Programme Specific Outcomes (PSO) and Course Outcomes (CO) at Rajah Serfoji Government College, Thanjavur-613005, Tamilnadu

Department of Computer Science

BSc Computer Scinence

PSO:

- *Become aware of the basic concepts programming, database management system, networks and software project management.*
- *Understand the mathematical concepts which are useful for computer science applications*
- *Use the applied physics knowledge in the field of computer science.*
- *Aware the skill based knowledge which is essential for their education*
- *Acquire the necessary skills to manage various positions in the computer field jobs.*

Course code/Paper/ Semester	Title	Course Outcomes
S1CS1 Paper 1 Sem I	Programming in C	*After completion of this course the students can able to* • *Define and manage data structures based on problem subject domain.* • *Write their own programs, compile and test C programs.* • *Lean how to handle possible errors during program execution.*
S1CSP1 Paper 2 Sem I	Major practical-I (C lab)	*After done this set of exercises the students can able to develop their own programs in C for different problems assigned to them.*
S2CS2 Paper 3 Sem II	Data Structures And Algorithms	*After completing this course satisfactory, students will have the* • *Ability to design and analyze the time and space efficiency of the data structure.* • *Ability to write algorithms and step by step approach in solving problems with the help of fundamental data structure.* • *Ability to gain knowledge in practical applications of data structure.*
S2CSP2 Paper 4 Sem II	Major practical-II (Data structure Lab using C)	*After done this set of exercises the students can able to understand how to implement data structure concepts in C*
S3CS3 Paper 5 Sem III	Programming in Java	*After completion of this course the Students are able to* • *Identify classes, objects, members of a class and relationships among them needed for a specific problem* • *Write Java application programs using OOP principles and proper program structuring* • *Demonstrate the concepts of polymorphism and inheritance, write Java programs to implement error handling and file concepts.*
S3CSP3 Paper 6 Sem III	Major practical-III (Programming in Java Lab)	*After done this set of exercises the students can able to develop their own programs in JAVA for different problems assigned to them.*

S4CS4 Paper 7 Sem IV	Programming in Python	*After studying this course the students can able to* • *Write simple Python programs using built in functions* • *Develop a program using control and loop statements* • *Explain use of functions and its call procedure* • *Create various kinds of list and implement through object oriented concepts*
S4CSP4 Paper 8 Sem IV	Major practical-IV (Python Lab)	*After done this set of exercises the students can able to develop their own programs in Python for different problems assigned to them.*
S5CS5 Paper 9 Sem V	Data Base Management System	*After studying the course the students can be able to* • *Explain about relational databases* • *Make clear the fundamentals of relational algebra operations* • *Write simple query to fetch the data from tables* • *Create the table with normal forms.*
S5CSP5 Paper 10 Sem V	Major practical-V (MySQL Lab)	*After done this set of exercises the students can able to understand how to create database and access data using queries.*
S5CSEL1A Optional paper I Sem V	Computer Architecture	*After this course the students can able to get the following knowledge.* • *Ability to apply different number systems and codes.* • *Acquired knowledge about basic architecture of processing, memory and I/O organization in a computer system.* • *Gained cognition about addressing modes, instruction formats and program control statements*
S5CSEL1B Optional paper 2 Sem V	Visual Basic .Net	*After completion of this course the students can be able to* • *Develop programs using IDE with various controls and control statements* • *Implement object oriented concepts in their programs* • *Recognize the use of interfaces and exception handling concepts* • *Write a program with database connectivity*
S5CSEL1C Optional paper 3 Sem V	Digital Computer Fundamentals	*After the completion of this course the students can able to* • *Explain the conversion procedure of number system and various codes for representation* • *Explain the gates and truth tables of each gates.* • *Simplify the logic circuits using karnaugh maps.* • *Know the functions of multiplexer, demultiplexer and adders.* • *Understand the functions of flip flops, counters and shift registers*

S5CSEL2A Optional paper 4 Sem V	Operating System	*After completion of this course the Students can able to:* • *Describe the important computer system resources and the role of operating system in their management policies and algorithms.* • *Understand the process management policies and scheduling of processes by CPU* • *Evaluate the requirement for process synchronization and coordination handled by operating system* • *Describe and analyze the memory management and its allocation policies.* • *Identify use and evaluate the storage management policies with respect to different storage management technologies.* • *Identify the need to create the special purpose operating system.*
S5CSEL2B Optional paper 5 Sem V	Management Information System	*After this course the students can able to* • *Explain what is MIS, it's uses and limitations* • *Explicate kinds of software for managing information* • *List the advantage of information system for business* • *Implement the security aspects in MIS*
S5CSEL2C Optional paper 6 Sem V	Computer Graphics	*After this course the students can able to* • *Explain the devices needed for computer graphics system* • *Exemplify the algorithms to create basic graphical images* • *Clarify the 2D and 3D geometric transformations*
S6CS7 Paper 11 Sem VI	Computer Networks	*After the completion of the course the students be able to* • *Independently understanding the basic computer network technology and explain the layers of the OSI Model and TCP/IP.* • *Identify the different types of network topologies, protocols and building the skills of subnet and routing mechanism.* • *Study the transport layer services and connection establishment control and explain how the Internet and network security works today.*
S6CS8 Paper 12 Sem VI	Micro Processor & Its Applications	*Upon the successful completion of the course, students will be able to* • *Describe the evaluation of microprocessor, memory, buses and addressing modes.* • *Develop an Assembly language program in 8085 microprocessor using the internal organization for the given specification.* • *Explain various peripherals devices and their interfacing.* • *Explain microprocessor various applications.*

S6CSP6 Paper 13 Sem VI	Major Practical –VI (Micro Processor Lab)	*After done this set of exercises the students can able to develop their own assembly programs for different problems assigned to them.*
S6CSEL3A Optional paper 7 Sem VI	Software Engineering	*After studying this course the students can able to* • *Apply software engineering principles and techniques.* • *Develop, maintain and evaluate large-scale software systems.* • *Produce efficient, reliable, robust and cost-effective software solutions.*
S6CSEL3B Optional paper 8 Sem VI	Mobile Computing	*After this course the students can be able to* • *Explain various modulation techniques in mobile communications* • *Understand GSM architecture and mobile switching systems* • *List out the various issues related to network management systems*
S6CSEL3C Optional paper 9 Sem VI	Software Testing	*After completion of this course the students can be able to* • *explain the different phases of software project* • *do various kinds of software testing for their development* • *prepare test report and perform test planning and management*
Allied Courses for other Departments **(Semester V- Business Adminstration department, Semester VI- Commerce department)**		
S5CSEL01 Paper 1 Sem V	Fundamentals of information technology	*At the end of this course, student can able to* • *Understand basic concepts and terminology of information technology.* • *Have a basic understanding of personal computers and their operations.* • *Be able to identify applications of information Technology.*
S5CSEL02 Paper 1 Sem VI	Web design using html	*After studying this course the students can able to* • *Explain the basics of internet and its technologies* • *Design webpage using basic HTML tags.* • *Develop a webpage with tables, frames and forms using proper tags.*

MSc Computer Scinence

PSO: Upon completion of the M.Sc Degree Programme, Students will be able to

- Acquire in depth knowledge recent trends in computer science.
- Develop skills needed to develop applications which are needed for the society
- Build software tools for decision making applications which are essential for future prediction.
- Identify the growth of software field, its applications.
- Evaluate the risk associated with various web services and give solutions for all issues.

Course code/Paper/ Semester	Title	Course Outcomes
S1PCS1 Paper 1 Sem I	Object Oriented Analysis and Design	*After completion of this course the students can be able to* • *Understand the basic concepts of OOSD and technical terms of OOSD.* • *Recognize the differences between OOSD and traditional methods.* • *Get experience about the advantages of OOSD.*
S1PCS2 Paper 2 Sem I	Network Security	*After completion of this course the students can be able to* • *Understand the various security issues in network* • *Methods for Network Security using cryptography concepts* • *Get knowledge about program security, database security and network security.*
S1PCS3 Paper 3 Sem I	Python Programming	*On completion of the course, the students will* • *understand the programming techniques* • *Acquire the basics of the Python Programming* • *Discover how to work with lists and sequence data.* • *Write Python functions to facilitate code reuse.* • *Use Python to read and write files.*
S1PCSP1 Paper 4 Sem I	Practical- I (Python – Lab)	*After learning this set of exercises the students can able to develop their own programs in Python for solving any kind of problems assigned to them.*
S1PCSEL1A Optional Paper 1 Sem I	Distributed Operating System	*Upon the successful completion of the course, students will be able to* • *Provide hardware and software issues in modern distributed systems.* • *Get knowledge in distributed architecture, naming, synchronization, consistency and replication, fault tolerance, security, and distributed file systems.* • *Know about Shared Memory Techniques.* • *Have sufficient knowledge about file access.* • *Have knowledge of potential attack to computer system, cryptography, authentication, access control, digital signatures and design principles.*

S1PCSEL1B Optional Paper 2 Sem I	Parallel Processing	*Upon the successful completion of the course, students will be able to understand* • *Evolution of Computer Systems* • *Memory and Input-Output Subsystems for parallel processing* • *Pipelining and Vector Processing* • *Vectorization and Optimization methods* • *Multiprocessors Architecture and Programming for multiprocessors*
S1PCSEL1C Optional Paper 3 Sem I	Open Source Technology	*Upon the successful completion of the course, students will be able to understand* • *Introduction to Open source technologies* • *Open Source Platform and Technologies* • *Accessing and Running Applications in Linux* • *PHP and MySQL concepts*
S2PCS4 Paper 5 Sem II	Design and Analysis of Algorithm	*After completion of this course the students can able to* • *Analyze algorithms and its perfomance.* • *Understand searching and sorting techniques* • *Realise stack ,queue and linked list operation.* • *know tree and graph concepts*
S2PCS5 Paper 6 Sem II	Mobile Communications	*After completion of this course the students can able to* • *Discuss cellular radio concepts.* • *Identify various propagation effects.* • *Have knowledge of the mobile system specifications.* • *Classify multiple access techniques in mobile communication.* • *Outline cellular mobile communication standards.*
S2PCS6 Paper 7 Sem II	PHP & MySQL	*After completion of this course the students can able to* • *Basics of PHP along with overview of web applications techniques and form processing.* • *Library functions in PHP How to access data from MySQL* • *Develop web application with PHP and MySQL.*
S2PCSP2 Paper 8 Sem II	Practival –II (PHP & MySQL Lab)	*After learning this set of exercises the students can able to develop their own programs in PHP with MySQL database for solving any kind of problems assigned to them.*
S2PCSEL2A Optional Paper 4 Sem II	Data Mining and Algorithm	*After completion of this course the students can able to understand* • *fundamentals concepts of Data Mining and Data preprocessing* • *Data warehousing and online analytical processing* • *Basic concepts in Cluster Analysis and methods* • *Data Mining Trends and its applications*
S2PCSEL2C Optional Paper 6 Sem II	Wireless Networks	*On successful completion of the course the student will be able to* • *Enlighten the fundamental of cellular communication and channel allocation.*

		• *Elucidate the constraints and performance of wireless personal area networks, sensor and adhoc networks.*
S3PCS7 Paper 9 Sem III	Compiler Design	*After completion of this course the students can be able to* • *View the computer languages in different perception.* • *Familiarize with subtle and nuances of computer languages.* • *Write simple new language.*
S3PCS8 Paper 10 Sem III	Software Project Management	*After completion of this course the students can able to* • *Identify the different project contexts and suggest an appropriate management strategy.* • *Practice the role of professional ethics insuccessful software development.* • *Identify and describe the key phases of project management.* • *Determine an appropriate project management approach through an evaluation of the business context and scope of the project.*
S3PCS9 Paper 11 Sem III	Web Technology	*After completion of this course the students can able to* • *the basic concepts of HTML, Java Scripts* • Dynamic HTML Object Model and Collections • *Understand Database connectivity* • *Know about XML, servlets and session tracking*
S3PCSP3 Paper 12 Sem III	Practical – III (Web Technology – Lab)	*After learning this set of exercises the students can able to develop web applications with database connectivity for any kind of problems assigned to them.*
S3PCSEL3A Optional Paper 7 Sem III	Cloud Computing	*Upon completion of this course, the students will be able to:* • *Identify the key concepts and challenge in cloud computing* • *Describe the role of virtualization in cloud computing* • *Analyze various cloud programming models and apply them to solveproblems on the cloud* • *Differentiate web1.0, web2.0 and web3.0*
S3PCSEL3B Optional Paper 8 Sem III	Human Computer Interaction	*Upon completion of this course, the students understand* • *the various concepts, methods of Human Computer Interaction techniques* • *Design basics, design rules and evaluation techniques* • *User support systems*
S3PCSEL3C Optional Paper 9 Sem III	Digital Image Processing	*After completion of this course the students can able to* • *understand the fundamental concept of Digital Image Processing* • *Image Perception, Image Transforms, Image Enhancement and image analysis*

S4PCS10 Paper 13 Sem IV	Internet Of Things (IoT)	*After the completion of the course the students be able to* • *Explain the software and hardware required for IOT* • *Understand the structure of Arduino programming* • *Write Arduino program for new applications*
S4PCSP4 Paper 14 Sem IV	Practical IV (IoT Lab)	*After learning this set of exercises the students can able to write Arduino program with suitable sensors for any kind of task assigned to them.*
S4PCSPW Paper 15 Sem IV	Project Work	*After the project work the students will get the knowledge* • *How to convert the real time problems in to set of logical steps* • *How to implement the logical steps into programs.*
S4PCSEL4A Optional Paper 10 Sem III	Pervasive Computing	*After studying this course, the students can be able to* • *analyze the strengths and limitations of the tools and devices for development of pervasive computing systems.* • *explore the characteristics of different types of mobile networks on the performance of a pervasive computing system.* • *develop an attitude to propose solutions with comparisons for problems related to pervasive computing system through investigation.*
S4PCSEL4B Optional Paper 11 Sem IV	Soft Computing	*After studying this course, the students will be able to get knowledge in* • *Fuzzy Set Theory* • *Optimization methods* • *Neural Networks* • *Supervised and unsupervised learning in Neural Networks* • *Fuzzy Modeling and Application Of Computational Intelligence*
S4PCSEL4C Optional Paper 12 Sem IV	Embedded Systems	*After completion of this course the students can* • *Know the concept of Embedded systems and Real time operating systems* • *Gain knowledge about Embedded programming in C and C++* • *Present ideas of Program modeling concepts in single and multiprocessor systems*
S4PCSEL5A Optional Paper 13 Sem IV	Big data Analytics	*On completion of the course, the students will* • *Understand the key issues in big data management and its associated applications in intelligent business and scientific computing.* • *To analyze the HADOOP and Map Reduce technologies associated with big data* • *To understand the fundamentals of various big data analysis techniques and YARN framework*

S4PCSEL5B Optional Paper 14 Sem IV	Artificial Intelligence	*After completion of this course the students can* • *Understand problems and techniques of AI & Expert Systems* • *Learn the Heuristic techniques and reasoning* • *Use predicate logics* • *Represent knowledge using rules*
S4PCSEL5C Optional Paper 15 Sem IV	Database Administration and Management	*After completion of this course the students will be able to* • *Explain the various data models* • *Draw ER diagram for their application programs* • *Write suitable query to access data from the database.* • *Understand about transaction processing, concurrency control techniques and recovery procedures* • *Create tables with normalization procedure*

MPhil Computer Scinence

PSO: *Upon completion of the M.Phil. Degree programme, Students will be able to*

- *Explain research process, publication and preparation of thesis.*
- *Implement statistical methods in their research*
- *Analyze the latest developments in computer science*
- *Apply the recent research methods and techniques in their teaching*

Course code/Paper/ Semester	Title	Course Outcomes
S1MCS1 Paper 1 Sem I	Research Methodology	*After studying this course the students can able to* • *Explain the basics of research* • *Know how to use algorithm to solve their problems in their research* • *Apply statistical methods in their research work* • *Develop their logical skills.*
S1MCS2 Paper 2 Sem I	Advanced Concepts in computer science	*After studying this course the students can able to* • *Explain the fundamentals of XML* • *Clarify grid computing and cloud computing* • *Make clear about clouds advantages and disadvantages*
S1MCS3 Paper 3 Sem I	Teaching and Learning Skills	*After completing the course, the students will:* • *Develop skills of ICT and apply them in Teaching Learning context and Research.* • *Be able to use ICT for their professional development.* • *Leverage OERs for their teaching and research.* • *Appreciate the role of ICT in teaching, learning and Research.* • *Develop communication skills with special reference to Listening, Speaking, Reading and Writing.* • *Learn how to use instructional technology*

		effectively in a classroom. • *Master the preparation and implementation of teaching techniques.* • *Develop adequate skills and competencies to organize seminar / conference / workshop / symposium / panel discussion.* • *Develop skills in e-learning and technology integration.* • *Have the ability to utilize Academic resources in India for their teaching.* • *Have the mastery over communication process through the web.* • *Develop different teaching skills for putting the content across to targeted audience.* • *Have the ability to use technology for assessment in a classroom.*
S1MCS4A Guide Paper 4a Sem I	Data Mining techniques	*After studying this course the students can able to* • *Explain the fundamentals of XML* • *Clarify grid computing and cloud computing* • *Make clear about clouds advantages and disadvantages*
S1MCS4B Guide Paper 4b Sem I	Cloud Computing	*After successful completion of this course, student will be able to* • *Explain the core concepts of the cloud computing paradigm: how and why this paradigm shift came about, the characteristics, advantages and challenges brought about by the various models and services in cloud computing.* • *Apply the fundamental concepts in datacenters to understand the tradeoffs in power, efficiency and cost.* • *Identify resource management fundamentals, i.e. resource abstraction, sharing and sandboxing and outline their role in managing infrastructure in cloud computing.*
S1MCS4C Guide Paper 4c Sem I	Network Security	*Upon completion of this course the student can able to* • *Explain the different types of attacks and techniques used to prevent from attacks* • *Elaborate the encryption techniques in various levels* • *Explication how to authenticate the application through various mechanisms*
S1MCS4D Guide Paper 4d Sem I	Big Data Analytics	*After completion of this course the student can able to* • *Explain the various sources of bigdata and its characteristics* • *Store and access data using NoSQL* • *List the list of big data analytics and their functions.* • *Use Hadoop and Map-Reduce to manage big data issues.*

S2MCSD Paper 5 Sem II	Dissertation and viva voce	*After successful completion of dissertation the students will be able to know* • *How to identify the research problems* • *How to select the suitable methodology to yield the results* • *How to analyze the results to get findings and provide idea to continue the research.*

PRINCIPAL
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