

# GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR – 639 005

## M.Phil., COMPUTER SCIENCE COURSE STRUCTURE UNDER CBCS SYSTEM

(For the candidates admitted from the year 2012-13 onwards)

SEMESTER	COURSE	SUBJECT TITLE	SUBJECT CODE	INSTR. HOURS WEEK	CREDIT	EXAM HOURS	MARKS		TOTAL
							INT	ESE	
I	Core Course – I	Research Methodology	12MCS1	--	4	3	40	60	100
	Core Course – II	Advanced Paper in Computer Science	12MCS2	--	4	3	40	60	100
	Core Course – III	Paper on topic of Research (To be framed by Guide)*	12MCS3A	--	4	3	40	60	100
	Core Course – IV	Teaching and Learning Skills (Common Paper)	12MCS4	--	4	3	40	60	100
II	Dissertation	Viva voce – 50 marks Dissertation – 150 marks	12MCSPW	--	8	--	--	--	200
	TOTAL			--	24				600

Note:\* For Course III the syllabus will be framed by the Guide and the Examination will be conducted by the Controller of Examinations.

### Allocation of Marks:

Component	Maximum	Passing Minimum
Internal	40	20
End Semester Examinations	60	30
Project Work – Viva Voce	50	25
Project Work – Dissertation	150	75

### Component for Internal:

2 Tests = 2x10 = 20 Marks; Term Paper – 10 Marks; and Seminar – 10 Marks

### Question Paper Pattern:

5 Questions – Either or Type – 5x12 = 60 Marks

CHAIRMAN  
BOARD OF STUDIES IN COMPUTER SCIENCE

CONTROLLER OF EXAMINATIONS

Sl. No.:

Subject Code:

12MCS1

## GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05

M.Phil., COMPUTER SCIENCE – I SEMESTER – CORE COURSE -I

(For the candidates admitted from the year 2012-13 onwards)

### 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 3

#### 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 .

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Subject Code:

12MCS2

## **GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

### **M.Phil., COMPUTER SCIENCE – I SEMESTER – CORE COURSE -II**

(For the candidates admitted from the year 2012-13 onwards)

### **ADVANCE PAPER 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 cells – 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 Pfeeeger)
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

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Sl. No.:

Subject Code:

12MCS4

## **GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

### **M.Phil., COMPUTER SCIENCE – I SEMESTER – CORE COURSE -IV**

(For the candidates admitted from the year 2012-13 onwards)

### **TEACHING AND LEARNING SKILLS**

Objectives:

After completing the course, scholars will be able to:

- acquaint different parts of computer system and their functions
- understand the operations and use of computers and common accessories
- develop skills of ICT and apply them in teaching learning context and Research
- appreciate the role of ICT in teaching, learning and Research
- acquire the knowledge of communication skill with special reference to its elements, types, development and styles
- understand the terms communication Technology and Computer mediated teaching and develop multimedia/E-content in their respective subject
- understand the communication process through the web
- acquire the knowledge of instructional

#### **Unit I: Computer Applications 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 – Modes of teaching: CAI, CMI and WBI

## **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.

### **References:**

1. Bela Rani Sharma (2007), Curriculum Reforms and Teaching Methods, Sarup and sons, New Delhi.
2. Don Skinner (2005), Teaching 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, KL (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), Neelkammal 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.