

**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			400
					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 2015-2016 onwards)

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

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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

Code: RR1MCS2

Hours/Week :-

Medium of instruction: English

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 Pffeeger)
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 Alaghband

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: RRIMCS3

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

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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

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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

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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