ALAGAPPA UNIVERSITY, KARAIKUDI.
NEW SYLLABUS UNDER CBCS PATTERN (w.e.f.2014-15)

M.Sc., COMPUTER SCIENCE – PROGRAMME STRUCTURE

Sem	Course		Cr.	Hrs./ Week	Marks		Total
	Subject code	Name			Int.	Ext.	
I	4MCE1C1	**Core – I** – Applied Mathematics for Computer Science	4	5	25	75	100
	4MCE1C2	**Core – II** – Data structures and Algorithms	4	5	25	75	100
	4MCE1C3	**Core – III** – Advanced JAVA programming	4	5	25	75	100
	4MCE1C4	**Core – IV** – Principles of compiler design	4	5	25	75	100
	4MCE1P1	**Core-V**-Advanced JAVA programming lab	4	5	40	60	100
		Elective – I	4	5	25	75	100
		Total	**24**	**30**	**--**	**--**	**600**
II	4MCE2C1	**Core – VI** – Computer System Architecture	4	5	25	75	100
	4MCE2C2	**Core – VII** – .Net Technology	4	5	25	75	100
	4MCE2C3	**Core – VIII** – Operating system	4	5	25	75	100
	4MCE2P1	**Core – IX** – .Net Technology Lab	4	5	40	60	100
		Elective – II	4	5	25	75	100
		Elective – III	4	5	25	75	100
		Total	**24**	**30**	**--**	**--**	**600**
III	4MCE3C1	**Core – X** – Cryptography and Network Security	4	5	25	75	100
	4MCE3C2	**Core – XI** – Programming in PHP	4	5	25	75	100
	4MCE3C3	**Core – XII** – Data Mining and Data Warehousing	4	5	25	75	100
	4MCE3P1	**Core – XIII** – Programming in PHP Lab	4	5	40	60	100
		Elective – IV	4	5	25	75	100
		Elective – V	4	5	25	75	100
		Total	**24**	**30**	**--**	**--**	**600**
IV	4MCE4PR	**Core – XIV** – Project Work	18	30	50	150	200
		Total	**18**	**30**	**-**	**--**	**200**
		Grand total	**90**	**120**	**-**	**--**	**2000**

Elective – I

1.	Object Oriented Analysis and Design	–	4MCE1E1
2.	System Software	–	4MCE1E2
3.	Software Engineering	–	4MCE1E3

Elective – II

1.	Mobile Computing	–	4MCE2E1
2.	Grid Computing	–	4MCE2E2
3.	Computer Graphics	–	4MCE2E3

Elective – III

1.	Parallel Processing	–	4MCE2E4
2.	Relational Data Base Management Systems	–	4MCE2E5
3.	Digital Image Processing	–	4MCE2E6

Elective – IV

1.	Soft Computing	–	4MCE3E1
2.	Real Time & Embedded Systems	–	4MCE3E2
3.	Multimedia System	–	4MCE3E3

Elective – V

1.	Artificial Neural Networks	–	4MCE3E4
2.	Cloud Computing	–	4MCE3E5
3.	WAP and XML	–	4MCE3E6

Project Work

Project Evaluation	–	150 Marks
Viva – voce	–	50 Marks

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COURSE CODE: 4MCE1C1</p>

CORE COURSE I – APPLIED MATHEMATICS FOR COMPUTER SCIENCE

Unit I

LOGIC: IF Statements – Connectives – Atomic and Compound Statements – WFF – Truth Table of a Formula – Tautology – Tautological Implications and Equivalence of Formulae.

Unit II

NORMAL FORMS – Principal Normal Forms – Theory of Inference – Open Statements – Quantifiers – Valid Formulae and Equivalence – Theory of Inference for Predicate Calculus.

Unit III

GRAPH THEORY: Basic Concepts – Matrix representation of Graphs: Trees: Definition – Spanning Trees – Rooted Trees – Binary Trees

Unit IV

LINEAR PROGRAMMING PROBLEM: Mathematical Formulation – Graphical Solution – Slack an Artificial Variables – Simplex method – Two phase method.

Unit V

TRANSPORTAION PROBLEM – Transportation Table – Solution of Transportation Problem – Testing for Optimality – Assignment Problem – The Assignment Method – Special Cases in Assignment Problems.

Text Books

1. Discrete Mathematics – Dr. M.K.Venkataraman, Dr N.Sridharan, N.Chandrasekaran- The National Publishing Company (Unit I, II and III)
2. Operation Research – Kantiswarap, P.K.Gupta, Man Mohan- Sultan Chand & Sons (2005)

Reference Book

1. Discrete Mathematical Structures with Applications to Computer science – J.P.Trembley, R.Manohar Tata McGraw Hill.

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CORE COURSE II – DATA STRUCTURES AND ALGORITHMS

Unit I   Introduction

What is an algorithm and data structure – algorithm specification – performance analysis. Stacks and queues – Trees – Dictionaries – Priority queues – sets and Disjoint set union – Graphs.

Unit II   Divide and Conquer

Divide and Conquer:- General Method – Binary Search – Finding the maximum and minimum – Merge sort – Quick sort – selection.

Unit III   The Greedy Method

The General Method – Knapsack Problem – Tree Vertex Splitting – Job Sequencing with Deadlines-Minimum – cost spanning trees – Optimal storage on tapes – Optimal merge Patterns – Single – Source shortest paths.

Unit IV   Dynamic Programming

The General Method – Multistage graphs – All pairs shortest paths – single source shortest paths General weights – optimal binary search trees (*) – String editing – 0/1 – Knapsack – Reliability Design – The Traveling Salesperson problem – Flow shop scheduling.

Unit V   Basic Traversal and Search Techniques

Techniques for Binary Trees – Techniques for Graphs – connected components and spanning trees – Biconnected components and DFS.
BACKTACKING: The General Method – The 8-queens Problem – Sum of subsets – Graph coloring – Hamiltonian cycles – Knapsack problem

Text Book

1. Fundamentals of Computer Algorithms , by EllisHorowotz , Sartaj Sahni, Sanguthevar Rajasekaran 1998,Gagotia Publications Pvt. Ltd.

Reference Books

1. Ashok N Kamthane, Programming and Data structure, Pearson Edition 2004
2. Robert L Kruse, Bruce P. Leung C.L.Tondo, Data Structures and Program Design in C, PHI 1999

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CORE COURSE III-ADVANCED JAVA PROGRAMMING

Unit I

JDBC Overview –Connection Class- Meta Data function- SQL Exception – SQL warning- Stataement – Resultset- Other JDBC Classes.

Unit II

InetAddress - TCP/ IP client sockets - TCP/ IP server sockets - URL - URL Connection - Datagrams - Client/ Server application using RMI.

Unit III

Bean Development Kit - Jar Files - Introspection - Design Pattern for properties, events and methods - Constrained Properties - Persistence – Customizers

Unit IV

Life Cycle of Servlet - Generic Servlet - HTTP Servlet - Reading Initialization Parameters - Reading Servlet Parameters - Cookies - Session Tracking

Unit V

JApplet - Button - Combo - Trees - Tables - Panes - AWT Classes – working with Graphics, Color and Font

Text Books

1. Patrick Naughton & Herbert Schildt, "The Complete Reference: Java 2", Tata
2. McGraw Hill, 1999. (Chapter - 18, 21, 24, 25, 26, 27)
3. Joseph Weber, "Using Java 2 Platform", Prentice Hall of India, 2000. (Chapter - 39, 40)

References

1. Deitel & Deitel, "Java How to Program", Prentice Hall, 5th Edition ,2002
2. Peter Haggar, "Practical Java: Programming Language Guide", Addison-Wesley Pub Co, 1st Edition, 2000
3. Bruce Eckel, "Thinking in Java", Pearson Education Asia, 2nd Edition, 2000

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CORE COURSE IV- PRINCIPLES OF COMPILER DESIGN

Unit I

Introduction to Compilers: Compilers and Translators – Lexical analysis – Syntax analysis – Intermediate code generation – Optimization – code generation – Bookkeeping – Error handling – compiler writing tools.

Finite Automata and Lexical Analysis: The role of the lexical analyzer – the design of the lexical analyzers – Regular expressions – Finite automata – From regular expressions to finite automata – Minimizing the number of states of a DFA – A language for specifying lexical analyzers – Implementation of a lexical analyzer.

Unit II

The syntactic specification of Programming Languages: Context – free grammars – Derivations and parse trees – Capabilities of context – free grammars.

Basic Parsing Techniques: Parses – Shift – reduce parsing – Operator – precedence parsing – Top-down parsing – Predictive parsers.

Automatic construction of efficient parsers: LR parsers – Constructing SLR parsing tables – Constructing LALR parsing tables.

Unit III

Syntax – Directed translation: Syntax Directed translation schemes – Implementation of syntax – directed translators – Intermediate code – Postfix notation – Parse trees and syntax trees – Three – address code, quadruples, and triples – Translation of assignment statements – Boolean expressions – Statements that alter the flow of control – Postfix translations – Translation with a top-down parser.

Unit IV

Symbol Tables: The contents of a symbol table – Data structures for symbol tables – Representing scope information.

Run time storage administration: Implementation of a simple stack allocation scheme – Implementation of block – structured languages – Storage allocation in block – structured languages.

Error Detection and Recovery: Errors – lexical – phase errors – Syntactic phase errors – Semantic errors.

Unit V

Introduction to code optimization:- The principal sources of optimization – loop optimization– The DAG Representation of basic blocks.

Code generation: object programs – Problems in code generation – A machine model – A simple code generator – Register allocation and assignment – Code generation from DAG's – Peephole optimization.

Text book
1. "Principles of Compiler Design" by Alfred V. Aho Jeffrey D. Ullman, Narosa Publishing House, 1989.

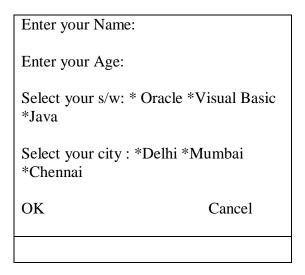**Reference Books**
1. "Compiler Construction Principles and Practice", by Dhamdhere D. M, 1981, Macmillan India.
2. "Compiler Design", by Reinhard Wilhelm, Director Mauser, 1995, Addison Wesley.

I YEAR – I SEMESTER
COURSE CODE: 4MCE1P1

CORE COURSE V – ADVANCED JAVA PROGRAMMING LAB

1. Write an Applet which will play two sound notes in a sequence continuously use the play () methods available in the applet class and the methods in the Audio clip interface.

2. Create a Japplet using swing control, which will create the layout shown below and handle necessary events.

FORMAT

```
Enter your Name:

Enter your Age:

Select your s/w: * Oracle *Visual Basic
*Java

Select your city : *Delhi *Mumbai
*Chennai

OK                    Cancel
```

3. Use JDBC connectivity and create Table, insert and update data.

4. Write a program in Java to implement a Client/Server application using RMI.

5. Write a program in Java to create a Cookie and set the expiry time of the same.

6. Write a program in Java to create Servlet to count the number of visitors to a web page.

7. Write a program in Java to create a form and validate a password using Servlet.

8. Develop a Java Bean to demonstrate the use of the same.

9. Write a program in Java to convert an image in RGB to a Grayscale image.

10. Develop Chat Server using Java.

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M.Sc., Computer Science

ELECTIVE COURSE I (A) – OBJECT ORIENTED ANALYSIS AND DESIGN

Unit I:
Introduction to Object Oriented Development – Modeling as a design technique: Modeling – Object Modeling Techniques – Object Modeling: Objects and Classes – Links and associations – Advanced Link and Association concepts – Generalisation and Inheritance – Grouping Constructs – a simple object model – Advanced object modeling: Aggregation – Abstract Classes – Generalisation as extension and restriction – Multiple Inheritance – Metadata – Candidate Keya and Constraints.

Unit II: Dynamic Modeling
Events and States – Operations – Nested state diagram – Concurrence – Advanced dynamic modeling concepts – A simple dynamic model – Relation of object and dynamic models – functional modeling – functional models – data flow diagrams – Specifying operation – constraints – A simple functional model – relation of functional to object and dynamic models.

Unit III: Analysis
Overview of Analysis – Problem statement – Automated Teller Machine example – Object Modeling – Dynamic Modeling – Functional Modeling – Adding Operations – Iterating the Analysis

Unit IV: System Design
Overview of System Design – Breaking system into subsystems – Identifying Concurrency – Allocation subsystems to processes and tasks – Management of Data stores – Handling boundary condition – Setting trade-off priorities – Common Architectural frameworks – Architecture of ATM system.

Unit V: Object Design
Overview of Object Design – Combining the three models – Designing algorithms – design optimization – Implementation of control – Adjustment of Inheritance – Design of Associations – Object Representation – Physical Packaging – Document Design Decisions.

Text Book

        James Rumbaugh, Michael Blaha, William Premerlani, Fredrick Eddy, William Loreson, Object Oriented Modeling Design, PHI 1998

Reference Book

        Grady Booch, Object Analysis and Design with Applications, Addison Wesley Publishing Company 2000

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ELECTIVE COURSE I (B) – SYSTEM SOFTWARE

Unit I

Language Processors – Introduction – Language Processing Activities, Fundamentals of Language processing, Fundamentals of language Specification, Language Processor Development tools, Data Structures for Language Processing – Search Data Structures – Allocation of Data structures.

Unit II

Scanning – Parsing, Assemblers – Elements of Assembly Language Programming, A simple assembly scheme, Pass structure of assemblers, Design of a two pass assembler, A simple pass assembler for IBM PC

Unit III

Macros and Macro processors – Macro definition and call, Macro expansion, Nested macro calls, Advanced macro facilities – Design of a macro preprocessor.
Compilers – Aspects of Compilation, Memory Allocation, Compilation of Expressions, Compilation of Control structures – Code Optimisation

Unit IV

Interpreters – overview of interpretation – A toy interpretor – Pure and Impure Interpreters – Linkers: Relocation and Linking Concept – Design of a Linker – Self Relocating Programs – A Linker for Ms-DOS, linking for Overlays.

Unit V

Loaders – Software Tools: Software tools for program development – Editors: Debug monitors – programming Environments – user interface.

Text Book

Dhamdhere D M System Programming and Operating Systems, Tata McGraw Hill 2nd Edition 2000

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ELECTIVE COURSE I(C) – SOFTWARE ENGINEERING

Unit I

Software Engineering challenges – Software Engineering Approach – Requirement Analysis – software design – coding – testing– Maintenance – Software Development Process Model: Waterfall model – Prototyping Interactive Enhancement – Spiral Model – Other Software Process – Project Management process – The Inspection Process – Software Configuration management Process

Unit II

Software requirement Analysis and Specification: Software requirements - Problem Analysis –Informal approach – Data flow Modeling – Requirements Specification – Characteristics of an SRS – Components of an SRS –Specification Languages - Structure of Requirements Document – Validation – Metrics

Unit III

Planning a Software project – Process Planning – Effort estimation – Uncertainties in effort estimation – COCOMO Model – Project Scheduling and Staffing – Overall scheduling – Detailed Scheduling – Team structure – Software configuration Management Plan –Risk Management – Risk Management Concepts – Risk Assessment – Risk Control – A practical Risk Management Approach - Project Monitoring Plan – Measurements – Project Monitoring and tracking.

Unit IV

Function Oriented Design: Design Principles, Design Partitioning – Problem Partitioning – Abstraction, Top-Down and Bottom-Up strategies, Module Level Concepts – Coupling and Cohesion – Design Notation and Specification -Structure Charts – Specification - Structured Design Methodology – Transaction Analysis - Verification – Design Reviews

Unit V

Testing Fundamentals: Error Fault – Failures – Test Oracle – Test case and Test criteria — Psychology of Testing – Black Box Testing –Equivalence class portioning – Boundary value Analysis - Cause Effect Graphing – White Box Testing – Control Flow Based Testing – Data Flow Based Testing – Mutation Testing – Test Case Generation – Testing Process- Levels of Testing - Test Plan – Test Case Specification - Test Case Execution and Analysis - System Test Report – Error Report on a given problem.

Text Book

Pankej Jalote – An Integrated Approach to Software Engineering, 2nd Edition – Narosa Publishing House, New Delhi 1997

Reference Books
1. Richard E. Fairley, "Software Engineering – A practitioner's approach", McGraw Hill 1982
2. Martin L Shooman, "Software Engineering – Design, Reliability and Management" McGraw Hill 1983

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CORE COURSE VI – COMPUTER SYSTEM ARCHITECTURE

Unit I

CPU organization: Processor Bus organization – ALU – Stack organization – instruction formats – Addressing modes – data transfer and manipulation – Program control.

Unit II

Register Transfer Language: Inter Register Transfer – Arithmetic – Logical shift micro operations – control functions – Basic computer organization – instruction codes – instructions – Timing control – Execution of instruction – Input/output interrupt.

Unit III

Microprogram Control: Control memory – Addressing sequencing – Micro program sequencer – Micro instruction formats – Advantages and applications.

Unit IV

Peripheral Devices: I/O interface – Asynchronous Data transfer – Synchronous data transfer– Priority interrupts – IOP – Data Communication – Hierarchy, Associative – Virtual – Cache Memory

Unit V

Introduction to Parallel Processing: Pipelining – Example of instruction and Arithmetic pipelines – Vector processing – Array processing – Multiprocessing – RISC architecture.

Text Book

Morris Mano, "Computer System Architecture" Prentice Hall of India, 3rd Edition 2001

References

1. William Stallings, "Computer Organization and Architecture" Addison Wesley publications 5th edition 2001
2. John D Carpinelli, "Computer Systems Organization and Architecture" Addison Wesley Publication 1st Edition 2001.

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CORE COURSE VII –.NET TECHNOLOGY

Unit I

The .Net Frame work – CLR – Namespace – Assemblies – Class Library – Basic Terminology – .Net Component – .Net garbage collection.

Unit II

Visual basic **.**Net – Datatypes – Operators – Arrays – dynamic arrays – String Handling – Conditional and Looping Statement – Subprocedures and functions – scope – Structures – Modules – Exception Handling – windows Forms – MDI Forms – events – Msgbox – InputBox – working with Multiple forms – Dialogboxes – Passing forms – Anchoring and Docking Controls – event Handling.

Windows Controls: Text boxes – RichTextBoxes – Labels – Link Labels – Buttons – Checkboxes – Radio Buttons – panels – Listboxes – combo Boxes – Scroll Bars – Splitters – Track Bars – Pickers – Notify Icons – Timers – Menus – Built in Dialog Boxes – Image Lists– Tree and List Views – Toolbars – Status Bars – Progress Bars – Tab Controls. Graphics and file Handling.

Unit III

ASP.Net – File Types – Importing Namespaces – usage of Global.asax file – The Page class – HttpRequest – HttpResponse – Server Utility – Basic Web Controls – List controls – Validation and Rich Controls – Data Controls – HTML Server controls – Custom Controls – State Management – Tracing – Logging and Error Handling – Overview of AJAX Controls.

Unit IV   **Object Oriented Programming**

Class – Objects – Abstraction – Encapsulation – Inheritance – Polymorphism – Overloading –Overriding – shadowing – Implementing Security – Security model – Forms Authentication –Windows Authentication.

Unit V   **ADO.Net:**

Overview of ADO.Net – Database Access in the Internet world – Characteristics of ADO.Net – Data Objects – Data Namespace – SQL Basics – Data Binding Controls –DataSet – Data Table – Data row – Data column – Data List – Data Grid – Repeater.

Text Books

1) Visual Basic .Net Programming – Steven Holzner – Black Book – Dreamtech Press.
2) The Complete Reference for ASP.Net – Matthew MacDonald – Tata McGraw-Hill.

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CORE COURSE VIII – OPERATING SYSTEM

Unit I

Introduction: Operating System – Batch System – Time Sharing – Personal Computer System– Parallel Systems – Real Time Systems – Distributed Systems – Computer System Operation – I/O Structure – Storage Structure – Storage Hierarchy – Hardware Protection – General System Architecture – System Components Operating System Services – System calls – system programs – system structure – virtual machines.

Unit II

Process Management: Process Concept – Process scheduling – operations on processes – cooperating processes – interprocess communication – threads overview – benefits – user and kernel threads – Multithreading models – CPU scheduling concepts – scheduling criteria – Scheduling Algorithms .

Unit III

Multiple processor scheduling – Real time scheduling – thread scheduling – process synchronization – critical section program – two task solutions – synchronization hardware – semaphores – classical synchronization – monitors – deadlocks – system model – deadlock characterization – methods for handling deadlocks – deadlock prevention – deadlock avoidance – deadlock detection – recovery from deadlock.

Unit IV

Storage Management: Memory Management – swapping – contiguous memory allocation – paging – segmentation with paging – Virtual Memory – Demand paging – Page replacement – Allocation of frames – Thrashing.

Unit V

File and I/O Management: File concepts – Access Methods – Directory structure – Allocation methods – Free space management – directory implementation – Efficiency and performance– Disk Structure – Disk Scheduling – Disk Management – Swap – Space Management – Disk Reliability – Stable Storage implementation – Tertiary Storage Structure.

Text Book

A Silberschatz Peter Galvin and Greg Gagne, "Applied Operating System Concepts", John Wiley & Sons, 2000

Reference Books

1. James L. Peterson and Abraham Silberschatz, Operating System Concepts Addison Wesley
2. Andrew S. Tanenbaum, Operating System Design and Implementation, PHI
3. Harvey M. Deitel, An introduction to Operating System, Addison Wesley.

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CORE COURSE IX– .NET TECHNOLOGY LAB

VB.Net

1. Write a Calculator program using Dynamic Controls.
2. Write a Puzzle Game Using Dynamic Objects.
3. Write a program using MDI forms.
4. Write a Program using OOPS Concept.
5. Write a Text Editor Program.
6. Write a Program to Draw the Picture and Save It.

ASP.Net

7. Create a Website program using Master Page.
8. Write a Program using All Validation Controls.
9. Write a Program using Cookies, session and Application objects.
10. Write a program for Login Verification.
11. Write a program using simple AJAX controls.

ADO.Net

12. Write a Salary Bill Program.
13. Write a Students Mark List Program.

Note: Use Visual Studio .Net 2005 Version or Above

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ELECTIVE COURSE II (A) – MOBILE COMPUTING

Unit I   INTRODUCTION

Laptop computing – Wireless Technologies – Mobility and Portability – Overview of IP and Routing – Mobile networking – Example Architectures – The role of IETF in mobile networking.

Unit II   CELLULAR COMMUNICATION CONCEPTS

Wireless transmission – Multiplexing –Modulation – Spread Spectrum – Cellular system – GSM architecture – protocols – handover procedure – security.

Unit III   ADVERTISEMENT AND REGISTRATION

 Agent solicitation and Discovery Mechanism – Router Discovery Protocol – Agent advertisement – Agent operation – Agent discovery – registration overview – Authentication overview – Registration request, reply and extensions – Mobile node registration procedures – Foreign agent registration actions – Home agent Processing

Unit IV   DATA GRAMS AND ROUTE OPTIMIZATIONS

Tunneling overview and terminology– Encapsulation – Routing failures – Tunnel management – Decapsulation – Unicast broadcast and multicast data gram routing – Mobile routers – Route optimization – Message format – Extensions – Mobile key requests.

Unit V   IP VERSIONS AND DHCP:

Mobility support in IP version 6 – smooth hand off – Renumbering – DHCP – WAP protocol.

SECURITY AND MOTIVATION DETECTION: Ingress filtering − Reverse tunneling − Broadcast preference extensions – Movement detection – Localizing registrations.

Text Books

1. Charles E.Perkins, "Mobile IP: Design Principles and Practices", Addison Wesley, USA 1999
2. David J Goodman "Wireless Personal Communication systems" Addison Wesley Wireless communication series USA 1999

Reference Books

1. William Lee, "Mobile Telecommunications" McGraw Hill Singapore 2001
2. Jochen Schiller – "Mobile Communication" Pearson Education New Delhi 2003
3. Raj Pandya, "Mobile and Personal Communication Systems and Services" IEEE Press, USA 2004.

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ELECTIVE COURSE II (B) – GRID COMPUTING

Unit I
INTRODUCTION: The Grid – Past, Present, Future, A new infrastructure for 21st Century Science – The Evolution of the Grid – Grids and Grid Technologies, Programming Models – A Look at a Grid Enabled Server and Parallelization Techniques – Grid Applications.

Unit II
THE ANATOMY OF THE GRID: The concept of virtual organizations – Grid architecture– Grid architecture and relationship to other distributed technologies – Computational and data grids, Semantic grids.

Unit III
THE OPEN GRID SERVICES ARCHITECTURE: Grid Management systems, security, Grid – Enabling Software and Grid – Enabling network services, Data Grid – Virtualization Services for data Grids, Peer-to-Peer Grids – Peer-to Peer Grid – databases for web Service Discovery.

Unit IV
THE OPEN GRID SERVICES INFRASTRUCTURE: Technical details of OSGI specification, service data concepts, Naming and Change Management Recommendations – OSGA basic services.

Unit V
APPLICATION CASE STUDY: Molecular Modeling for Drug design and brain Activity Analysis, Resource Management and Scheduling, Setting up grid – Deployment of grid software and tools and application execution.

Text Book

1. Joshy Joseph, Craig Fallenstein, "Grid Computing", Pearson Education, New Delhi 2004.

References

1. Ian Foster, Carl Kesselman, " The grid2 Blueprint for a new computing infrastructure", Morgan Kaufman, New Delhi 2004
2. Ahmar Abbas "Grid Computing Practical Guide to Technology and Applications", Delmar Thomson Learning USA 2004
3. Fran Bermn, Geoffrey Fox, Anthony Hey J G, "Grid Computing Making the Global Infrastructure a Reality", Wiley USA, 2003.

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ELECTIVE COURSE II (C) – COMPUTER GRAPHICS

Unit I
Introduction
Computer-aided design – Graphics, charts and models – computer art – computer Animation– Graphical user interfaces – Graphics for home use – Image Processing – Display Devices – Interactive Input devices – Display processors – Graphic software – output primitives – Points and lines – Line drawing algorithms – Circle Generation algorithms – Character Generation – Instruction set for display processor.

Unit II
Attributes of Output Primitives
Line Styles – Color and Intensity – Area filling – Character Attributes – Bundled Attributes – Two Dimensional Transformation – Basic Transformations – Matrix Representation and homogeneous co-ordinates – composite transformations – other transformations – Transformation commands, raster methods for transformations.

Unit III
Windowing and Clipping
Windowing concepts – Windowing algorithms – Window to Viewport transformation – Segments: Segment concepts – Segment files – segment attributes – Multiple workstations – Interactive Input Methods: Physical input devices – Interactive Picture – construction techniques – Input functions.

Unit IV
Three Dimensional concepts
Three dimensional coordinate systems – Three dimensional display techniques – Three dimensional Graphics Packages – Three dimensional Transformations: Translation – Scaling– Rotation – Rotation about an arbitrary axis – other transformations – Transformation commands.

Unit V
Three Dimensional Viewing
Projections – Viewing Transformation – Implementation of Viewing operations – Hidden surface and Hidden line removal: classification algorithms – back face removal – depth buffer method – scan line method.

Text Book

1. Donald Hearn, M. Pauline Baker, Computer Graphics , 2nd Edition McGraw Hill 1995

Reference Books

1. Newman and Sproul, Interactive Computer Graphics, Mcgraw Hill
2. Steven Harrington, Computer Graphics – A Programming Approach, McGraw Hill

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I YEAR – II SEMESTER
COURSE CODE: 4MCE2E4

ELECTIVE COURSE III (A) – PARALLEL PROCESSING

Unit I
INTRODUCTION: Computational demands of Parallel Processing – Mechanisms of implementing parallel processing – parallel processing terminologies – Major issues in parallel processing

Unit II
PARALLEL ARCHITECTURES: Loosely Coupled systems – tightly coupled systems – Interconnection networks – Linear and Ring, Shuffle Exchange, Two Dimensional Mesh, Hybercube.

Unit III
PRINCIPLES OF PARALLEL PROGRAMMING: Precedence Graph of a process – Data, control, Temporal Parallelism – Message passing versus shared address space – Mapping Granularity.

Unit IV
PRINCIPLES OF PARALLEL ALGORITHM DESIGN: Design approaches – design issues – performance measures and analysis – Complexities – Anomalies in parallel Algorithms, case study – parallel search algorithms.

Unit V
SHARED MEMORY MULTIPROCESSOR SYSTEMS: Shared bus, Cross bar, Multiport memory – memory contention and Arbitration Techniques – Cache Coherance, Handling shared variables.

Text Book

1. Seyed H Roosta, "Parallel Programming and Parallel Algorithms" Springer Series New York 2001

Reference Books

1. Michael J Quinn, "Parallel Computing Theory and Practice" McGraw Hill Second Edition Singapore 2003
2. Kai Hwang and Feye A Briggs "Computer Architecture and Parallel Processing " Tata McGraw Hill, New Delhi 2001
3. Barry Wilkinson, "Parallel Programming" Pearson Education USA 2002.

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ELECTIVE COURSE III (B) – RDBMS

Unit I

Introduction of organization of Databases – Components of DBMS – Data Models – Entity Relationship Model – Basic file systems: introduction – secondary storage devices – Files and Buffer Management – File organization – Sequential File organization – Indexed file – Indexed Sequential file organization – Creation and manipulation of indexed sequential file organization – hashing – key to address transfer – overflow management in hashed files.

Unit II

B-Tree based Indexed file organization – secondary indexes: organization and usage – file organization based on dynamic hashing with deferred splitting – Linear Splitting.

Unit III

Relational Data Model – Relational Algebra – ISBL – relational Calculus – the Domain Calculus System – SQL – Relational Database design: Integrity constraints – Functional dependency – Logical Implication of Dependency – Normal forms – Decomposition of Relational Schemes – Design Procedures.

Unit IV

Security: Introduction – Access Control – Crypto system – Statistical database Security – Concurrency control and databases Recovery: Transaction – Database system Architecture – Serialization – Locking – Non-Locking Schedules – Database Recovery.

Unit V

Oracle Fundamentals: Elements of SQL language: database objects, Data Access SQL commands, DML commands – oracle queries – Basic query, using Expressions, working with Null values, joining multiple tables in a query – selecting values using sub queries, unions – Multiple part queries – create table statement – privileges required – describing table definitions – modifying tables – renaming a table – copying another table – dropping a table – other database objects – reason for other database objects – indexed – Embedded SQL: languages supported by oracle precompiler, Embedded SQL commands

Reference Books

1. Arun K Manjumdar and Pritimoy Bhattacharya – Database Management System – Tata Mc Graw Hill Publishing Co. Ltd. 1996
2. Rajshekhar Suderraman, Oracle 9i Programming A primer, Pearson Education 2004
3. Lannes Morris, Murphy, Oracle 9i: SQL – with an introduction to PL/SQL Course Technology, 2002.

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ELECTIVE COURSE III (C) – DIGITAL IMAGE PROCESSING

Unit I

What is digital Image processing – The Origin of Digital Image Processing – Gamma-Ray Imaging – X-Ray Imaging – Elements of visual perception – Light and the Electromagnetic spectrum – Image sensing and acquisition – Image sampling and Quantization – Some basic relationships between pixels – An Introduction to the Mathematical Tools Used in Digital Image Processing.

Unit II

Background – Some basic Intensity Transformation functions – Histogram Processing – Fundamentals of Spatial filtering – Smoothing spatial Filters – Sharpening Spatial Filters – Combining Spatial Enhancement Methods – Using Fuzzy Techniques for Intensity Transformations and Spatial Filtering.

Unit III

Background – Preliminary Concepts – Sampling and the Fourier Transform of sampled functions – The Discrete Fourier Transform (DFT) of one variable – Extension to functions of two variables – Some properties of the 2-D Discrete Fourier Transform – The Basics of Filtering in the Frequency Domain – Image Smoothing Using Frequency Domain Filters – Image Sharpening Using Frequency Domain Filters – Selective Filtering.

Unit IV

A model of the Image Degradation/Restoration Process – Noise models – Restoration in the presence of Noise Only – Spatial Filtering – Periodic Noise Reduction by Frequency domain Filtering – Linear, Position Invariant Degradations – Estimating the Degradation function – Inverse Filtering – Minimum Mean square Error (Wiener) Filtering – Constrained Least Squares Filtering – Geometric Mean Filter – Image Reconstruction from Projections.

Unit V

Color Fundamentals – Color Models – Pseudocolor Image Processing – Basics of Full-color Image Processing – Color Transformations – Smoothing and Sharpening – Image segmentation Based on Color – Noise in Color Images – Color Image Compression – Image Compression Fundamentals – Some Basic – Compression Methods – Digital Image Watermarking.

Text Books
1. Rafael C.Gonzalez, Richard E.Woods, "Digital Image Processing", Pearson 2009
2. J.T.Tou, R.C.Gonzalez, pattern Recognition principles, Addison Wesley 1974

Reference Books
1. Jain A F Fundamentals of Digital Image Processing, Prentice Hall 1995
2. Pratt, Digital Image Processing Wiley 2nd edition 1991
3. Gregory A Baxes, Digital Image Processing John Wiley 1994.
4. Digital Image Processing by S.Jayaraman, S.Esakkirajan, T.VeeraKumar, TMH, 2011
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CORE COURSE X – CRYPTOGRAPHY AND NETWORK SECURITY

Unit I

Overview: Computer Security Concepts – The OSI Security Architecture – Security Attacks – Security Services – Security Mechanisms – A model for Network Security – Classical Encryption Techniques: Symmetric Cipher model – Substitution Techniques – Transposition Techniques – Rotor Machines – Stenography.

Unit II

Block Ciphers and the Data Encryption Standard: Block Cipher Principle – The data encryption Standard – The strength of DES – Differential and Linear Cryptanalysis – Block Cipher Design Principles – Advanced Encryption Standard: Finite Field Arithmetic – AES structure – AES transformation function – AES key expansion – AES implementation.

Unit III

Public-key Cryptography and RSA: Principles of Public-Key Cryptosystems – The RSA algorithm – Other Public key Cryptosystems: Diffie-Hellman Key exchange – ElGamal Cryptographic system – Elliptic curve Arithmetic – Elliptic Curve Cryptography – Pseudorandom Number Generation Based on an Asymmetric cipher.

Unit IV

Message Authentication Codes: Message Authentication Requirements – Message Authentication Functions – Requirements for Message Authentication Codes – Security of MACs – MACs Based Hash Functions – MACs Based Ciphers – Authenticated encryption – Digital Signatures: Digital Signatures – ElGamal Digital Signature Scheme – Schnorr Digital Signature Scheme – Digital signature Standard.

Unit V

Transport Level Security: Web Security Considerations – Secure Socket Layer and Transport Layer security – Transport Layer Security – Electronic Mail Security: Pretty Good privacy – S/MIME – Domain Keys Identified mail – IP security: IP security Overview – IP Security Policy – Encapsulating Security Payload.

Text Book:

1. William Stallings, "Cryptography and Network Security Principles and Practice", Pearson, 5th Edition.

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CORE COURSE XI – PROGRAMMING IN PHP

Unit I: Introduction

The Origin of PHP-PHP is better than Its alternatives-How PHP works with the Web Server-Hardware and Software requirements and installation-PHP Pros and Cons-PHP: past, present and future (PHP 3.0, PHP 4.0, and PHP 5)-Strength of PHP **Basic PHP Development-**How PHP scripts work-Basic PHP syntax-PHP variables-PHP data types-Displaying type information-Testing for a specific data type-Operators-Variable manipulation-Dynamic variables-String in PHP **Control Structures-**The if statement-Using the else clause with if statement, multiple if, nested if-The switch statement-Using the ? Operator- Summary

Unit II: Arrays

Single-Dimensional Arrays-Multidimensional Arrays-Casting Arrays-Associative arrays-Accessing arrays-Getting the size of an array-Looping through an array-Looping through an associative array- Examining arrays-Joining arrays-Sorting arrays- Sorting an associative arrays **Loops-**The while statement-The do while statement-The for statement-Break & continue Nesting loops-For each loops **Functions-**Introduction of functions -**PHP Library Function-**Array functions-String functions-Date and time functions-Other important functions-**User Defined Function-**Defining a function with parameters and without parameters-Returning value from function-Dynamic function calls Accessing variable with the global statement-Function calls with the static statement-Setting default values for arguments-Passing arguments to a function by value-Passing arguments to a function by reference

Unit III: Working With the File System

Creating and deleting a file-Reading and writing text files Working with directories in PHP-Checking for existence of file-Determining file size-Opening a file for writing, reading, or appending-Writing Data to the file-Reading characters **Working With Forms-**Forms-Super global variables-The server array-A script to acquire user input-Importing user input -Accessing user input-Combine HTML and PHP code-Using hidden fields -Redirecting the user - File upload and scripts .
 Validation-Server side validation - Client side validation (Javascript) Working With Regular Expressions.

Unit IV: Classes And Objects

Introduction of Objects oriented programming Define a class-Creating an object-Object properties-Object methods-Object constructors and destructors Class constants, Access modifier, Class inheritance-Abstract classes and methods-Object serialization Checking for class and method existence-Exceptions-Summary **Introduction To Database-**Introduction to SQL-Connecting to the MYSQL-Database creation and selection-Database table creation, update table structure-insert, update, delete data to a table-Fetch data from table, Acquiring the value, Joins, sub query-Finding the number of rows-Executing multiple queries- **Cookies-**The anatomy of a cookie-Setting a cookie with PHP-Deleting a cookie-Creating session cookie-Working with the query string-Creating query string

Unit V: Session

What is session-Starting a session-Working with session variables -Destroying session-Passing session Ids-Encoding and decoding session variables **Disk Access, I/O, And Mail-**File upload-File download-Environment variables-E-mail in PHP-Random numbers **AJAX (Asynchronous JavaScript and XML)-**Introduction to AJAX-Introduction to XMLHttpRequest Object-Method and Properties of XMLHttpRequest-Application of AJAX in web application

Reference Books

1. **David Sklar, Nathan Torkington,"***Learning PHP 5***",** 2004, O'Reilly.
2. **W. Jason Gilmore,"Beginning PHP and MySQL 5",** 2006 2nd edition**,** Apress
3. **Kevin Yank, "***Build Your Own Database Driven Web Site Using PHP & MySQL"* 2011,* 4th edition, *S*itepoint.
4. **Ahsanul Bari,"***Cake Php Application Development",** 1st edition, 2008, Packet publishing ltd.

E-REFERENCES

1. *.www.w3schools.com/php*

2. *php.net/downloads.php*

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CORE COURSE XII – DATA MINING AND DATA WAREHOUSING

UNIT I

DATA MINING AND DATA PREPROCESSING: Data Mining – Motivation – Definition – Data Mining on Kind of Data –Functionalities – Classification – Data Mining Task Primitives – Major Issues in Data Mining – Data Preprocessing – Definition – Data Clearing – Integration and Transformation – Data Reduction.

UNIT II

DATA WAREHOUSING: Multidimensional Data Model –Data Warehouse Architecture – Data Warehouse Implementation –From data Warehousing to Data Mining – On Line Analytical Processing - On Line Analytical Mining.

UNIT III

FREQUENT PATTERNS, ASSOCIATIONS AND CLASSIFICATION: The Apriori Algorithm – Definition of Classification and Prediction – Classification by Decision Tree Induction - Bayesian Classification – Rule Based Classification – Classification by Back Propagation – Lazy Learners – K-Nearest Neighbor – Other Classification Methods.

UNIT IV

CLUSTER ANALYSIS: Definition – Types of data in Cluster Analysis – Categorization of major Clustering Techniques – Partitioning Methods – Hierarchical Clustering – BIRCH - ROCK – Grid Based Methods – Model Based Clustering Methods – Outlier Analysis.

UNIT V

SPATIAL, MULTIMEDIA, TEXT AND WEB DATA: Spatial Data Mining – Multimedia Data Mining – Text Mining – Mining the World Wide Web – Data Mining Applications – Trends in Data Mining.

Text Book
Jiawei Han and Micheline Kamber, "Data Mining Concepts and Techniques", 2nd Ed., Morgan Kaufmann Publishers, 2006.

REFERENCE BOOK
Margret H. Dunham, "Data Mining: Introductory and Advanced Topics", Pearson Education, 2003.

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CORE COURSE XIII – PROGRAMMING IN PHP LAB

1. Get name of the user from a form and show greeting text

2. write a calculator program

3. write a program using functions

4. write a program to use loops, control flow statements

5. write a program to manipulate arrays

6. write program to read and write files

7. write a hit counter using cookies

8. write a user login system using sessions

9. write a addressbook using mysql

10. write a blog system with comments using classes

11. Write a PHP program to check whether the given number is perfect or not.

12. Write a PHP program to check whether the given string is Palindrome or not.

13. Write a PHP program to display the system date and time.

14. Write a PHP program to find whether the given number is Prime or not.

15. Write a PHP program to check whether the given umber is Armstrong or not.

16. Write a PHP program to find largest value of two numbers using nesting of member functions.

17. Create a PHP page for login using SQL connection.

18. Create a PHP page for login without using SQL connection.

19. Create a PHP page for displaying the personal information by using various tags.

20. Create a PHP page which includes images for any application.

21. Create a PHP page for displaying the tender notice which is given to you.

22. Create a PHP page for displaying your curriculum vita.

23. Create a web page to advertise a product of the company using images and audio.

24. Create your own personal web page.

25. To create a web page for a web magazine.

26. Design a web page for travel agency using frames.

27. Design a web page of a company using hyperlink.

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ELECTIVE COURSE IV(A) – SOFT COMPUTING

Unit I   INTRODUCTION TO SOFT COMPUTING AND NEURAL NETWORKS

Evolution of Computing - Soft Computing Constituents – From Conventional AI to Computational Intelligence - Machine Learning Basics

Unit II   GENETIC ALGORITHMS

Introduction to Genetic Algorithms (GA) – Applications of GA in Machine Learning - Machine Learning Approach to Knowledge Acquisition.

Unit III   NEURAL NETWORKS

Machine Learning Using Neural Network, Adaptive Networks – Feed forward Networks – Supervised Learning Neural Networks – Radial Basis Function Networks - Reinforcement Learning – Unsupervised Learning Neural Networks – Adaptive Resonance architectures – Advances in Neural networks.

Unit IV   FUZZY LOGIC

Fuzzy Sets – Operations on Fuzzy Sets – Fuzzy Relations - Membership Functions - Fuzzy Rules and Fuzzy Reasoning – Fuzzy Inference Systems – Fuzzy Expert Systems – Fuzzy Decision Making

Unit V   NEURO-FUZZY MODELING

Adaptive Neuro-Fuzzy Inference Systems – Coactive Neuro-Fuzzy Modeling – Classification and Regression Trees – Data Clustering Algorithms – Rulebase Structure Identification – Neuro-Fuzzy Control.

Text Books
1. Jyh-Shing Roger Jang, Chuen-Tsai Sun, Eiji Mizutani, "Neuro-Fuzzy and Soft Computing", Prentice-Hall of India, 2003.
2. George J. Klir and Bo Yuan, "Fuzzy Sets and Fuzzy Logic-Theory and Applications", Prentice Hall, 1995.
3. James A. Freeman and David M. Skapura, "Neural Networks Algorithms, Applications, and Programming Techniques", Pearson Edn., 2003.

References
1. Mitchell Melanie, "An Introduction to Genetic Algorithm", Prentice Hall, 1998.
2. David E. Goldberg, "Genetic Algorithms in Search, Optimization and Machine Learning", Addison Wesley, 1997. 27
3. S. N. Sivanandam, S. Sumathi and S. N. Deepa, "Introduction to Fuzzy Logic using MATLAB", Springer, 2007.
4. S.N.Sivanandam · S.N.Deepa, " Introduction to Genetic Algorithms", Springer, 2007.
5. Jacek M. Zurada, "Introduction to Artificial Neural Systems", PWS Publishers, 1992.

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ELECTIVE COURSE IV (B) – REAL TIME & EMBEDDED SYSTEMS

Unit I

Introduction: Architecture of Embedded systems – operating systems- issues – Performance measures – estimating program at run time.

Unit II

Real-time operating systems
Real time specifications – RTOS services / capabilities, Resource management/ Scheduling paradigms: static priorities, static schedules, dynamic scheduling, best effort, current best practice in scheduling.

Unit III

System performance analysis and optimization
Response time calculation – interrupt latency – time loading and its measurements – scheduling – reducing response times and time loading – analysis of memory requirements – reducing memory loading – I/O performance

Unit IV

Debugging techniques and development tools
Reliability – testing – fault tolerance – host and target machines – links – locators for embedded software – getting embedded software into target system Real world issues: blocking, unpredictability, interrupts, caching.

Unit V

Real-time Databases
Basic Networking principles – real time databases – transactions – processing – concurrency control – disk scheduling algorithms – serialization and consistency.

Text Books

1. Phillip A. Laplante, "Real time systems design and analysis: an Engineer's Handbook" PHI Second edition 2000
2. C.M.Krishna, Kang G.Shin, "Real Time Systems" McGraw Hill, 1997

References

1. Raymond J.A. Bhur and Donald L.Bialey, "An introduction to real time systems: from design to networking with C/ C++" PHI 1999
2. David E. Simon, "An embedded software primer", Addison Wesley, 2000.

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ELECTIVE COURSE IV (C) – MULTIMEDIA SYSTEM

Unit I
Definition – Multimedia Hardware – Multimedia software – Multimedia Networking – Multimedia applications – Multimedia environments – Multimedia computer components – Multimedia standards – Multimedia PC.

Unit II   Text
Engineering Text – Positioning – Sizing – Editing – Fonts – Shadowing – Cloning – Building– Image and Graphics: Backdrops – Hanging Pictures – Positioning capturing and converting graphics – Compressing bitmaps – Controlling Palettes – Triggering – Hypertext – Hyper Picture – Buttons – Editing Links – Triggers in Backdrops – Analog Video – Digital Video – Digital Audio – Music – Animation – Operating Systems Support for Multimedia – CD Family – various CD Formats – CD-ROM Format.

Unit III   Digital Audio Representation and Processing
Digital representation of Sound – Transmission of digital sound – Digital Signal Processing of sound – Speech Recognition and Synthesis. Wave form Audio Recording – CD Audio Clip making – MIDI Sequencing Video Technology – Digital Video and Image Compression: Video Compression Technique – JPEG Image Compression Standards – MPEG Motion Video Compression standards – Various File storage – Digital Video Recording – Video Clip Making.

Unit IV   File Standard for Internet
SGML, HTML, XML – MIME – Voice Mail – Video Tele conferencing – Problems: Bandwidth – Performance measurement, Multimedia Presentation and Authoring Design Paradigms and User Interfaces – Multimedia Applications with case studies.

Unit V   Virtual Reality
Introduction – A generic VR system: Virtual environment – Technology – Modes of Interaction – VR Hardware: Sensor Hardware, Head Coupled displays – Acoustic hardware – Integrated VR – VR Software: Modeling Virtual worlds – Physical simulations – VR Applications.

Text Books

1. Fred T.Hofstetter, "Multimedia Literacy", Mcgraw Hill 1995
2. Simon J.Gibbs, Dionysios C.Tsichritziz, "Multimedia Programming" Addison Wesley 1995
3. John F Koegel Buford, "Multimedia Systems" Addison Wesley 1994
4. John Vince, "Virtual Reality Systems" Addison Wesley 1995.

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ELECTIVE COURSE V (A) – ARTIFICIAL NEURAL NETWORKS

Unit I

Introduction: History of Artificial Neural Networks – Knowledge-Based Information Processing – Neural Information Processing – Hybrid Intelligence.
Basic Neural Computational Models: Basic Concepts of Neural Networks – Inference and Learning – Classification Models – Association Models – Optimization Models – Self Organization Models.

Unit II

Learning: Supervised and Unsupervised: Supervised and Unsupervised learning – Statistical learning – AI Learning – Neural Network Learning – Genetic Algorithms.
Knowledge-Based Neural Networks: Rule-Based Neural Networks – Network Training – Network Revision – Issues – Examples of Theory Revision – Decision tree based Neural networks – Constraint-Based Neural Networks.

Unit III

Incremental Learning: Fundamental Principles – Symbolic Methods – Neural Network Approaches – The Incremental RBCN.
Mathematical Modeling: Mathematical Modeling in General – The Applications of Neural Networks – Neural Networks as mathematical Models – Knowledge-Based Approaches.

Unit IV

Complex Domains: Expert System Heuristics – Hierarchical Models – Hybrid Models – Parallel Models – Control Networks.
Discovery: Symbolic Methods – Neural Network Methods.

Unit V

Structures and Sequences: Connectionist Representation – A Hybrid Network Approach.
Learning Spatiotemporal Patterns: Spatiotemporal Neural Networks – Learning Procedures – Knowledge-Based Approaches.

Text Book

Neural Networks in Computer Intelligence, LiMin Fu, McGraw-Hill, Inc.1994

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II YEAR – III SEMESTER
COURSE CODE: 4MCE3E5

ELECTIVE COURSE V (B) – CLOUD COMPUTING

Unit I   UNDERSTANDING CLOUD COMPUTING
Cloud Computing – History of Cloud Computing – Cloud Architecture – Cloud Storage –
Why Cloud Computing Matters – Advantages of Cloud Computing – Disadvantages of Cloud
Computing – Companies in the Cloud Today – Cloud Services

Unit II   DEVELOPING CLOUD SERVICES
Web-Based Application – Pros and Cons of Cloud Service Development – Types of Cloud
Service Development – Software as a Service – Platform as a Service – Web Services – On-
Demand Computing – Discovering Cloud Services Development Services and Tools –
Amazon Ec2 – Google App Engine – IBM Clouds

Unit III   CLOUD COMPUTING FOR EVERYONE
Centralizing Email Communications – Collaborating on Schedules – Collaborating on To-Do
Lists – Collaborating Contact Lists – Cloud Computing for the Community – Collaborating
on Group Projects and Events – Cloud Computing for the Corporation

Unit IV   USING CLOUD SERVICES
Collaborating on Calendars, Schedules and Task Management – Exploring Online
Scheduling Applications – Exploring Online Planning and Task Management – Collaborating
on Event Management – Collaborating on Contact Management – Collaborating on Project
Management – Collaborating on Word Processing - Collaborating on Databases – Storing and
Sharing Files

Unit V   OTHER WAYS TO COLLABORATE ONLINE
 Collaborating via Web-Based Communication Tools – Evaluating Web Mail Services –
Evaluating Web Conference Tools – Collaborating via Social Networks and Groupware –
Collaborating via Blogs and Wikis

References

1. Michael Miller, Cloud Computing: Web-Based Applications That Change the Way
   You Work and Collaborate Online, Que Publishing, August 2008.
2. Haley Beard, Cloud Computing Best Practices for Managing and Measuring
   Processes for On-demand Computing, Applications and Data Centers in the Cloud
   with SLAs, Emereo Pty Limited, July 2008.

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ELECTIVE COURSE V (C) – WAP & XML

Unit I

Overview of WAP: WAP and the wireless world – WAP application architecture – WAP internal structure – WAP versus the Web – WAP 1.2 – WTA and push features. Setting up WAP: Available software products – WAP resources – The Development Toolkits.

Unit II

WAP gateways: Definition – Functionality of a WAP gateway – The Web model versus the WAP model – Positioning of a WAP gateway in the network – Selecting a WAP gateway Basic WML: Extensible markup language – WML structure – A basic WML card – Text formatting – navigation – Advanced display features.

Unit III

Interacting with the user: Making a selection – Events – Variables – Input and parameter passing. WML Script: Need for WML script – Lexical Structure – Variables and literals – Operators – Automatic data type conversion – Control Constructs Functions – Using the standard libraries – programs – Dealing with Errors.

Unit IV

XML: Introduction XML: An Eagle's Eye view of XML – XML Definition – List of an XML Document – Related Technologies – An introduction to XML Applications – XML Applications – XML for XML – First XML Documents Structuring Data: Examining the Data XMLizing the data – The advantages of the XML format – Preparing a style sheet for Document Display.

Unit V

Attributes, Empty Tags and XSL: Attributes – Attributes Versus Elements – Empty Tags – XSL – Well formed XML documents – Foreign Languages and Non Roman Text – Non Roman Scripts on the Web Scripts, Character sets, Fonts and Glyphs – Legacy character sets– The Unicode Character set – Procedure to Write XML Unicode.

Text Books

1) For Unit I, II, III
   Charles Arehart and Others. "Professional WAP with WML, WML script, ASP, JSP, XML, XSLT, WTA Push and Voice XML" Shroff Publishers and Distributers Pvt. Ltd 2000.
2) For Unit IV & V
   Eliotte Rusty Harlod "XML TM Bible", Books India (P) Ltd, 2000

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II YEAR – IV SEMESTER
COURSE CODE: 4MCE4PR

CORE COURSE XIV– PROJECT WORK

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