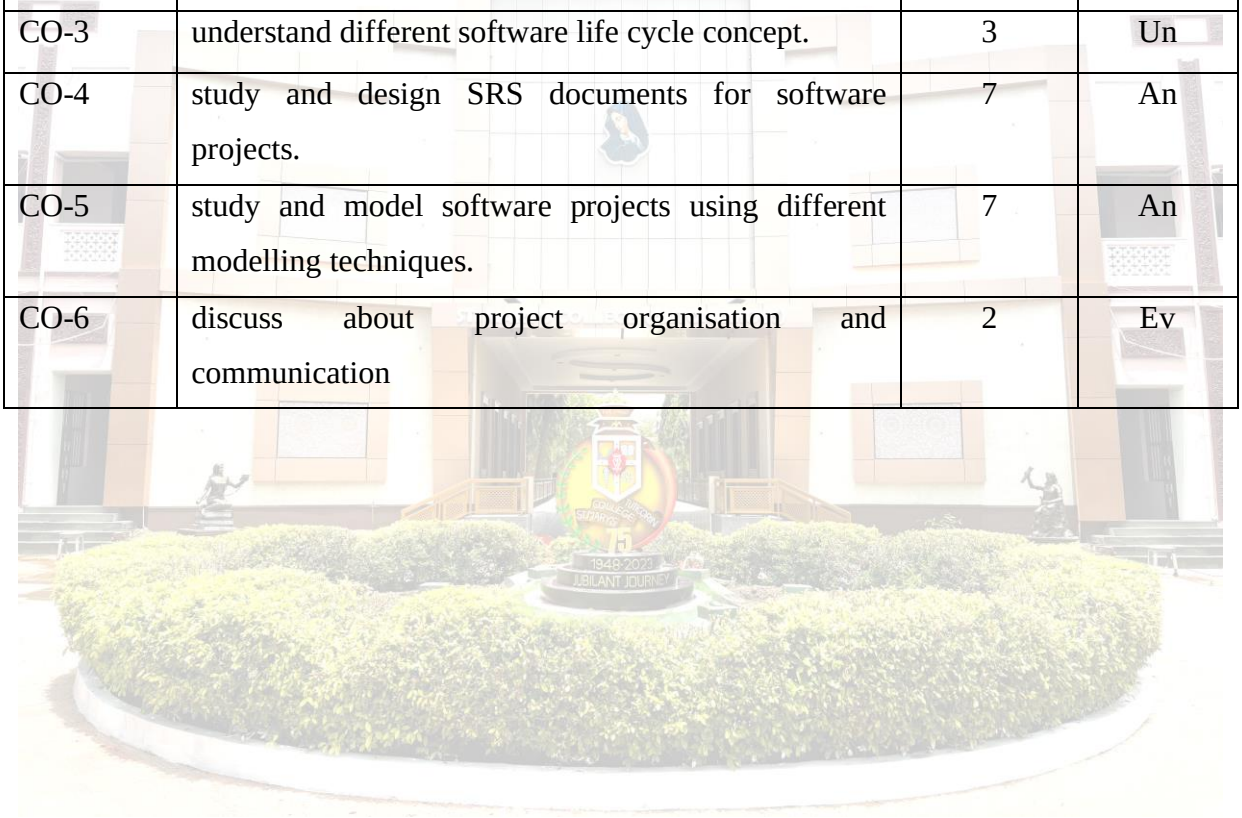
Course Outcomes:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	CL
CO-1	analyse the behaviour of individuals and groups in organisations in terms of the key factors that influence organizational behaviour	1, 6	An
CO-2	evaluate personality types, perception and learning process on human behavior	8	Ap
CO-3	analyze the importance of Attitudes, Values, Job satisfaction, Group formation and Group behaviour	1,6	An
CO-4	identify different motivational theories and evaluate motivational strategies used in a variety of organizational settings	6	Un
CO-5	analyze about human stress and the consequences of stress in an organization	6	An
CO-6	identify the various leadership styles and the role of leaders in a decision making process	1,6	Un

SEMESTER – III			
ELECTIVE I	**B - OBJECT ORIENTED SOFTWARE ENGINEERING**		
Course Code : 21PCSE32	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Course Outcomes:

CO. No	Upon Completion of this course, students will be able to	PSOs Addressed	CL
CO-1	design and implement a software system to meet desired needs.	4	Cr
CO-2	use modern software systems and tools.	8	Ap
CO-3	understand different software life cycle concept.	3	Un
CO-4	study and design SRS documents for software projects.	7	An
CO-5	study and model software projects using different modelling techniques.	7	An
CO-6	discuss about project organisation and communication	2	Ev



Principal
St. Mary's College (Autonomous)
Thoothukudi-628 001.