

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS), THANJAVUR -5

Course structure for M.Sc., (Computer Science)

(Applicable to the candidates admitted from the academic year 2015-2016 onwards)

Sem ester	Course	Code	Course Title	Inst. Hrs./ Week	Cre dit	Exam Hrs.	Marks		Total
							Int.	Ext.	
I	CC1	RR1PCS1	Object Oriented Analysis and Design	6	5	3	25	75	100
	CC2	RR1PCS2	Distributed Operating System	6	5	3	25	75	100
	CC3	RR1PCS3	Advanced Java Programming	6	5	3	25	75	100
	CC4	RR1PCSP1	Java Lab	6	5	3	40	60	100
	EC1	RR1PCSEL1	Cryptography and Network Security	6	4	3	25	75	100
				Total	30	24			
II	CC5	RR2PCS4	Data Structures and Algorithms	6	5	3	25	75	100
	CC6	RR2PCS5	Grid Computing	6	5	3	25	75	100
	CC7	RR2PCS6	PHP	6	5	3	25	75	100
	CC8	RR2PCSP2	Data Structure Lab using C++	6	5	3	40	60	100
	EC2	RR2PCSEL2	Data Mining and Warehousing	6	4	3	25	75	100
				Total	30	24			
III	CC9	RR3PCS7	Advanced Microprocessors and Microcontrollers	6	5	3	25	75	100
	CC10	RR3PCS8	Compiler Design	6	5	3	25	75	100
	CC11	RR3PCS9	Software Project Management	6	5	3	25	75	100
	CC12	RR3PCSP3	Microprocessor and Interfacing Lab	6	5	3	40	60	100
	EC3	RR3PCSEL3	Human Computer Interaction	6	4	3	25	75	100
				Total	30	24			
IV	CC13	RR4PCSP4	Web and Mobile Technology Lab	6	5	3	40	60	100
	CC14	RR4PCSPW	Project Work	12	5	3	25	75	100
	EC4	RR4PCSEL4	Mobile communication Technology	6	4	3	25	75	100
	EC5	RR4PCSEL5	Web Technology	6	4	-	-	-	100
				Total	30	18			
			Grand Total	120	90				1900

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GENERAL STRUCTURE FOR M.Sc (COMPUTER SCIENCE)

Total Marks : 1900

Total Credits : 90(5 credits for Core courses & 4 for elective courses)

Course	No. of papers	Credit
Core courses*	14	70
Elective Courses	5	20
Total	19	90

* Core courses includes Practical & Project work

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Credits : 5
Hours/Week : 6
Medium of instruction: English

Code: RRIPCS1

M.Sc (Computer Science) - Semester 1
(For students admitted from 2015-2016onwards)

**CORE COURSE I - OBJECT ORIENTED ANALYSIS AND
DESIGN**

Unit I

Object Basics: Object Oriented Philosophy - Objects - attributes, Objects behaviors and methods- Encapsulation and information hiding- Class hierarchy - polymorphism, Object relationships and association – aggregation and object containment-Object oriented systems development life cycle

Unit II

Object oriented methodologies: Introduction - Rumbaugh et al.'s Object Modeling - Booch Methodology - Jacobson et al. Methodology – Patterns. Unified Modeling Language: Introduction – UML diagram- UML class diagram- use case diagram - UML dynamic modeling.

Unit III

Object Oriented Analysis: Introduction- Why analysis is a difficult activity- Business object analysis- use case driven object- Use case model – Developing effective documentation- Object Classification- Classification theory- Approaches for identifying classes - Noun phrase approach- Association – super sub class relationships.

Unit IV

Object Oriented Design: Object Oriented design process - Design axioms – corollaries - design patterns - designing classes – Design philosophy – Designing classes: The process– class visibility – Refining attributes – Designing methods and protocols.

Unit V

Software quality assurance: Introduction Quality assurance tests-Testing strategies – Test cases – Test plan – continuous testing - System usability and measuring user satisfaction: - Introduction – usability testing – User satisfaction test.

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Text Book

"Object Oriented Systems Development", Ali Bahrami, Tata- McGraw Hill, New Delhi.

Unit I: 2.2, 2.3, 2.5, 2.6, 2.8 to 2.12, 3

Unit II: 4.1, 4.3 to 4.6, 5.4-5.8

Unit III: 6.1 to 6.4, 6.6, 6.7, 7.2 to 7.4, 8.2, 8.3

Unit IV: 9.2 to 9.5, 10.4 to 10.6, 10.8

Unit V: 13.1 to 13.3, 13.5 to 13.7, 14.1 to 14.3

Reference Book

"Object Oriented Analysis and Design with applications", Grady Booch, II Edition, Addition Wesley

Question Paper pattern

Maximum Marks: 75

Exam Duration: Three Hours

Part A 10x2 = 20 Answer All Question (Two questions from each unit)

Part B 5x5 = 25 Answer All questions (Either or Type – Two questions from each unit)

Part C 3 x10 30 Answer any THREE questions (One question from each unit)

Signature of the HOD

COE

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Credits : 5
Hours/Week : 6
Medium of instruction: English

Code: RR1PCS2

M.Sc (Computer Science) - Semester 1
(For students admitted from 2015-2016 onwards)

CORE COURSE II – DISTRIBUTED OPERATING SYSTEM

Unit I

Fundamentals: What is Distributed Computing System – Evolution of Distributed Computing System – Distributed Computing System Models – Why are Distributed Computing Systems gaining popularity – What is a Distributed Operating System – Issues in Designing Distributed Operating System – Introduction to Distributed Computing Environment. Computer Networks: Introduction – Network types – LAN – WAN – Communication protocols – Internetworking – ATM Technology.

Unit II

Message Passing: Introduction – Desirable features – Issues in IPC Message Passing – Synchronization – Buffering – Multidatagram Messages – Encoding and Decoding of Message Data – Process Addressing – Failure Handling – Group Communication.

Unit III

Distributed Shared Memory: Introduction – General Architecture of DSM system – Design and Implementation Issues of DSM – Granularity – Structure of Shared Memory Space – Consistency Models – Replacement Strategy – Thrashing – Other Approaches to DSM – Heterogeneous DSM – Advantages of DSM. Synchronization: Introduction – Clock Synchronization – Event Ordering – Mutual Exclusion – Deadlock – Election Algorithm.

Unit IV

Distributed File System: Introduction – Desirable features – File Models – File Accessing Models – File Sharing Semantics – File Caching Schemes – File Replication – Fault Tolerance – Atomic Transactions – Design Principles

Unit V

Security: Introduction – Potential Attacks to Computer System – Cryptography – Authentication – Access Control – Digital Signatures – Design Principles

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TEXT BOOK

Distributed Operating Systems – Concepts and Design, Pradeep K Sinha, PHI, 2003.

Unit I: Chapter 1.1 – 1.7, 2.1 - 2.7.

Unit II: Chapter 3.1 - 3.10.

Unit III: Chapter 5.1 - 5.11, 6.1 – 6.6.

Unit IV: Chapter 9.1 – 9.10.

Unit V: Chapter 11.1 – 11.7.

REFERENCE BOOK

Distributed Operating Systems 1e, Andrew S Tanenbaum, PHI.

Question Paper pattern

Maximum Marks: 75

Exam Duration: Three Hours

Part A 10x2 = 20 Answer All Question (Two questions from each unit)

Part B 5x5 = 25 Answer All questions (Either or Type – Two questions from each unit)

Part C 3 x10 30 Answer any THREE questions (One question from each unit)

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Credits : 5
Hours/Week : 6
Medium of instruction: English

Code: RR1PCS3

M.Sc (Computer Science) - Semester 1
(For students admitted from 2015-2016 onwards)

CORE COURSE III -ADVANCED JAVA PROGRAMMING

Unit I

Genesis of Java: Why java is important to the Internet- Byte Code- Java Buzzwords - An Overview of Java- Datatypes, Variables and Arrays- operators –control statements – Introducing Classes and Methods –Inheritance.

Unit II

Packages and Interfaces – Exception Handling –Multithreaded Programming- Applets – Event Handling

Unit III

Networking- Introducing the AWT: Working with windows, Graphics and Text- Using AWT Controls, Layout Managers and Menus

Unit IV

Java Beans : What is Java Bean?- - Advantages of Java Bean- Application Builder Tools-Using the Bean Developer Kit- JAR files-Introspection – Developing a Simple Bean Using the BDK- Using Bound Properties – Using BeanInfo Interface- Constrained Properties – persistence –customizes – The Java Beans API - Using Bean builder – **A tour of Swing:** Japplet – Icons and Labels – Text Fields – Buttons – Combo boxes – tabbed Panes – Scroll panes – trees – Tables .

Unit V

Servlets : Background - The life cycle of a Servlet – Using Tomcat for servlet Development – A simple Servlet – The Servlet API – The javax.servlet Package – Reading Servlet parameters – javax.servlet.http package - Handling HTTP requests and responses – using Cookies – Session Tracking – Security Issues.

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TEXT BOOK

The Complete Reference Java2, Herbert Schildt, Fifth Edition, Tata McGraw Hill

Unit I: chapter 1-8

Unit II: chapter 9-11, 19-20

Unit III: chapter 21, 22

Unit IV: chapter 25, 26

Unit V: chapter 27

REFERENCE BOOKS

1. Patrick Naughton “ Complete Reference Java 2” Tata McGraw Hill , 2003
2. Elliotte Rusty Harold “ Java Network Programming” ‘O’ Ralley Publications, 2000
3. E.Balagurusamy “Programming with Java” Tata McGraw Hill, 2nd Edition, 2008.

Question Paper pattern

Maximum Marks: 75

Exam Duration: Three Hours

Part A 10x2 = 20 Answer All Question (Two questions from each unit)

Part B 5x5 = 25 Answer All questions (Either or Type – Two questions from each unit)

Part C 3 x10 30 Answer any THREE questions (One question from each unit)

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Credits : 5
Hours/Week : 6
Medium of instruction: English

Code: RR1PCSP1

M.Sc(Computer Science) - Semester 1
For students admitted from 2015-2016 onwards)

CORE COURSE – IV - JAVA PROGRAMMING LAB

1. Program for Packages and Interfaces.
2. Program for Exception Handling.
3. Simple applet programs
4. Program for Event Handling (Mouse, Key Events, Text Events etc)
5. Program for simple calculator.
6. Program for accessing database using JDBC
7. Program for insert of database using JDBC.
8. Program using Servlets.
9. Program using Java Server Pages.
10. Program for creation for Beans.
11. Program for implementation of UDP.
12. Program for implementation of TCP/IP.

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Credits : 4

Code: RR1PCSEL1

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
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Hours/Week : 6

Medium of instruction: English

M.Sc(Computer Science) - Semester 1
(For students admitted from 2015-2016onwards)

ELECTIVE – I

CRYPTOGRAPHY AND NETWORK SECURITY

Unit I

Overview: The OSI security architecture- Security Attacks, Services and Mechanisms -A model for network security- **Classical encryption Techniques:** Symmetric cipher model-Substitution Techniques-Transposition techniques- **Block cipher and DES:** Block cipher principles – The Data encryption standard(DES) – The strength of DES.

Unit II

Advanced Encryption standard: Finite Field Arithmetic, AES Structure- **Block ciphers operation:** Multiple encryption and Triple DES – Electronic code Book- ciphers block chaining mode- cipher feedback mode – output feedback mode- counter mode **Pseudorandom Number generation and steam ciphers :** Principles of pseudorandom number generation - pseudorandom number generation- stream ciphers- RC4.

Unit III

Public-Key Cryptography and RSA: Principles of Public-Key Cryptosystems-RSA algorithm- **other public-key cryptosystems:** Diffie-Hellman key exchange-Elliptic curve Arithmetic- Elliptic curve cryptography – **Message authentication code:** Message Authentication requirements- Message Authentication functions-Requirements for Message authentication codes- security of MACs.

Unit IV

Electronic Mail security: Pretty Good Privacy-S/MIME - **IP Security:** IP security overview- IP security Policy-Encapsulating security payload-combining security associations- Internet Key Exchange- cryptographic suites.

Unit V

Intruders: Intruders-Intrusion detection-Password management - **Malicious software:** Viruses -Virus counter measures – **Firewall:** The need for Firewalls Firewall design Principles –Trusted systems.

TEXT BOOK:

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“Cryptography and Network security”, William Stallings, Third Edition, Pearson Education, 2006.

Unit- I: chapter 1.2-1.6, 2.1-2.3, 3.1-3.4.

Unit- II: 5.1, 5.2, 6.1-6.6, 7.1, 7.2, 7.4, 7.5.

Unit - III: 9.1, 9.2, 10.1, 10.3, 10.4.

Unit - IV: 18.1, 18.2, 19.1, 19.2, 19.3, 19.4, 19.5, 19.6.

Unit - V: 20.1, 20.2, 20.3, 21.2, 21.3, 22.1, 22.2, 22.3.

REFERENCE BOOKS

1. “Introduction to cryptography”, Johannes A. Buchaman, Springer-Verlag.
2. “Cryptography and Network Security”, Atul kahate , TMH.

Question Paper pattern

Maximum Marks: 75

Exam Duration: Three Hours

Part A 10x2 = 20 Answer All Question (Two questions from each unit)

Part B 5x5 = 25 Answer All questions (Either or Type – Two questions from each unit)

Part C 3 x10 30 Answer any THREE questions (One question from each unit)

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Credits : 5
Hours/Week : 6
Medium of instruction: English

Code: RR2PCS4

M.Sc(Computer Science) - Semester 2
(For students admitted from 2015-2016onwards)

CORE COURSE V: DATA STRUCTURES AND ALGORITHMS

Unit - I:

Introduction: overview - Arrays: Axiomatization - Ordered Lists- Representation of arrays- Stacks and queues: Fundamentals – Evaluation of Expressions – Multiple Stacks and queens.

Unit - II:

Linked Lists: Singly Linked Lists – Linked Stacks and Queues - Polynomial Addition – More on linked lists - Doubly Linked Lists and Dynamic Storage Management- Generalized lists.

Unit – III:

Trees: Basic Terminology- Binary tree - Binary tree representations – Binary Tree traversal - More on binary trees- Threaded binary trees – Binary tree representation of trees – set representations – decision trees – Game trees - counting binary Trees.

Unit -IV

Graphs: Terminology and Representations – Traversals, Connected components and spanning trees – shortest paths and transitive closure – Activity Networks, Topological sort and critical paths. Internal Sorting: Searching – Insertion sort- Quick sort - Merge sort – Heap sort.

Unit – V:

Backtracking: The general method – the 8 Queens problem – Sum of subsets – graph coloring – Hamiltonian cycles – Knapsack problem. Branch and Bound: The method- 0/1 Knapsack problem- Traveling sales person.

Text Books:

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1. Fundamentals of Data Structures – Ellis Horowitz and Sartaj Sahni. Galgotia publications.(Unit – I, II, III, IV)
2. Fundamentals of Computer Algorithms – Ellis Horowitz, Sartaj Sahni and Sanguthevar Rajasekaran – Universities Press. 2nd Edition. (Unit – V)

Unit- I: 1.1, 2.1, 2.3, 2.4, 3.1, 3.3, 3.4.

Unit –II: 4.1, 4.2, 4.4, 4.5, 4.8, 4.9.

Unit –III: 5.1-5.9.

Unit –IV: 6.1-6.4, 7.1-7.3, 7.5, 7.6

Unit - V: 7.1 – 7.6, 8.1-8.3

Reference Books:

1. Data structures – LIPSCHUTA, Tata Mc GrawHill, Schaum's outline series.
2. An Introduction to Data Structures – Trembley (JP), Sorenson.

Question Paper pattern

Maximum Marks: 75

Exam Duration: Three Hours

Part A 10x2 = 20 Answer All Questions (Two questions from each unit)

Part B 5x5 = 25 Answer All questions (Either or Type – Two questions from each unit)

Part C 3 x10 30 Answer any THREE questions (One question from each unit)

Signature of the HOD

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Credits : 5
Hours/Week : 6
Medium of instruction: English

Code: RR2PCS5

M.Sc(Computer Science) - Semester 2
(For students admitted from 2015-2016 onwards)

CORE COURSE VI – GRID COMPUTING

Unit - I:

Introduction: Grid Activities - Overview of Grid Business Areas – Grid Applications - Grid infrastructure.

Unit - II:

Grid Computing Organization and their roles: Organizations developing grid Standards - Grid computing toolkits – Commercial Organizations. - Using Grid Based solutions.

Unit - III:

Grid Computing Anatomy: Grid Problem Concept - Architecture - Relationship to other distributed technologies. Grid computing road map: Autonomic Computing – Service Oriented Architecture and Grid - Semantic Grids.

Unit - IV:

The New Generation of Grid Computing Applications : Service-Oriented Architecture - Web-Service Architecture - XML Messages and Enveloping - Service Message Description Mechanisms - Relationship between Web Service and Grid Service - Role of WS-I Organization.

Unit - V:

Open Grid Services Architecture (OGSA): Architecture and Goal. Sample Use and Cases: Commercial Data Center (CDC) - National Fusion Collaborator (NFS) - Online Media and Entertainment - OGSA platform components.

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Text Book:

“Grid Computing” - Joshy Joseph & Craig Fellenstein – PEARSON – Eighteenth impression - 2008..

Unit-I - Chapters-1

Unit-II – Chapter-2

Unit-III- Chapter-3 & 4

Unit-IV- Chapter-5

Unit-V-Chapter-6,7 & 8

Reference :

1. “Introduction to Grid Computing” - Bart Jacob, Michael Brown, Kentaro Fukui, Nihar Trivedi - IBM Red Books Publisher - 2005.
2. ”Grid Computing : Making the Global Infrastructure a Reality” - Fran Berman, Geoffrey Fox, Anthony J.G. Henry - John Wiley & Sons - 2003.

Question Paper pattern

Maximum Marks: 75

Exam Duration: Three Hours

Part A 10x2 = 20 Answer All Question (Two questions from each unit)

Part B 5x5 = 25 Answer All questions (Either or Type – Two questions from each unit)

Part C 3 x10 30 Answer any THREE questions (One question from each unit)

Signature of the HOD

COE

Credits : 5
Hours/Week : 6

Code: RR2PCS6

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Medium of instruction: English

M.Sc (Computer Science) - Semester 2
(For students admitted from 2015-2016 onwards)

CORE COURSE VII - PHP

Unit I

Essential php: Development environment-Creating and running PHP page-Mixing HTML and PHP- Printing-Echo Power- 'Here' Documents-Command Line PHP-Adding comments-Variables-Strings-Constants-Internal data types.

Operator and flow control: Math, Assignment, String, Bitwise, Execution operators-Operator precedence -Incrementing and decrementing values- If, else, else if statements-Comparison operators-Logical operators- Ternary operator-Switch statement-Loop statements.

Unit II

Strings and arrays: String functions-Conversion-formatting text strings-Building arrays-Modifying data in arrays-Deleting array elements- Arrays with loops- Array functions-Arrays using implode and explode-Extracting data from arrays-sorting arrays-array operators- Multidimensional arrays.

Creating functions: Function creation-Passing data-Passing array-Passing by reference-Using default arguments-Passing variable-Returning data-Returning array-Returning List-Returning References-Variable scope-Global data-Conditional, variable and nesting functions –creating include files-Returning error from functions.

Unit III

Reading data in web pages: Setting up web page-Handling text fields-Text areas-Check boxes, Radio buttons-List boxes-Password controls-Hidden controls-Image maps-File uploads-Handling buttons.

PHP Brower handling power : Server variables-HTTP headers-Getting browser type-Redirecting browsers-Dumping a form's data –Putting all in one page-data validation – Checking the entry of required data, numbers, text – Persisting user data – Client side data validation – Handling HTML tags.

Unit IV

Object oriented programming: Creating classes and objects – Setting access – constructors – destructors – Inheritance – Overloading and over riding methods – Auto loading classes. **File handling:** Opening file – Looping over a file – Reading text – closing – Reading file character – Reading a whole file – Reading a file into array – Checking the file existence – Getting file size – Parsing files – Parsing ini files – Getting file information – Setting file pointer – Copying, Deleting, Reading and Writing files – Appending and locking files.

Unit V

**RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
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Working with data base: Database – Essential SQL- crating MySQL Database-
Creating a new table-Putting data- Accessing data – Updating databases – Inserting new
data items- Deleting records- Creating new tables – Creating new database-Sorting data
Section cookies and FTP: Setting and Reading Cookie-Cookie expiration – Deleting
Cookies-Working with FTP-Downloading and uploading with FTP-Deleting files with
FTP-Sending E-mail – Adding attachments – storing data in sessions- Writing Hit
counter.

TEXT BOOKS

‘THE COMPLETE REFERENCE: PHP’, Steven Holzner, McGraw Hill
education(India) Edtion 2008.

Unit I : chapter 1,2
Unit II : chapter 3,4
Unit III : chapter 5,6
Unit IV : chapter 7,9
Unit V : chapter 10,11

REFERENCE BOOK

‘Setting Up LAMP: Getting Linux, Apache, MySQL, and PHP and working
Together”, Eric Rosebrock, Eric Filson, Published by John Wiley and Sons, 2004

Question Paper pattern

Maximum Marks: 75

Exam Duration: Three Hours

Part A 10x2 = 20 Answer All Question (Two questions from each unit)

Part B 5x5 = 25 Answer All questions (Either or Type – Two questions from each unit)

Part C 3 x10 30 Answer any THREE questions (One question from each unit)

Signature of the HOD

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RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
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Credits : 5
Hours/Week : 6
Medium of instruction: English

Code: RR2PCSP2

M.Sc(Computer Science) - Semester 2
(For students admitted from 2015-2016onwards)

CORE COURSE– VIII – DATA STRUCTUER LAB USING C++

1. Develop a program to implement Linear search method.
2. Write a program to implement Binary search method.
3. Write a program to implement Insertion sort method.
4. Develop a program for Quick sort.
5. Develop a program using Merge sort method.
6. Write a program using Heap sort method
7. Write a program to implement the operations of Stack.
8. Develop a program to implement the operations of Queue.
9. Write a program for the function of Singly linked list.
10. Develop a program for the function of Doubly linked list.
11. Write a program for Binary tree traversal.

Signature of HOD

COE

Credits : 4

Code: RR2PCSEL2

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
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Hours/Week : 6

Medium of instruction: English

M.Sc(Computer Science) - Semester 2
(For students admitted from 2015-2016onwards)

ELECTIVE – II
DATA MINING AND WAREHOUSING

Unit - I

Introduction: Data mining- moving toward the information age – kinds of data can be mined- Database data- Data warehouse- kind's patterns can be mined –technologies are used- kinds of applications are targeted - major issues

Unit - II

Data pre-processing: Data preprocessing – Data cleaning – Data Integration - Data Reduction – Data Transformation and Data Discretization.

Unit - III

Data warehousing and online analytical processing: data warehouse basic concepts-data warehouse modeling- Data warehouse Design and usage- Classification: basic concepts - Bayesian classification method classification advanced method: - Classification by Back propagation

Unit - IV

Cluster Analysis Basic concepts and methods – Cluster analysis - Partitioning methods- Hierarchical methods – Density based methods -Grid based methods -Model based clustering methods.

Unit - V

Data Mining Trends and Research Frontiers: - Mining complex Data Types – other methodologies of Data Mining- Data Mining Applications - Data Mining and Society-Data Mining Trends

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TEXT BOOK

“Data Mining Concepts and Techniques”, Jiwei Han, Michelen Kamber, Morgan Kaufmann Publishers an Imprint of Elsevier, 2012.3rd editon.

(Unit I – chapter 1: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7

Unit II- chapter 3: 3.1, 3.2, 3.3, 3.4, 3.5

Unit III- chapters 4, 8, 9: 4.1, 4.2, 4.3, 8.1, 8.3, 9.2

Unit IV – chapter 10: 10.1, 10.2, 10.3, 10.4, 10.5)

Unit V- chapter 13: 13.1 t13.5)

REFERENCE BOOKS

1. “Data Mining Techniques”, Arun K.Pujari,Universities Press (India) Limited, 2001.
2. “Modern Data warehousing, Mining and Visualization: core concepts”, George M. Marakas, Printice Hall, First Edition, 2002.
3. “Introduction to Data Mining”, Pang-Ning Tan, Michael Steinbach, Vipin Kumar, Pearson, 2008.
4. “Data Mining”, Soman K. P, Shyam Diwakar, V. Ajay , Printice Hall, 2008.

Question Paper pattern

Maximum Marks: 75

Exam Duration: Three Hours

Part A 10x2 = 20 Answer All Question (Two questions from each unit)

Part B 5x5 = 25 Answer All questions (Either or Type – Two questions from each unit)

Part C 3 x10 30 Answer any THREE questions (One question from each unit)

Signature of the HOD

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RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
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Credits : 5
Hours/Week : 6
Medium of instruction: English

Code: RR3PCS7

M.Sc (Computer Science) - Semester 3
(For students admitted from 2015-2016 onwards)

**CORE COURSE IX - ADVANCED MICROPROCESSORS AND
MICRO CONTROLLERS**

Unit I

Microprocessor with Memory Management and Protection: Features of 80286 – Internal Architecture: Register organization – Internal block diagram - Interrupts – Real and Protected Virtual Addressing – Interfacing memory and I/O devices with 80286 – Addressing modes.

Unit II

Beginning of 32-bit Microprocessors: Architecture and signal descriptions of 80386 – Register organization – Addressing modes of 80386 – Data types – Real Address mode of 80386- Protected mode of 80386 – Segmentation and Paging – Conversion of a linear address to a Physical address – features of 80486 – Architecture and Register organization of 80486.

Unit III Pentium 4 Processors of new millennium:

Salient features of Pentium 4 – Modules of Pentium 4 Architecture: Front end module, Out of order execution engine, Rapid Execution module, Memory subsystem – Hyper threading in Pentium – RISC Architecture - an overview: The Advantages of RISC – Basic features of RISC processors.

Unit IV An Introduction to Microcontrollers 8051 and 80196:

Architecture of 8051 – Register set of 8051 – Memory and I/O addressing by 8051– Interrupts of 8051 – Instruction set of 8051 – Architecture of 16-bit microcontroller 80196.

Unit V Embedded systems and Real Time Operating Systems (RTOS):

Introduction to multitasking – Real Time Operating Systems – Scheduling of task in a RTOS- Tasks in RTOS– Data and Resource protection – Examples of Applications: Temperature Monitor (Tasks, Programming, Hardware requirements, Dealing with numbers) – A model Train Controller

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TEXT BOOKS:

1. “Advanced Microprocessors and Peripherals” – A.K.Ray & K.M.Bhurchandi, TMH, 2nd Edition, 2007. (Unit – I, II, III, IV)
2. “8051 Microcontroller & Embedded systems” – Dr. Rajiv Kapadia, Jaico Publishing House, 2004. (Unit V)

Unit 1: Chapter 9.1, 9.2.1, 9.2, 9.4, 9.5, 9.13, 9.17.3.

Unit II: Chapter 10.2,10.3,10.4,10.5,10.6,10.7,10.8,10.9,10.9.2,10.13.1,10.13.2.

Unit III: Chapter 12.2, 12.3.1, 12.5.1, 12.6, 12.7, 12.9, 13.3, 13.4

Unit IV: Chapter 17.2, 17.4, 17.6, 17.7, 17.8, 17.10.2

Unit V: Chapter 9.1-9.5, 9.9, 9.10.3

REFERENCE BOOKS:

1. “An introduction to the design of small scale embedded systems – Tim Wilmshurst, Palgrave publishers, 2004.
2. The 8051 Microcontroller and Embedded systems – Muhammad Ali Mazidi et al., - Pearson Education – 2nd Edition, 2006.

Question Paper pattern

Maximum Marks: 75

Exam Duration: Three Hours

Part A 10x2 = 20 Answer All Question (Two questions from each unit)

Part B 5x5 = 25 Answer All questions (Either or Type – Two questions from each unit)

Part C 3 x10 30 Answer any THREE questions (One question from each unit)

Signature of the HOD

COE

Credits : 5

Code:RR3PCS8

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

Hours/Week : 6

Medium of instruction: English

M.Sc(Computer Science) - Semester 3
(For students admitted from 2015-2016 onwards)

CORE COURSE X – COMPILER DESIGN

Unit I

Introduction to compiling: Compilers-Analysis of source program- The Phases of compiler-Cousins of the compiler-The grouping of phases-Compiler construction tools. Lexical analysis: The role of the lexical analyzer-Input buffering-Specification of tokens-Recognition of tokens-A language for specification of lexical analyzer-Finite automata-From regular expression to an NFA-Design of a lexical analyzer generator-Optimization of DFA-based pattern matchers

Unit II

Syntax Analysis: The role of the parser-Context-free grammars-Writing a grammar-Top-down parsing-Bottom-up parsing- Operator-precedence parsing-Syntax-directed translation: Syntax-directed definitions-Construction of syntax trees.

Unit III

Type checking: Type systems-Specification Of simple type checker-Type conversions-Run-Time environments: Source Environment: Source Language issues – Storage Organization – Storage allocation strategies – Parameter passing.

Unit IV

Intermediate code generation: Intermediate languages – Declarations – Assignment statements – Boolean Expressions – Case statements – Back patching – Procedure calls.

Code Generation: Issues in the design of a code generator – The target machine – Run-time storage management – Basic blocks and flow graphs – Next-used information – A simple code generator.

Unit V

Register allocation and assignment – The dag representation of basic blocks – Peephole optimization – Generating code from dags. Code optimization: Introduction – The principal sources of optimization – optimization of basic blocks – Loops in flow graphs – Introduction to global data-flow analysis – Code-improving transformations – Data-flow analysis of structured flow graphs.

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

TEXT BOOK

“Compilers – Principles, Techniques and Tools”, Alfred Aho, Ravi Sethi, Jeffy D.Ullman, Pearson Education Asia, 2005.

Unit-1 :Chapter 1.1 - 1.6, 2.6, 3.1-3.9.

Unit-2 :Chapter 4.1 -4.6, 5.1-5.2.

Unit-3 : Chapter 6.1,6.2,6.4,7.1-7.3,7.5.

Unit-4 : Chapter 8.1-8.7, 9.1-9.6.

Unit-5 : Chapter 9.7-9.10, 10.1-10.5, 10.7, 10.9.

REFERENCES

1. “Practice and Principles of Compiler Building with C”, Henk Alblas and Albert Nymeyer, PHI, 2001
2. “Compiler Construction : Principles and Practices”, Kenneth C. Loudon, Thompson Learning, 2003.

Question Paper pattern

Maximum Marks: 75

Exam Duration: Three Hours

Part A 10x2 = 20 Answer All Question (Two questions from each unit)

Part B 5x5 = 25 Answer All questions (Either or Type – Two questions from each unit)

Part C 3 x10 30 Answer any THREE questions (One question from each unit)

Signature of the HOD

COE

Credits : 5

Code: RR3PCS9

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

Hours/Week : 6
Medium of instruction: English

M.Sc(Computer Science) - Semester 3
(For students admitted from 2015-2016onwards)

CORE COURSE XI - SOFTWARE PROJECT MANAGEMENT

UNIT I

Introduction to Software Project Management: Introduction – Why is SPM important? – Project- Software projects Vs other types of project – Contract and technical project management – Activities – plan, methods and methodologies- categorizing software projects- stakeholders- setting objectives- Business case – project success and failures- Management.

Project Evaluation and Programme Management: Introduction – Business case – Project portfolio management – Evaluation of individual projects – cost benefit evaluation techniques – risk evaluation – Programme management – Managing the allocation of resources – Strategic programme management – Creating a programme and aids – benefits management.

UNIT II

Overview Of Project Planning: Introduction - Step wise Project Planning – steps. **Selection Of An Appropriate Project Approach :** Introduction – Build or buy- Choosing methodologies and technologies – Software processes and models – choice of process models – structure Vs speed of delivery – waterfall model – spiral model – software prototyping – Rapid application development – Agile methods- Extreme programming.

UNIT III

Software Effort Estimation: Introduction- Where are estimates done? – Problems with over and under estimates – Basis for estimating and its techniques – Bottom up estimating – Top down approach and parametric models – Expert Judgment – Estimating by analogy - Function Point Analysis – FP mark II – COSMIC full FP- COCOMO II – Cost estimation and staffing patterns.

Activity Planning: Introduction- objectives – When to plan? – Project schedules – Projects and Activities – Network Planning Models – Sequencing and Scheduling Activities – Formulating a Network Model – Adding the Time Dimension – Forward and Backward Pass – Critical Path- Activity Float – Shortening the Project Duration – Critical Activities – Activity on Arrow Networks.

UNIT IV

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

Risk Management: Introduction – Risk – Categories of risk – A framework for dealing with risk – Risk Identification – Risk assessment – Risk Planning – Risk Management – Evaluating risks to schedule – Applying the PERT Technique – Monte-Carlo Simulation – Critical Chain Concepts.

Resource allocation : Introduction – Nature of resources – Identifying Resource Requirements- Scheduling – Creating Critical Path – Counting the cost – being the specific – publishing the resource schedule - Cost Schedules – Scheduling sequence.

UNIT V

Monitoring and Control: Introduction – Creating the framework – collecting the data – Review – Software Configuration Management.

Managing Contracts: Introduction- Types of contracts – Contract Management - Managing people in software environments.

Text Book:

"Software project management" - Bob Hughes, Mike Cotterell and Rajib Mall - Fifth Edition

Unit I: Chapter 1, 2

Unit II: Chapter 3, 4

Unit III: Chapter 5, 6

Unit IV: Chapter 7, 8

Unit V: Chapter 9, 10, 11

Reference Book:

"Software Project Management" - Walker Royce - Pearson Education

Question Paper pattern

Maximum Marks: 75

Exam Duration: Three Hours

Part A 10x2 = 20 Answer All Question (Two questions from each unit)

Part B 5x5 = 25 Answer All questions (Either or Type – Two questions from each unit)

Part C 3 x10 30 Answer any THREE questions (One question from each unit)

Signature of the HOD

COE

Credits : 5

Code: RR3PCSP3

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

Hours/Week : 6

Medium of instruction: English

M.Sc(Computer Science) - Semester 3
(For students admitted from 2015-2016onwards)
**CORE COURSE– XII – MICRO PROCESSORS AND
INTERFACING LAB**

1. Addition – 8 bit / Multi byte numbers
2. Subtraction – 8 bit / Multi byte numbers
3. Multiplication – 8 bit / Multi byte numbers
4. Division - 8 bit / Multi byte numbers
5. Finding smallest / biggest number in a given list
6. Arranging numbers in ascending / descending order
7. Sum of series.
8. Finding the presence location of a given number in a list
9. Displaying characters in different forms like scrolling, blinking etc.,
10. Analog to Digital converter
11. Digital to Analog converter.
12. Stepper Motor Interfacing
13. Study of relay switch lights model

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

Credits : 4

Code: RR3PCSEL3

Hours/Week : 6

Medium of instruction: English

M.Sc(Computer Science) - Semester 3
(For students admitted from 2015-2016 onwards)

ELECTIVE III
HUMAN-COMPUTER INTERACTION

Unit I

Introduction- What is HCI-The Human: Input-Output channel –The computer: Text entry devices- positioning pointing and drawing - The Interaction : Models of Interaction design focus: video recorder- Frameworks and HCI- Ergonomics- interaction styles-Elements of the WIMP interface- Interactivity- The context of the interaction – Experience, engagement and fun.

Unit II

Paradigms: Introduction- Paradigms for interactions- Interaction design basics: Introduction- What is design- The process of design- User focus- scenarios- navigation design- screen design and layout- Iteration and prototyping.

Unit III

HCI in the software process: Introduction-The software life cycle-Usability engineering- Interactive design and prototyping-design rationale - Design rules: Introduction- Principles to support usability- Standards-Guidelines- Golden rules and heuristics- HCI patterns.

Unit IV

Implementation support: Introduction-Elements of windowing system- Programming the application- Using toolkits- User interface management systems - Evaluation techniques: What is evaluation- Goals of evaluation- Evaluation through expert analysis - Evaluation through user participation- Choosing an evaluation method.

Unit V

Universal design: Introduction: Universal design principles – Multi-modal interaction-designing for diversity- User support: Introduction- Requirements of user support- Approaches to user support- Adaptive help systems- Designing user support systems.

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THANJAVUR -613005

TEXT BOOK

“Human-Computer Interaction”, Alan Dix, Janet Finlay, Gregory D. Abowd, Russell Beale, Pearson Education, Ltd Third Edition.

Unit-1: Chapter 1.1, 1.2, 2.1-2.3, 3

Unit-2: Chapter 4, 5.

Unit-3: Chapter 6, 7.

Unit-4: Chapter 8, 9.

Unit-5: Chapter 10, 11.

REFERENCE BOOK

“The Human-computer interaction Handbook”- Andrew sears, Julie A. Jacko-CRC Press, Technology & Engineering. Sep-2007.

Question Paper pattern

Maximum Marks: 75

Exam Duration: Three Hours

Part A 10x2 = 20 Answer All Question (Two questions from each unit)

Part B 5x5 = 25 Answer All questions (Either or Type – Two questions from each unit)

Part C 3 x10 30 Answer any THREE questions (One question from each unit)

Signature of the HOD

COE

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

Credits : 5
Hours/Week : 6
Medium of instruction: English

Code: RR4PCSP4

M.Sc(Computer Science) - Semester 4
(For students admitted from 2015-2016onwards)

CORE COURSE XIII – WEB AND MOBILE TECHNOLOGY LAB

1. Create a HTML table with rows & columns and split them using Row span and Cols pan.
2. Create a web page in the format of front page of a news paper using Text links. Align
The text with colors.
3. Write a Java script to display your bio-data.
4. Write a Java Script to display an electricity bill detail
5. Write a java script to display inventory detail.
6. Write an ASP program to prepare Employee pay bill using Java Script.
7. Write an ASP program to prepare student performance evaluation document using Java Script.
8. Create a Cookie and set the expiry time.
9. Create a Servlet to count the number of visits to a web page.
10. Implement JDBC connectivity and create, modify and insert records.
11. Using JSP create a form to validate a password.
12. Using JavaScript perform a client side validation.

Signature of HOD

COE

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

Credits : 5
Hours/Week : 12
Medium of instruction: English

Code: RR4PCSPW

M.Sc(Computer Science) - Semester 4
(For students admitted from 2015-2016onwards)
CORE COURSE XIV – PROJECT WORK

Dissertation 75 Marks

Viva voce 25 Marks

Signature of the HOD

COE

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

Credits : 4

Code: RR4PCSEL4

Hours/Week : 6

Medium of instruction: English

M.Sc(Computer Science) - Semester 4

(For students admitted from 2015-2016onwards)

ELECTIVE IV - MOBILE COMMUNICATION TECHNOLOGY

Unit I

Introduction: Applications – Simplified Reference Model – Wireless Transmission: Multiplexing: Space Division, Frequency division, Time division, Code division – Modulation: ASK, FSK, PSK, -Spread Spectrum: Direct sequence, Frequency hopping - cellular systems.

Unit II

Telecommunications System: GSM: System Architecture – Radio Interface- Protocols – Localization and calling- Security – UMTS and IMT 2000: – Satellite System: History-applications-Basics- Routing-Localization-Handover.

Unit III

Wireless LAN : Infra red vs radio transmission – Infrastructure and ad-hoc network- IEEE 802.11: system architecture- protocol architecture- physical layer- medium access control layer- 802.11a and b – HIPERLAN – Bluetooth: Architecture- radio layer- Base band layer-link manager protocol.

Unit IV

Mobile network layer: Mobile IP: Goals – IP Packet Delivery – Agent discovery – Registration – Tunneling and encapsulation- Reverse Tunneling – Dynamic host configuration protocol- Mobile ad-hoc Networks

Unit V

Mobile technology: Definition – Mobile Operating systems – Android- Features- Android development environment for real applications – Android software development tools: Official development tools, Third party development tools- Debugging Android applications – Signing and publishing an Android application.

TEXT BOOK

1. “Mobile Communications”, Jochen Schiller ,Pearson Education, Delhi, 2000.

(Unit- I to IV)

2. Android – Applications Development R. Roger, J Lombardo, Z Mednieks and B. Meike, O’Reilly, Shroft Publishers & Distributors Pvt Ltd, New Delhi, 2010.

(Unit-V)

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

REFERENCE

“The Wireless Application Protocol: Writing Applications for the Mobile Internet”, Sandeep Singhal, et al.

Question Paper pattern

Maximum Marks: 75

Exam Duration: Three Hours

Part A 10x2 = 20 Answer All Question (Two questions from each unit)

Part B 5x5 = 25 Answer All questions (Either or Type – Two questions from each unit)

Part C 3 x10 30 Answer any THREE questions (One question from each unit)

Signature of the HOD

COE

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

Credits : 4
Hours/Week : 6
Medium of instruction: English

Code: RR4PCSEL5

M.Sc (Computer Science) - Semester 4
(For students admitted from 2015-2016 onwards)
ELECTIVE – V – WEB TECHNOLOGY

Unit I

Introduction to HTML 4 :Introduction –markup languages- editing HTML- common tags- Headers- text styling- linking- images- formatting text with - special characters, Horizontal rules and more line breaks- Intermediate HTML 4 – introduction – ordered and unordered lists- HTML tables and formatting –HTML forms- Internal linking- creating and using image maps- <META> tags- <FRAMESET> tag- Nested <FRAMESET> tag.

Unit II

JAVA Script/JScript: Introduction – simple program- memory concepts- arithmetic- decision making- Control Structures I : if selection structure- if/else selection structure- while repetition structure- assignment operators – increment and decrement operators control structures II: for repetition structure – switch multiple selection structure- the do/while repetition structure- the break and continue statements- the labeled break and continue statements- logical operators – Functions – Arrays – Objects.

Unit III

Dynamic HTML Object Model and Collections – Event Model: introduction- ONCLICK- ONLOAD- ONERROR- ONMOUSEMOVE- ONMOUSEOVER and ONMOUSEOUT – ONFOCUS and ONBLUR- ONSUMIT and ONRESET - event bubbling – Filters and Transitions–Data Binding with Tabular Data Control.

Unit IV

Database: Introduction - Relational Database Model and Overview – SQL – Registering Books.mdb as on ODBC Data source-ADO-RDS-Web Resources. ASP: Working of ASP
Client-side Scripting versus Server-side scripting-Using personal web server-Server side ActiveX components – File System Objects – Session tracking and cookies – Accessing a Database from ASP.

Unit V

XML: Structuring Data – DTD –customized Markup Language-XML parsers- Using XML with HTML-XSL– Microsoft Schema-Servlets: Servlet Overview- JSWDK – Handling HTTP Request – Get and post request – Session tracking-Multitier applications using JDBC from a servlet-Servlet internet and WWW Resources.

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THANJAVUR -613005

TEXT BOOK

“Internet and World Wide Web – How to Program”, Deitel & Deitel, Goldberg, Pearson Education Asia, 2001.

Unit I: Chapter 3.1 to 3.10, 4.1 to 4.12.

Unit II : Chapter 8 ,9.5,9.6,9.7,9.11,9.12,10.3,10.5 to10.9,11,12,13.

Unit III: Chapter 15, 16, 17, 18.

Unit IV: Chapter 25.1 to 25.8, 26.1 to 26.9.

Unit V: Chapter 28.1 to 28.8, 29.1 to 29.8.

REFERENCE BOOKS

1. “Using HTML 4, XML and JAVA”, Eric Ladd, Jim O’ Donnel, Prentice Hall of India – QUE, 1999.
2. “Web Programming: Desktop Management”, Aferganatel, PHI, 2004.
3. “Web Technology”, Rajkamal, Tata McGraw-Hill, 2001.

Question Paper pattern

Maximum Marks: 75

Exam Duration: Three Hours

Part A 10x2 = 20 Answer All Question (Two questions from each unit)

Part B 5x5 = 25 Answer All questions (Either or Type – Two questions from each unit)

Part C 3 x10 30 Answer any THREE questions (One question from each unit)

Signature of the HOD

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RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS), THANJAVUR -5
Course structure for M.Phil(Computer Science)
(Applicable to the candidates admitted from the academic year 2015-2016 onwards)

Sem ester	Course	Code	Course Title	Cre dit	Marks		Total
					Int.	Ext.	
I	Core Course 1	RR1MCS1	Research Methodology	4	40	60	100
	Core Course 2	RR1MCS2	Advanced Concepts in computer science	4	40	60	100
	Core Course 3	RR1MCS3	Teaching and learning skills	4	40	60	100
	Core Course 4 (Guide Paper)	RR1MCS4	Information security	4	40	60	100
				Total	16		
					V.V	DIS	Total
II	Core Course 5	RR2MCST	Dissertation and viva voce	8	50	150	200
			Grand Total	24			600

GENERAL STRUCTURE FOR M.Phil (Computer Science)

Total Marks : 600

Total Credits : 24(4 credits for Core courses & 8 for Dissertation)

Course	No. of papers	Credit
Core courses	4	16
Dissertation and viva voce	1	8
Total	5	24

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

Credits : 4

Code: RR1MCS1

Hours/Week :-

Medium of instruction: English

M.Phil(Computer Science) - Semester 1

(For students admitted from 2015-2016onwards)

COURSE I – RESEARCH METHODOLOGY

Unit I

Thesis Writing: Research types – objectives and approaches – Literature collection, Web browsing – Software tools – Writing review and journal articles – manuscript publication
Planning a thesis – general format – page and chapter format – footnotes – tables and figures – references and appendices

Unit II

Analysis of algorithm: The role of algorithm in computing – Insertion sort – Analyzing and designing algorithms – growth of functions – introduction to NP – completeness

Unit III

Formal Languages and Finite Automata: Context free grammars – Derivation trees – Simplification of context free Grammars – Chomsky normal form – Greiback normal form – The pumping lemma for context free languages

Finite state systems – Basic definitions – Non deterministic finite automata – Finite automata with epsilon moves – Regular expressions – Applications of finite Automata (Stress on theorem statement and problems only, no proof for theorems)

Unit IV

Probability and Statistical Analysis: Probability – Fail time data analysis – Hazard models – Conditional probability – Bayes rule – System reliability – Stochastic process

Unit V

Logics – Relations and Functions: Propositions – Precedence rules for operators – Laws of equivalence – Natural deduction system – Developing natural deduction system proofs
Relation properties – Matrix and Graph – Graph Notations for relations – Partition and covering – Equivalence relation – Compatibility relations – Partial ordering – Functions – Components – Composition of function – Inverse functions – Binary and n-ary operations

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

Text Books:

1. Kothari C. R. Research Methodology – methods and techniques, 2nd Edition, Wishwa Prakashjan New Delhi 1999
2. Elis Horowitz and Sartaj Sahni, „Fundamentals of Computer algorithms, Galgotia Publications, New Delhi 2000
3. John E. Hopcroft, Jeffery D. Ullman, „Introduction to Automata Theory Language and Computation, narosa Publishing House, 1979
4. L.S. Srinath, „Reliability Engineering, Third Edition, Affiliated East, West press pvt. Ltd, New Delhi, 2005

5. David Gries, „The Science of Programming Narosa Publishing House, 1981

Reference Books:

1. Berny H. Durston, M. Poole, „Thesis and Assignment writing, Wiley Eastern Ltd. ND 1970
2. Misra R.P. Research Methodology – A Hand Book, Concept publishing Company, New Delhi 1988
3. Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest „Introduction to Algorithms, Prentice Hall of India, 1998
4. E. Balagurusamy, „Reliability Engineering, Tata Mc Graw Hill Publishing Ltd., New Delhi 2003
5. Leon S. Levy, ;Discrete structures of Computer Science, Wiley Eastern Ltd., 1980

Question Paper pattern

Maximum Marks: 60

Exam Duration: Three Hours

Part A 5x6 = 30 Answer All questions (Either or Type – Two questions from each unit)

Part B 3 x10 = 30 Answer any THREE questions (One question from each unit)

Signature of HOD

COE

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

Credits : 4
Hours/Week : -
Medium of instruction: English

Code: RRMCS2

M.Phil(Computer Science) - Semester 1
(For students admitted from 2015-2016 onwards)
**CORE COURSE II-ADVANCED CONCEPTS IN
COMPUTER SCIENCE**

Unit I

Security problems in Computing – Cryptography – program security – Database security – Security in Networks

Unit II

Grid Computing organization and their role – Grid computing anatomy – Merging the Grid service architecture with web services architecture

Unit III

Fundamental – Remote procedure calls – Distributed shared memory – Synchronization

Unit IV

Distributed Databases – Homogeneous and Heterogeneous databases – Distributed data storage – distributed transactions – commit protocols – concurrent control – availability – Distributed theory processing Heterogeneous distributed databases – Directory systems

Unit V

Fundamentals of Parallel processing – MIMD computers or Multiprocessor 4.1 – 4.2, 4.3

Text Books:

1. Chapter 1,2,3,6 & 7 – (Security in Computing, Charles P. Pfleeger, & Shani Lawrence Pfleeger)
2. Joshy Joseph, Graig Felenstern „Grid Computing – Pearsons 2004
3. Distributed file systems, Chapter 1,4,5,6 & 9
Distributed Operating Systems, Pradeep K. Sinha, PHI, 2004
4. Abraham fiberschatz & Hendry F. Korths “Data base systems concepts”
Mc Graw Hill International fifth edition, 2006
5. Distributed memory multiprocessors 5.1, 5.2, 5.3, 5.4, 5.5
Data dependence and parallelism – 7.1 – 7.2, 7.3, 7.4, 7.5
Implementing synchronization and data sharing 8.1, 8.2, 8.3, 8.4
Harry F. Jordan Gita Alagband

Question Paper pattern

Maximum Marks: 60

Exam Duration: Three Hours

Part A 5x6 = 30 Answer All questions (Either or Type – Two questions from each unit)

Part B 3 x10 = 30 Answer any THREE questions (One question from each unit)

Signature of HOD

COE

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

Credits : 4

Code: RR1MCS3

Hours/Week :-

Medium of instruction: English

M.Phil(Computer Science) - Semester 1

(For students admitted from 2015-2016 onwards)

CORE COURSE –III – TEACHING AND LEARNING SKILLS

Unit I – Computer Application Skills

Computer system: Characteristics, Parts and their functions – Different generations of Computer – Operation of Computer: switching on / off / restart, Mouse control, Use of key board and some functions of key – Information and Communication Technology (ICT): Definition, Meaning, Features, Trends – Integration of ICT in teaching and learning – ICT applications: Using word processors, spread sheets, Power point slides in the classroom – ICT for Research: On-line journals, e-books, Courseware, Tutorials, Technical reports, Theses and Dissertations

Unit II – Communication Skills

Communication: Definitions – Elements of Communication: Sender, Message, Channel, Receiver, Feedback and Noise – Types of Communication: Spoken and written; Non-verbal communication – Intrapersonal, Interpersonal, Group and Mass communication – Barriers to communication: Mechanical, Physical, Linguistic & Cultural – Skills of communication: Listening, Speaking, Reading and writing – Methods of developing fluency in oral and written communication – style, Diction and Vocabulary – Classroom communication and dynamics

Unit III – Communication Technology

Communication Technology: Bases, Trends and Developments – Skills of using Communication Technology – Computer Mediated Teaching: Multimedia, E-content – Satellite-based communication: EDUSAT and ETV channels, Communication through web: Audio and Video applications on the Internet, interpersonal communication through the web.

Unit IV – Pedagogy

Instructional Technology: Definition, Objectives and Types – Difference between Teaching and Instruction – Lecture Technique: Steps, Planning of a Lecture, Delivery of a lecture – Narration in tune with the nature of different disciplines – Lecture with power point presentation – Versatility of lecture technique – Demonstration, Characteristics, Principles, Planning Implementation and Evaluation – Teaching – Learning Techniques: Team Teaching, Group discussion, Seminar, Workshop, Symposium and Panel Discussion – Models of teaching: CAI, CMI and WBI

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

Unit V – Teaching Skills

Teaching skill: Definition, Meaning and Nature – Types of Teaching skills: Skill of Set Induction, Skill of Stimulus Variation, Skill of Explaining, Skill of Probing Questions, Skill of Black Board writing and Skill of Closure – Integration of Teaching Skills – Evaluation of Teaching Skills

Text Books:

1. Bela Rani Sharma (2007), Curriculum Reforms and Teaching Methods, Sarup and sons, New Delhi
2. Don Skinner (2005), Teacher Training, Edinburgh University Press Ltd., Edinburgh
3. Information and Communication Technology in Education: A Curriculum for Schools and programme of Teacher development, Jonathan Anderson and Tom Van Weart, UNESCO, 2002
4. Kumar K.I (2008) Educational Technology, New Age International Publishers, New Delhi
5. Mangal, S.K. (2002) Essential of Teaching – Learning and Information Technology, Tandon Publications, Ludhiana
6. Michael D. and William (2000), Integrating Technology into Teaching and Learning: Concepts and Applications, Prentice Hall, New York
7. Pandey S.K. (2005) Teaching Communication, Commonwealth Publishers, New Delhi
8. Ram Babu A. and Dandapani S (2006) Microteaching (Vol.1&2) Neelakamal Publications, Hyderabad
9. Singh V.K. and Sudarshan K.N. (1996) Computer Education, Discovery Publishing Company, New York
10. Sharma R. A. (2006) Fundamentals of Educational Technology, Surya Publications, Meerut
11. Vanaja. M. and Rajasekar S. (2006) Computer Education, Neelkamal Publications, Hyderabad.

Question Paper pattern

Maximum Marks: 60

Exam Duration: Three Hours

Part A 5x6 = 30 Answer All questions (Either or Type – Two questions from each unit)

Part B 3 x10 = 30 Answer any THREE questions (One question from each unit)

Signature of HOD

COE

**RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005**

Credits : 4

Code: RR1MCS4

Hours/Week :-

Medium of instruction: English

M.Phil(Computer Science) - Semester 1
(For students admitted from 2015- 2016 onwards)

CORE COURSE –IV (GUIDE PAPER) INFORMATION SECURITY

UNIT - I

Conventional Encryption : Classical Technique – Modern technique – Algorithms; Public Key Cryptography : Public Key Cryptography – Introduction to Number Theory – Message Authentication and Hash Function – HASH and MAC Algorithm – Digital Signature and Authentication protocol

UNIT – II

Network Security Practice: Authentication Application – Electronic Mail Security – IP Security Program Security and System Security: Secure programs – Nonmalicious program errors – viruses and Worms – Memory and address protection – control access to general objects – File protection mechanism – user authentication – Trusted operating system design and assurance – Intrusion Detection system.

UNIT – III

System Security and Web Security: Intruders,– Firewall - Managing Access – Password management - Web Security requirements – SSL and TLS – SET; Client Side Security : Using SSL – Active Content – Web Privacy. Database Security: The Database as a Networked Server – Securing database-to-database communication – Reliability and Integrity of database – sensitive data – inference multilevel database

UNIT – IV

Wireless Network Security: Mobile Security – Encryption Schemes in WLANs – Basic approach to WLAN security and Policy Development – WLAN intrusion process – WLAN security solutions. Digital Watermarking and Steganography: Models of Watermarking – Basic Message Coding – Watermark Security – Content Authentication – Steganography.

UNIT - V

Cyber Crimes: Introduction – computer crime and cyber crimes; Classification of cyber crimes, Cyber crime and Related Concepts: Distinction between cyber crime and conventional crimes, Reasons for commission of cyber crime, Cyber forensic : Cyber criminals and their objectives, Kinds of cyber crimes – cyber stalking; cyber pornography; forgery and fraud; crime related to IPRs; Cyber terrorism; computer vandalism, Regulation of cyber crimes: Issues relating to investigation, Issues relating to Jurisdiction, Issues relating to Evidence , Relevant provisions under Information Technology Act, 2000, Indian Penal Code, Pornography Act and Evidence Act etc

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

TEXT BOOKS:

1. Charles P. Pfleeger, Shari Lawrence Pfleeger, "Security in Computing", Prentice Hall of India, 2007.
2. William Stallings, "Cryptography and Network Security", 5th Edition, Pearson.
3. John W. Rittinghouse, James F. Ransome, "Wireless Operational Security", Elsevier, 2004.
4. Ron Ben Natan, "Implementing Database Security and Auditing", Elsevier, 2005.
5. Lincoln D. Stein, "Web Security", Addison Wesley, 1999.
6. Ingemar J. Cox, Matthew L. Miller Jeffrey A. Bloom, Jessica Fridrich, Ton Kalker, "Digital Watermarking and Steganography", 2nd Edition, Elsevier.
7. Dr. R. K. Tiwari, P. K. Sastri, K. V. Ravikumar, "Computer Crime and Computer Forensics", 1st Edition, Selective Publishers, 2002.

Question Paper pattern

Maximum Marks: 60

Exam Duration: Three Hours

Part A 5x6 = 30 Answer All questions (Either or Type – Two questions from each unit)

Part B 3 x10 = 30 Answer any THREE questions (One question from each unit)

Signature of HOD

COE

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

Credits : **8**
Hours/Week : -
Medium of instruction: English

Code:RR2MCST

M.Phil(Computer Science) - Semester 2
(For students admitted from 2012onwards)
CORE COURSE –V DISSERTATION AND VIVA VOCE

Viva Voce 50 Marks
Dissertation 150 Marks

Signature of HOD

COE

RAJAH SERFOJI GOVT. COLLEGE (AUTONOMOUS)
THANJAVUR -613005

DEPARTMENT OF COMPUTER SCIENCE

TITLE OF ELECTIVE PAPER FOR BIO-CHEMISTRY & STATISTICS

PART	CODE	COURSE	TITLE	HRS	MARKS		TOTAL	CREDIT
					IE	WE		
III		Elective	Fundamentals of Information Technology	4	25	75	100	4