ST. JOSEPH'S COLLEGE OF ARTS & SCIENCE

(AUTONOMOUS)

CUDDALORE-1

PG & RESEARCH DEPARTMENT OF COMPUTER SCIENCE

MSC.COMPUTER SCIENCE

SYLLABUS 2016-2017

M.Sc COMPUTER SCIENCE

CURRICULAM DESIGN TEMPLATE

ADMITTED IN THE YEAR 2016 - 2017

Sem	Subject Code	Subject title	Hrs/Week	Credit
I	PCS701S	Mathematic Foundation for Computer Science	4	3
	PCS702S	OOAD with UML	4	3
	PCS703S	Advanced Java Programming	4	4
	PCS704	Linux Operating system	4	4
		Elective – I	4	3
	EPCS705Q	(i)-Computer System Architecture*		
	EPCS705A	(ii)-Artificial Neural Networks		
	EPCS705B	(iii)- Advanced Operating system		
	PCSP101T	Practical – 1: Advanced Java Programming	5	3
	PCSP102S	Practical – 2: Linux Programming	5	3
Total for Semester I			**30**	**23**
II	PCS806S	Software Testing	4	3
	PCS807S	Dot Net Technology	4	4
	PCS8O8T	Multimedia and Virtual Reality	4	3
	PCS809	Internet Programming	4	3
		Elective – II	4	3
	EPCS810	(i) - Distributed Computing*		
	EPCS810A	(ii) - Fuzzy Logic		
	EPCS810B	(iii)-Grid Computing		
	PCSP203S	Practical – 3: Dot Net LAB	5	3
	PCSP204	Practical – 4: Internet Programming	5	3
Total for Semester II			**30**	**22**

M.Sc COMPUTER SCIENCE

CURRICULAM DESIGN TEMPLATE

ADMITTED IN THE YEAR 2016 - 2017

Sem	Subject Code	Subject title	Hrs/Week	Credit
III	PCS911	Data Mining and Warehousing	4	3
	PCS912T	Open Source Technology	4	4
	PCS913Q	Cloud Computing	4	3
	ECHR901S	Human Rights	2	1
		Elective - III	4	3
	EPCS914T	(i) - Principles of Compiler Design*		
	EPCS914S	(ii)- Mobile Computing		
	EPCS914A	(iii)-Digital Image Processing		
		Elective - IV	4	3
	EPCS915T	(i) - Web Graphics*		
	EPCS915A	(ii) - Network Security		
	EPCS915B	(iii)-E-Commerce		
	PCSP305	Lab 6: PHP & MYSQL Lab	5	3
	JPCS306	Mini Project (System Programming)	3	3
Total for Semester III			**30**	**23**
IV	JPCS101 6	Project	30	22
Total for Semester IV			**30**	**22**

I-MSC (CS)	MATHEMATICAL FOUNDATIONS FOR COMPUTER SCIENCE	PCS701S
SEMESTER - I		HRS/WK – 4
CORE - 1		CREDIT – 3

UNIT-I Set Theory :

Introduction-Sets-Notations and Descriptions of Sets-Subsets-Operations on Sets-Properties of Set Operations-Verification of the Basic Laws of Algebra-Cartesian product of two sets-Relations-Representation of a Relation-Operations on Relations-Equivalence Relations-Partition and Equivalence Classes-Functions-One-to-one and Onto Functions-Special types of Functions-Invertible Functions-Composition of Functions.

UNIT-II

Logic: Introduction-TF Statements- Connectives-Compound Statements-Truth Table of a Formula-Tautology-Tautology Implications and Equivalence of Formulae-Normal Forms-Principles of Normal Forms-Theory of Inference, simple problems .

UNIT-III

Finite Automata-Definition of an Automaton- Representation of Finite Automaton-Acceptability of a string by a Finite Automaton-Languages accepted by a Finite automaton – Nondeterministic Finite automata - Acceptability of a string by Nondeterministic Finite Automata.

UNIT-IV

Equivalence of FA and NFA- Procedure for finding an FA equivalent to a given NFA – Phase-structure Grammars .

UNIT-V

Pushdown Automata-Definition of a Pushdown Automaton – Instantaneous Descriptions of a PDA- Important properties of move relation - Acceptance by PDA – Equivalence of two types of a AcceptancebyPDA

Text Book:

Discrete Mathematics-Venkatraman M.K, ,Sridharan.N, Chandrasekaran.N , The National Publishing Company, Chennai, 2000.

Unit 1-Chapter 1: sec -1 to 4, 6 to 8, Chapter 2:sec -1 to 5, 7 , Chapter 3:sec -1 to 5,
Unit 2 - Chapter 9:sec 1 to 4, 6 to 8, 11 to 13
Unit 3- Chapter 12: sec -1 to 8
Unit 4 Chapter 12 sec -:9,10,16
Unit 5 - Chapter 12: sec -23 to 28

Reference Books:

1. Theory of Computer Science- K.L.P Mishra and N. Chandrasekaran ,Prentice Hall of India, Pvt Ltd
2. Discrete Mathematical Structures applications toComputerScience, Trembly &Manohar, Tata McGraw.
3. Introduction to Automata Theory, Languages and Computions, Hopcraft and Ullman, 2nd Edition, Pearson Education.
4. Discrete Mathematical Structures with Applications to Combinatorics,RamaswamyV, UnivPress, 2006.
5. Veerarajan T, "Discrete Mathematics with graph theory and combinatorics" , TMG, 2007.

I M.Sc(CS)	OBJECT ORIENTED ANALYSIS AND DESIGN AND UML	PCS702S
SEMESTER – I		HRS/WK – 4
CORE – 2		CREDIT – 3

Objective:

To enable the students to learn the Software development methods and tools related with Object Oriented Technology.

UNIT – I: **(12**Hrs**)**

OVERVIEW OF OOSD: Introduction – Methodology – OBJECT BASICS: Objects- Attributes-Encapsulation and Information Hiding – Class Hierarchy – Polymorphism-Object Relationships and Associations-OOSDLC – The Software Development Process.

UNIT – II: **(13**Hrs**)**

OBJECT ORIENTED METHODOLOGIES: Introduction – Rumbaugh et al.'s Object Modeling Technique – The Booch Technology – Jacobson et al. Methodologies – Patterns – Frameworks – The Unified Approach.

UNIT – III: **(11**Hrs**)**

UNIFIED MODELING LANGUAGE: Introduction – UML Diagrams – UML Class Diagram – Use Case Diagram – UML Dynamic Modeling – UML Extensibility – UML Meta model.

UNIT – IV: **(12**Hrs**)**

OBJECT ORIENTED ANALYSIS: Introduction – Use Case Model – Developing Effective Documentation

OBJECT ORIENTED DESIGN: Introduction – Axioms – Corollaries – Design Patterns.

UNIT – V: **(12**Hrs**)**

SOFTWARE QUALITY ASSURANCE: Introduction-Quality Assurance tests – Testing Strategies – Impact of Object Orientation on Testing – Test Cases – Test Plan – Continuous Testing – Myer's Debugging Principles

Text Books:

1. Ali Bahrami - "Object Oriented Systems Development" - Irwin-McGraw Hill, New Delhi, International editions, 1999.

Reference Book(s):

1.Grady Booch - "Object –Oriented analysis and Design with Applications" - Pearson Education– Ninth Indian Reprint 2002, First Impression 2006.

2.Grady Booch, James Rumbaugh and Ivar Jacobson - "The Unified Modeling Languages User Guide" - Addison Wesley – Fourth Indian Reprinting 2000, Fifth Impression 2007.

I M.Sc(CS)	ADVANCED JAVA PROGRAMMING	PCS703S
SEMESTER – I		HRS/WK – 4
Core – 3		CREDIT – 4

Objectives:

- This course provides an in-depth knowledge of Advanced Java language and programming.
- Implementing Java components
- Practicing RMI, JDBC, JSP
- Multithreading

UNIT I

INTRODUCTION TO JAVA : Introduction to Java – Features of Java - Data types – Variables –Operators-Arrays – Classes – Objects – Constructors - Overloading method - String class – Inheritance - Overriding Method – Using super - Abstract class - Packages – Access protection.

UNIT-II

MULTITHREADING: **PACKAGES**- Access protection- Importing packages – Interfaces – Exception handling –Throw and throws - Thread – Multithreading.

UNIT-III

JAVA DATABASE: Working with windows using AWT Classes – AWT Controls – Layout Managers and menus- Swing- Introduction to Swing- Swing Architecture- Examples for Swing-JDBC/ODBC driver-MSACCESS connection-A complete example.

UNIT-IV

NETWORKING: Sockets - Inet Address - IP Address - Port number - Client/Server computing - TCP/IP - TCP client – server handling multiple clients -UDP-UDP Server-UDP Client-Multithreaded clients.

UNIT V

SERVLETS AND RMI: Servlet architecture-HTML support - Servlet Installation - Servlet API Distributed computing – RMI architecture - parameter in RMI - RMI Client side callbacks - Installing RMI systems - serializing remote objects.

Text Books:

1. Jeffrey C. Rice, Irving Salisbury-"Advanced Java Programming"-McGraw Hill-1997.
2. Deitel&Deitel- "JAVA: How to program"- Third edition Prentice Hall of India, 1999.

I M.Sc (CS)	LINUX OPERATING SYSTEM	PCS704
SEMESTER – I	For the students admitted from the year 2009	HRS/WK – 4
CORE – 4		CREDIT – 4

Objective:

- ❖ To make the student aware of all concepts related to operating system and make them well versed in Linux Operating System.

UNIT - I: (12Hrs)

Introduction – Operating System – Functions - Types – Linux Operating System: History – Architecture – Linux compared to UNIX – Shells available – Managing File and Directories in Linux – Types of Editor – Vi Editor

UNIT - II: (12 Hrs)

Window Manager – Configuring Services: SMTP - FTP – Apache Server

UNIT - III: (12 Hrs)

Arguments, Options and the Environment - User level memory management – File and File I/O

UNIT - IV: (10 Hrs)

Automating Tasks using Shell Script – Variables – Control Structures – Library Interfaces

UNIT - V: (14 Hrs)

Programming in Linux: Shell Programming - Gawk programming – Network Programming – C and C++ Programming

Text Books:

1. Richard Peterson – "Linux: The Complete Reference" - Tata McGraw Hill, Fourth Edition, 2006
2. David Pitts, Bill Ball, et al – "Red Hat Linux 6" - Techmedia Publication 1999
3. Arnold Robbins – "Linux Programming by Examples: The Fundamentals" - Pearsons Education 2006, Edition I
4. Mark G. Sobell – "A Practical Guide to Red Hat Linux 8" – Addison Wesley – Techmedia, 2003
5. Michael Jang – "Mastering Red Hat Enterprise Linux 3" - BPB Publication 2005,Edition I.

Reference Book(s):

1. Neil Mathew, Richard Stones – "Beginning Linux Programming" - Ed. 3 – Wiley, 2006
2. Jon Masters, Richard Blum – "Professional Linux programming" – Wiley, 2007
3. NIIT – "Operating System Linux" – Prentice Hall India, 2003.
4. Neil Mathew, Richard Stones-"Beginning Linux Programming"-Fourth Edition-2007.
5. Richard Peterson-"Linux: The Complete Reference"-Sixth edition-2006.

I M.Sc(CS)	COMPUTER SYSTEM ARCHITECTURE For the students admitted from the year 2014	EPCS705Q
SEMESTER – I		HRS/WK – 4
Elective – 1A		CREDIT – 3

Objectives:

To learn the advanced concepts of Computer Architecture.

UNIT-I: (10 Hrs)

Parallel Models: Multiprocessors and Multicomputers – Multivector and SIMD Computers – PRAM and VLSI Models – Conditions of Parallelism: Data and Resource Dependences.

UNIT-II: (13 Hrs)

Processors And Memory Hierarchy: Advanced Processor Technology: Instruction-Set Architecture, CISC, RISC Scalar Processor – Memory Hierarchy Technology: Hierarchical Memory Technology, Inclusion, Coherence and Locality – Virtual Memory Technology – Cache Memory Organization .

UNIT-III: (13 Hrs)

Pipelining And Superscalar Techniques: Linear Pipeline Processors – Non Linear Pipeline Processors – Instruction Pipeline Design – Arithmetic Pipeline Design.

UNIT-IV: (12 Hrs)

Parallel And Scalable Architecture: Multiprocessor System Interconnects – Vector Processing Principles – SIMD Computer Organizations: Implementation Models.

UNIT-V: (12 Hrs)

Scalable, Multithreaded: Latency Hiding Techniques: Shared Virtual Memory, Prefetching Techniques, Distributed Coherent Caches – Principles of Multithreading: Multithreading Issues and solutions, Multiple Context Processors.

Text Book:

1. Kai Hwang-"Advanced Computer Architecture- Parallelism, Scalability, Programmability"- McGraw Hill- 1993.
2. Kai Hwang-"Advanced Computer Architecture- Parallelism, Scalability, Programmability"- McGraw Hill- Second Edition-2000.

Reference Books:

1. M.M.Mano, "Computer System Architecture", 3rd Edition, PHI- 1994.
2. Hwang Briggs, "Computer Architecture and Parallel Processing"- McGraw Hill-1985.
3. William Stallings, "Computer Organization and Architecture - Designing for Performance", PHI, 2000.

YEAR – I	**ARTIFICIAL NEURAL NETWORKS**	**EPCS705A**
SEMESTER – II		**HRS/WK – 4**
ELECTIVE – 1B		**CREDIT – 3**

Objective:

- ❖ To enable the student to understand the concepts and principles of fuzzy and neural networks.
- ❖ Investigate some common models and their applications.

Unit-1: **[10 Hrs]**

Introduction: Definition – fundamental concepts – applications – advantages and disadvantages – classifications – biological neural network – artificial neural structure – activation functions – adding bias – perception – MLP.

Unit-2: **[10 Hrs]**

Feed forward ANNs: Structure – delta rule – architecture and training – radial basis function – time delay NN.

Unit-3: **[13 Hrs]**

Attractor ANNs: Associative learning – attractor NN – linear associative memory – Hopfield network – content addressable memory – simulated annealing – Boltzmann machine – bidirectional associative memory.

Unit-4: **[13 Hrs]**

Unsupervised ANNs: Clustering procedures – C-Means algorithm – learning vector quantization – MAXNET – self-organizing feature maps – adaptive resonance architectures.

Unit-5: **[14 Hrs]**

ANN Simulation in MATLAB: Creating a custom neural network – initializations – setting weights and bias – using different transfer functions – using training parameters – simulating and plotting network – designing a complete FF neural network (supervised) – designing self organizing maps (unsupervised).

Text Books:

1. Robert J. Schalkoff. 1997. *Artificial Neural Networks*. New Delhi. McGraw Hill.
2. Satish Kumar. 2004. *Neural Networks: A Classroom approach*. New Delhi: McGraw Hill.
3. S. Rajasekaran, G. A. Vijayalakshmi Pai. 2003. *Neural Networks, Fuzzy Logic and Genetic Algorithms Synthesis and Applications*. India: Prentice Hall .
4. Laurene Fausett. 1994. *Fundamentals of Neural Networks*. Prentice Hall.
5. Limin Fu. 1994. *Neural Network in Computer Intelligence*. McGraw Hill International.

Reference Book(s):

1. Haykin Simon. 2001.*Neural Networks: A Comprehensive Foundation*. (2nd ed.) Singapore: Addison Wesley.

2. Freeman, A. James and Skapura, M. David. 2002. *Neural Networks: Algorithm, Applications and Programming Techniques*. California: Addison-Wesley Longman.

3. Fredric, M. Ham, Ivica Kostunica. *Principles of Neuro Computing for Science of Engineering*. Tata McGraw Hill.

I M.Sc(C.S)	MODERN OPERATING SYSTEM	EPCS705B
SEMESTER –III		HRS/WK-4
ELECTIVE1C		CREDIT-3

Objective:

- To provide a clear description of the fundamental concepts in
- An operating system and design principles that is applicable to a variety of distributed operating system.

UNIT-I [12Hrs]

INTRODUCTION:COMPUTER SYSTEM STRUCTURES: Computer-System Operation–Storage Hierarchy–General System Architecture–**OPERATING SYSTEM STRUCTURES**: System Components – System Calls - Virtual Machines–System Generation.

UNIT-II [12Hrs]

PROCESS MANAGEMENT: Processes–Process Concept – Operation on Processes – Inter-Process Communication.**CPU SCHEDULING**: Basic Concepts–Scheduling Algorithms–Real Time Scheduling-Process Synchronization–Background–Crtical- Selection Problem–Semaphores -Deadlocks–System Model–Methods for Handling Deadlocks–Deadlock Avoidance–Recovery from Deadlock.

UNIT-III [12Hrs]

DISRIBUTED COMPUTING SYSTEM: Evolution-Models- Distributed Operating System-Issues in Designing DOS-Distributed Computing Environment. **COMMUNICATION IN DISTRIBUTED SYSTEM**:Protocols-Features of Good Message Passing System- Issues in IPC by Message Passing-Synchronization-Buffering- Process Addressing-Failure Handling-Group Communication.

UNIT-IV [12Hrs]

SYNCHRONIZATION: Clock Synchronization – Event Ordering - Mutual Exclusion-Deadlock- Election Algorithms. **PROCESS MANAGEMENT**: Process Migration-Threads.

UNIT-V [12Hrs]

SECURITY: Potential Attacks to Computer Systems – Cryptography–Authentication-Access Control-Digital Signatures-Design Principles.**INTERPROCESS COMMUNICATION:**Process Tracing-System VIPC -Sockets.**MULTI PROCESSOR SYSTEMS**: Problem of Multiprocessor Systems-Solution with Master and Slave Processors-Solution with Semaphores.

TEXT BOOKS:

1.Abraham Silberschatz and Peter Baer Galvin, "Operating System Concepts",4thEd.,AddisonWesley.,NewYork,1999. Unit I & II

2.Pradeep K.Sinha,"Distributed Operating Systems Concepts and Design", Prentice Hall, New Delhi,2004.Unit III,IV&V

REFERNECE BOOKS:

1.Andrew S. Tanaenbaum, ,"Modern Operating Systems", PHI ,New Delhi,1997.

I M.Sc(CS)	ADVANCED JAVA PROGRAMMING	PCSP101T
SEMESTER – I		HRS/WK – 5
CORE PRACTICAL - 1		CREDIT – 3

Objectives:

- This provides an in-depth knowledge of Advanced Java language and programming
- Gain an in-depth understanding of database programming in Java using JDBC.
- Learn how to do distributed programming in Java using RMI and CORBA.

1. Write a java program to find area perimeter using BufferedReader class.
2. Write a java program to implement Multithreading concepts.
3. Write a java program to implement an application for File Stream using Sequential file.
4. Write a program to print the port, protocol, host, and file name from the given URL.
5. Write a program to implement Client and Server application using TCP/IP.
6. Write a program to display the IP Address of a given Host Machine.
7. Write a program for Remote Command Execution using TCP/IP.
8. Write a program for Storing and Retrieving Email Addresses using JDBC.
9. Write a program to print student details using JDBC.
10. Working with Frames and Various Controls.
11. Incorporating Graphics
12. Font animation using Applets Interface.
13. Write a program to implement addition operation using RMI.

I M.Sc(CS)	LINUX PROGRAMMING	**PCSP102**
SEMESTER – I		**HRS/WK – 5**
CORE PRACTICAL – 2		**CREDIT – 3**

Objective:
To make the student get started with Linux shell programming stuff and to implement all Linux commands and features by sample programs.

1. Working with Basic Linux Commands
2. Write the shell script to find the grade of student's marks.
3. Implementing Control Structures in shell script - Sorting
4. Shell Programming – Menu driven Program
5. Shell Programming – Fibonacci Series
6. Shell Programming – Sum of the Series
7. Write a shell script to perform case conversion.
8. Searching for a substring

C-Linux

9. Matrix addition and Subtraction
10. Menu driven program for complex number manipulation

I M.Sc(CS)	SOFTWARE TESTING	PCS806S
SEMESTER – III		HRS/WK – 4
CORE -5		CREDIT – 3

Objective:

To enable the students to learn the fundamentals of Software Planning and Testing.

UNIT-I: [12Hrs]

Introduction: Purpose of Software Testing- Is Complete Testing Possible- The Consequence of Bugs –Taxono

Principles of Testing: [12Hrs]

Software Development Life Cycle Models-Phases of Software Project - Quality – Assurance – Control –Testing - Verification- Life Cycle Model - Waterfall Model - Rapid Application Development Models - Spiral Model-V Model.

UNIT- III: [12Hrs]

Types of Testing: White Box Testing-Static Testing-Structural Testing-Black Box Testing-Integration Testing- Phase of Testing- Scenario Testing-Defect Bash-System and Acceptance Testing –Functional System Testing-Non Functional Testing-Regression Testing-Internalization testing-Ad hoc testing.

UNIT-IV: [12Hrs]

Test of Object Oriented Systems: Usability and Accessibility Testing-Approach-Quality Factors-Tools for Usability-Test roles for usability-Common People issues-Comparison between Testing and Development Functions-Role of Echo system.

UNIT-V: [12Hrs]

Organizations Structures for Testing Teams: Dimension-Structure-Single Product Company - Multi product companies - Effects of Globalization - Testing service Organization-Test Management and Automation -Test planning -Test Process-Test Reporting-Best Practices.

Text Books:

1. Srinivasan Desikan , Gopalswamy Ramesh ,"Software Testing Principles and Practices"-2006 Edition,Pearson Education.

2.Brain Marik,"The Craft of Software testing including Object Based and Object-Oriented Testing",Prentice-Hall,1195.

Reference Book:

CemKaner, James Bach- “Lessons Learned in software testing”.

I M.Sc(CS)	Dot NET TECHNOLOGY	PCS807S
SEMESTER – II		HRS/WK – 4
CORE – 6		CREDIT – 4

Objectives:

- To enable the students to learn the fundamentals of .NET, .Net Framework and C#.

UNIT - I: **(10**Hrs**)**

Introduction to DotNet Technology – Dot Net Framework Overview – Activities of CLR – DotNet Applications – Introduction to Visual Studio IDE – Types of Dotnet Languages.

UNIT - II: **(12**Hrs**)**

INTRODUCTION TO C# : Introduction to C# - data types in C# - conditional statement, if…else – looping statement, while…/for loop – properties in C# - namespaces in C#.

UNIT - III: **(13**Hrs**)**

INTRODUCTION TO ASP.NET : Introduction to ASP.NET – architecture of ASP.NET – difference between asp and ASP.NET – page events in ASP.NET – controls in ASP.NET(server side controls and html controls) – the code behind web forms (separation of content & business logic) – life cycle of a web forms page – stages in web forms page – web forms event model.

UNIT - IV: **(12**Hrs**)**

INTRODUCTION TO ADO.NET : Introduction to ADO.net –ADO.net Architecture – Connection – data reader – command Class.

UNIT - V: **(13**Hrs**)**

DISCONNECTED ARCHITECTURE IN ADO.NET : Key components of ADO.net disconnected –DataSet class– DataAdapter class – Working with data grids in ASP.NET - with ADO.net

Text Books:

1. E. Balagurusamy, "Programming in C#"- Tata Mc Graw Hill, 2002.
2. Chris Ullman, John Kauffman – "Beginning ASP.NET 1.1 with VB.NET 2003"- Wrox Publication.
3. Alex Homer, Dave Sussman – "Professional ASP.NET 1.1" – Wrox Publication.
4. Crouch – "ASP.NET and VB.NET web programming" – Pearson Education.
5. Greg Buczek – "ASP.NET Developer's Guide" – Tata McGraw Hill 2002.

Reference Book(s):

1. Deitel and Deitel – "Internet & World Wide Web how to program" – PHI, 2003.
2. Andrew Troelsen – "C# and the .NET platform" – A Press, 2001.
3. Justin Couch, Daniel H. Steinberg – "J2EE Bible" – Wiley India (P) Ltd., New Delhi 2002.

I M.Sc(CS)	MULTIMEDIA AND VIRTUAL REALITY For the students admitted from the year 2014	PCS808T
SEMESTER – II		HRS/WK – 4
CORE – 7		CREDIT – 3

Objectives:

To enable the students to learn the concepts of Multimedia.

UNIT - I: (10Hrs)

MULTIMEDIA: Definition and Introduction to Multimedia – **Introduction to Making Multimedia:** Needs of Multimedia – Macintosh and Windows production platforms.

TEXT: The power of meaning – About fonts and faces – Using text in multimedia – Computers and Text – Font editing and Design tools – Hypermedia and Hypertext.

UNIT - II: (13Hrs)

SOUND: The power of sound – Multimedia system sounds – MIDI versus Digital Audio – Digital Audio – Making MIDI audio – Audio, File formats – Working with sound on the Macintosh – Notation Interchange File Format (NIFF) – Adding sound to your multimedia project.

IMAGES: Making still Images – Color – Image file formats.

UNIT - III: (12Hrs)

ANIMATION: The Power of Motion – Principles of Animation – Making animations that works.

VIDEO: Using Video – Working of Video – Broadcast video standards – Integrating computers and television – Shooting and Editing Video – Video tips – Recording formats – Digital Video.

UNIT - IV: (13Hrs)

PLANNING AND COSTING: Project planning – Estimating – RFPs and Bid Proposals - Designing – Producing.

MULTIMEDIA PACKAGES: Cool3d, Photoshop, Sound forge, Windows Movie maker, Flash- a Simple Project for Multimedia using the Multimedia Packages.

UNIT - V: (12Hrs)

INTRODUCTION TO VIRTUAL REALITY: Introduction to virtual reality – goals of virtual reality- Issues in Virtual Reality- Introduction to VRML.

Text Books:

1. Tay Vaughan – "Multimedia Making it Work" - McGraw Hill, 1994,Sixth Edition-2004,Seventh Edition-2008.
2. John Hayward – Adventures in Virtual Reality, One Publications

Reference Book(s):

1. Jeffcoate, Judith – "Multimedia in Practice" - Prentice Hall, 2001.

I M.Sc(CS)	**INTERNET PROGRAMMING**	**PCS809**
SEMESTER – II		**HRS/WK – 4**
Core – 8		**CREDIT – 3**

Objectives:

- To enable the students to learn the principles of Internet programming.
- To Gain knowledge in Internet basics and XML
- To Understand Java Script and PHP programming.

UNIT – I: (12 Hrs)

BASICS OF INTERNET COMMUNICATION : Hardware elements associated with internet - Internet Services - Internet Protocols – TCP/IP, UDP, HTTP – Other Protocols – Telnet - Gopher- Mail and its types- FTP - Remote access - Web Indices – Search Engines.

UNIT – II: (12 Hrs)

INTRODUCTION TO HTML :Tags and Documents - Link documents using Anchor Tags – Images and Pictures – Tables – HTML Forms - Frames – Framesets.

UNIT – III: (12 Hrs)

INTRODUCTION TO SCRIPTING : Java Script – Data types – Operators – Variables – Conditional Statements – Functions – Objects – Document object– Window Object – Event Handling – Introduction to VBScript and Perl Script.

UNIT – IV: (11 Hrs)

INTRODUCTION TO XML : Well formed XML – CSS – XSL - Valid XML – DTD – XSD - Introduction to DOM and SAX Parsers.

UNIT – V: (13 Hrs)

INTRODUCTION TO DYNAMIC WEB APPLICATIONS: Server Side Scripting basics – Server Side Scripting Languages – PHP Scripting - General Syntactic Characteristics – Primitives, operations and expressions – Control Statement – Arrays – Functions – Pattern Matching – Form Handling – Files – Cookies – Session Tracking – Database access with PHP and MYSQL.

Text Book(s):

1. Deitel&Deitel - "Internet and WWW – How to program? Pearson Education, 2005 (Units I, II and III)
2. Robert W Sebesta – "Programming the WWW" -Pearson Education (Unit V)
3. David Hunter Et al – "Beginning XML" - Wrox Publications 2000. (Unit IV)

Reference Book(s):

1. Daniel C. Lynch, Marshall T. Rose -"Internet Systems Handbook", Addison Wesley 1993.
2. Peter Kent - "10 Minute Guide to the Internet" - Prentice Hall of India, 1996.
3. Scott Mitchell and James Atkinson - "Teach Yourself XML in 21 days"- Sams Publishing, 1999.
4. Douglas E.Comer, David L.Stevens-"Internetworking with TCP/IP"-Second Edition-2007.

I M.Sc(CS)	DISTRIBUTED COMPUTING	EPCS810
SEMESTER – II		HRS/WK – 4
ELECTIVE – 2A		CREDIT – 3

Objective:

- To enable the student to be familiar with distributed systems and client server computing.
- To provide a clear description of the fundamental concepts and design principles that is applicable to a variety of distributed operating systems.

UNIT - I: (10 Hrs)

INTRODUCTION TO DISTRIBUTED SYSTEMS: Introduction – Goals - Hardware concept – Software Concepts – Design Issues: Transparency – Flexibility – Reliability – Performance – Scalability.

UNIT - II: (12 Hrs)

COMMUNICATION IN DISTRIBUTED SYSTEMS: The client –server model –Addressing – Types of Primitives – Implementation – Group communication – Introduction –Design Issues – Group communication in ISIS.

UNIT - III: (14 Hrs)

SYNCHRONIZATION IN DISTRIBUTED SYSTEMS: Clock Synchronization – Mutual Exclusion -Election Algorithms –Atomic Transactions- Deadlocks.

UNIT - IV: (12 Hrs)

PROCESSES AND PROCESSORS : Processes and Processors in Distributed Systems – Threads – Processor Allocation – scheduling – Fault Tolerance. Distributed File system – Design – Implementation – Trends in Distributed File systems.

UNIT - V: (12 Hrs)

DISTRIBUTED SHARED MEMORY : Introduction – shared memory – consistency models – page – based distributed shared memory.

Text Book(s):

1. Andrew S. Tanenbaum – "Modern Operating Systems" - Prentice Hall of India Pvt. Limited.
2. John A. Sharp - "An Introduction to Distributed and Parallel Processing" - Blackwell Scientific Publications, 1987.

Reference Book(s):

1. StefansCeri, GinseppePelagatti - "Distributed Databases Principles and systems" - McGraw Hill Book Co., New York, 1985.
2. George Coulouries& others - "Distributed systems:concepts & Design",Fourth edition(2009),Second Edition(2000),Pearson education Pvt. ltd.,

I M.Sc(CS)	**FUZZY LOGIC**	**EPCS810A**
SEMESTER – II		**HRS/WK – 4**
ELECTIVE – 2B		**CREDIT – 3**

Objective:

- This course presents a detailed knowledge of Fuzzy logic principles, systems and its applications.
- Fuzzy sets and representations.
- Fuzzy relations and logic.
- Fuzzy systems and applications.

UNIT - I **(12 Hrs)**

INTRODUCTION: Crisp sets: an overview - Basic types of fuzzy sets - Basic Concepts of fuzzy sets-Characteristics and Significance - Fuzzy sets Vs Crisp sets - Additional properties of Alpha Cuts - Representation of Fuzzy sets - Extension principle for Fuzzy sets - Operations on Fuzzy Sets - types of operations- Fuzzy compliments, Union, Intersection - Combination of Operations - Aggregation Operations- Fuzzy Arithmetic - Fuzzy numbers - Linguistic variables - Arithmetic Operation on Intervals And Fuzzy numbers - Lattice of Fuzzy numbers - Fuzzy Equation.

UNIT – II **(12 Hrs)**

FUZZY RELATION: Fuzzy Relation - Crisp & Fuzzy Relations - Projections & Cylindric Extensions - Binary Fuzzy Relations - Binary Relations on a Single Set - Fuzzy Equivalence Relations - Fuzzy Compatibility Relations - Fuzzy Ordering Relations - Fuzzy Morphisms - Compositions of Fuzzy Relation - Fuzzy Relation Equations - General Discussion - Problem Partitioning - Solution Method - Fuzzy Relation Equation Based on Sup_i&Inf_i Completions - Approximate Solutions - The use of Neural Networks - Possibility Theory - Fuzzy Measures - Evidence Theory - Possibility Theory - Fuzzy Sets & Possibility Theory - Possibility Theory Vs Probability Theory.

UNIT – III **(13 Hrs)**

FUZZY LOGIC: Fuzzy Logic - Classical logic - Multi valued Logic - Fuzzy Propositions & Quantifiers - Linguistic Hedges - Inference from Conditional Fuzzy Propositions - Inference from Conditional & Qualified Propositions - Inference from Quantified Propositions - Uncertainty Based Information - Information & Uncertainty - Non specificity of Crisp Sets & Fuzzy sets- Fuzziness of Fuzzy sets - Uncertainty in Evidence Theory - Uncertainty Measures - Principles of Uncertainty - Approximate Reasoning - Fuzzy Expert Systems - Fuzzy Implication & Its selections - Multi conditional Approximate Reasoning - The Role of Fuzzy Relation Equations - Interval Valued Approximate Reasoning.

UNIT – IV **(12 Hrs)**

FUZZY SYSTEMS: Fuzzy Systems - General Discussion - Overview of Fuzzy Controllers and Example - Fuzzy systems & Neural Networks - Fuzzy Neural Networks - Fuzzy Automata - Fuzzy Dynamic Systems - Pattern Recognition - Introduction - Fuzzy clustering - Fuzzy Pattern Recognition - fuzzy Image Processing-Fuzzy Databases & Information Retrieval Systems - General Discussion - Fuzzy Databases -Fuzzy Information Retrieval.

UNIT – V **(11 Hrs)**

APPLICATIONS: Engineering & Other applications - Introduction - Civil Engineering - Mechanical Engineering - Industrial Engineering - Computer Science Engineering - Reliability Theory - Robotics - Medicine - Economics - Decision Making - Fuzzy Systems & Genetic Algorithms - Fuzzy Regression - Interpersonal Communication.

Text Books:

1. George J. Klir& Bo Yuan, "Fuzzy Sets and Fuzzy Logic Theory and Applications.

Reference Book(s):

1. George J. Klir& Tina A. Folger, "Fuzzy Sets Uncertainty & Information", PHI, 2001.
2. J.S.R.Jang, C.T.Sun, E.Mizutani, "Neuro - Fuzzy and Soft Computing ", PHI, 2003.

I M.Sc(C.S)	GRID COMPUTING	EPCS810B
SEMESTER –III		HRS/WK-4
ELECTIVE-2C		CREDIT-3

Objective:

To impart knowledge related to the various concepts, methods of Grid computing with grid benefits, components, and standards supporting grid computing techniques.

UNIT I **(12 Hrs)**

Introduction: Early and Current Grid Activities – An Overview of Grid Business Areas – Applications – Infrastructure. Grid Computing Organization and their Roles: Standards and Guidelines – Tool Kits and Framework – Grid-Based Solution to Solve Computing, Data and Network Requirements.

UNIT II **(12 Hrs)**

The Grid Computing Anatomy: The Grid Problem – Concept of Virtual Organizations – Architecture. The Grid Computing Road Map: Autonomic Computing – Business on Demand and Infrastructure Virtualization – Service-oriented Architecture and Grid – Semantic Grids.

UNIT III **(12 Hrs)**

Merging Grid Services Architecture with the Web Services Architecture: Service- Oriented Architecture – Web Service Architecture – XML, Related Technologies – XML. Messages and Enveloping – Service Message Description Mechanisms – Relationship between Web Service and Grid Service. Open Grid Services Architecture (OGSA): Architecture.

UNIT IV **(12 Hrs)**

Some Sample Use Cases that Drive that Drive the OGSA: Commercial Data Center – National Fusion Collaboratory (NFS) – Online Media and Entertainment. Open Grid Services Infra Structure (OGSI): Grid Services – Specification – Service Data Concepts – Naming and Change Management Recommendations.

UNIT V **(12 Hrs)**

OGSA Basic Services: Common Management Model – Service Domains – Policy Architecture – Security Architecture – Metering and Accounting – Common Distributed Logging – Distributed Data Access and Replication. Case Study: GLOBUS – The Grid Computing Toolkit.

Text Book

Joshy Joseph and Craig Fellenstein, *Grid Computing*, Pearson Education, 2005.

Reference Book

S. Jaya Krishna,*Grid Computing*, ICFAI University Press, 2006.

I M.Sc (CS)	**DOT NET LAB**	**PCSP203S**
SEMESTER – II		**HRS/WK – 5**
CORE PRACTICAL - 3		**CREDIT - 3**

Objectives:

- To enable the student to build applications in DOTNET Languages

C#.NET

1.Splash Screen
2.Notepad Application
3.Student Marksheet program and msaccess.
4.Login Form Creation program and msaccess

ASP.NET

5.Creating Student Bio-Data.
6.Request and Response Application using C# and msaccess.
7.Chatting using application and session object.
8.Application using Adrotator Control.
9.File uploading and downloading using server object.
10. Telephone Record maintenance and msaccess.

I M.Sc(CS)	**INTERNET PROGRAMMING LAB**	**PCSP204**
SEMESTER – II		**HRS/WK – 5**
CORE PRACTICAL - 4		**CREDIT – 3**

Objectives:

- To develop applications using HTML, XML and PHP.

1. Create a HTML table with rows and columns and split them using Rowspan and Colspan.
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 HTML program for new email account registration. Validate the input using Java Script.
4. Write an XML document to display your bio-data. Write an XSL style sheet and attach that to the XML document. Validate the document using DTD or XSD.
5. Write a server side PHP program that displays marks, total, grade of a student in tabular format by accepting user inputs for name, number and marks from a HTML form.
6. Write a PHP program to access the data stored in a mysql table.

II M.Sc (CS)	**DATA MINING AND WAREHOUSING**	**PCS911**
SEMESTER – III	**For the students admitted from the year 2008**	**HRS/WK – 4**
Core – 9		**CREDIT – 3**

Objective:

- ❖ This course enable us to understand the concepts of Data Warehousing and Data Mining And its applications.

Unit I: (10 Hrs)

Data Mining Introduction:

Data mining –Introduction-classification of data mining system-Data mining Vs Data base-Application of data mining-Data mining functionalities-Integration of data mining system with the data warehouse system.

Unit II: (12 Hrs)

Knowledge Discovery Process: Knowledge Discovery process-Data cleaning: missing values-noisy data-data cleaning as a process-Data Integration and Transformation-Data Reduction-Types of OLAP servers: ROLAP Vs MOLAP Vs
HOLAP- Decision trees- Neural network- Genetics algorithms.

Unit III: (13 Hrs)

Data Warehouse Architecture: Steps for the design and construction of data warehouses-A three tier data warehouse architecture –data warehouse back-End Tools and utilities-metadata repository-From data warehousing to data mining-From online analytical processing to online analytical mining-Data warehouse implementation-Efficient computation of data cubes.

Unit IV: (13 Hrs)

Classification and Prediction: Bayesian classification- Baye's theorem-Rule based classification: Using IF-THEN rules for classification-Rule Extraction from a decision tree-Prediction-Cluster Analysis-Types of data in cluster analysis.

Unit V: (12 Hrs)

Planning : Data warehouse scoping and planning –Testing and implementation of data warehouse – Advantages of Data warehousing –Disadvantages of data warehousing.

Text Books:

1.DATA MINING Concepts And Techniques- Jiawei Han and Micheline Kamber [second edition]

Reference Books:

1. Pieter Adrians , DolfZantiage "Data Mining ",Addison Wesley,1996

2. Sam Anahory,DennisMurrey,"Data Warehousing in the real world",Addison Wesley, 1996.

3.C.S.R Prabhu- "Data Warehousing-Concepts, Techniques, Products & Applications"-2002.

II M.SC (CS)	OPEN SOURCE TECHNOLOGY For the students admitted from the year 2014	PCS912T
SEMESTER – III		HRS/WK – 4
Core – 10		CREDIT – 4

Objectives:

- ❖ This course provides an in-depth knowledge in PHP and MYSQL.

UNIT I **(12 Hrs)**

INTRODUCTION: PHP as Open Source – First Script – Beginning and Ending a block – comments in PHP – variables – Data types – Operators and Expressions – Constants- Using PHP Script with HTML.

UNIT II **(12 Hrs)**

CONTROL STATEMENTS: Branching and Looping Statements – Break and Continue statements – Nested Loops.

FUNCTIONS: Defining functions – calling functions – user defined functions – variable scope.

ARRAYS: Creating Arrays – Associative arrays – Multidimensional arrays – accessing arrays – manipulating arrays – sorting arrays.

UNIT III **(12 Hrs)**

PHP FUNCTIONS: I/O Functions – Data Functions – Time, Date and Mathematical Functions – Database functions.

UNIT IV: **(12 Hrs)**

MySQL: Understanding RDBMS – Working with Databases and Tables – Editing Records and Performing Queries – MySQL Access Controls.

UNIT V:

USING PHP WITH MySQL: Querying a MySQL Database with PHP – Validating User Input – Formatting Query Output.

Text Books:

1. Core PHP Programming – Leo Atkinson – II Edition – PHI Edition
2. PHP and MySQL – Vikram Vaswami – Mc Graw Hill

Reference Books:

1. MySQL/PHP Database Applications – Brad Bulger, Jay Greenspan, David Wall – Second Edition – Wiley Publication.

2. Teach yourself PHP within 24 Hours – SAMS Publication.

II M.SC (CS)	CLOUD COMPUTING For the students admitted from the year 2014	PCS913Q
SEMESTER – III		HRS/WK – 4
Core – 11		CREDIT – 3

UNIT I – FUNDAMENTALS OF GRID AND CLOUD COMPUTING [12 hrs]

Fundamentals – 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 [12 hrs]

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 [12 hrs]

Centralizing Email communications – collaborating on Schedules – Collaborating on To-Do Lists – Collborating Contact Lists – Cloud computing for the Community – Collaborating on Group Projects and Events – Cloud Computing for the Corporation.

UNIT IV – USING CLOUD SERVICES [12 hrs]

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

UNIT V – USING CLOUD IN MANAGEMENT [12 hrs]

Collaborating on Project Management – Collaborating on Word Processing – Collaborating on Databases – Storing and Sharing Files – Evaluating Web Mail Services – Evaluating Web Conference Tools – Collaborating via Social Networks and Groupware – Collaborating via Blogs and Wikis.

Text Book:

Michael Miller, Cloud Computing : Web-Based Applications That Change the Way You Work and Collaborate Online, Que Publishing, August 2008.

Reference Book :

Haley Bear, Cloud Computing Best Practices for Managing and Measuring Processes for On-demand Computing, Applications and Data Centers in the Cloud with SLAs.

II M.Sc (CS)	**PRINCIPLES OF COMPILER DESIGN For the students admitted in the year 2015**	**EPCS914T**
SEMESTER – III		**HRS/WK – 4**
Elective – 3A		**CREDIT – 3**

Objectives:

To understand the various phases of a compiler and to develop skills in designing a compiler.

UNIT I: (12 Hrs)
Compiler - Phases of Compiler – Lexical Analysis – Role of Lexical analyzer – Finite Automata – Regular Expression – From a Regular expression to an NFA , NFA to DFA – Design of Lexical Analyzer.

UNIT II : (12 Hrs)
Syntax Analyzer – CFG – Role of the Parser – CFG – Top Down Parsing – Recursive descent parsing, predictive Parsers – Bottom up Parsing – Shift reduce, operator precedence parsers.

UNIT III: (12 Hrs)
Syntax directed definition :- Construction of Syntax trees – Intermediate code generation – Intermediate Languages – Syntax trees, post fix form, Three address code – Boolean expressions.

UNIT IV: (12 Hrs)
Symbol table – contents of Symbol table – Implementation of Stack allocation scheme – Storage allocation.

UNIT V: (12 Hrs)
Code Optimization and code generation – principles sources of optimization – loop optimization – Dag Representation of Basic blocks.Code generation – simple code generator

Text Books:

1. Compilers Principles ,Techniques and Tools Alfred V.Aho, Ravi Sethi, Jeffrey D.Ullman.
Chapter 1 : (1.1,1.3), Chapter 3: (3.1,3.6,3.7,3.9), Chapter 4: (4.1,4.2,4.4 – 4.6),
Chapter 5: (5.1,5.2), Chapter 7: (7.5), Chapter 8: (8.1,8.4)

2. Principles of Compiler Design Alfred V.Aho and Jeffrey D.Ullman.
Chapter 9: (9.1,9.2), Chapter 10: (10.1,10.2,10.3),
Chapter 12: (12.1,12.2,12.3), Chapter 15: (15.2,15.4,15.5,15.7)

II M.SC (CS)	MOBILE COMPUTING	EPCS914S
SEMESTER – III		HRS/WK – 4
Elective – 3B		CREDIT - 3

Objectives:

- To provide basics for various techniques in Mobile Communications.
- To build working knowledge on various telephone and satellite networks.
- To study the working principles of wireless LAN and its standards.
- To build skills in working with Wireless application Protocols to develop mobile content applications.

UNIT I **(12 Hrs)**

INTRODUCTION: Mobile and Wireless Devices-Simplified Reference Model-Need For Computing- Multiplexing-Spread Spectrum and Cellular Systems-Medium Access Control-Comparisons.

UNIT II **(12 Hrs)**

TELECOMMUNICATION SYSTEMS: Telecommunication systems – GSM – Architecture-Protocols- Hand Over and Security – Satellite Networks - Satellite Systems.

UNIT III **(13 Hrs)**

WIRLESS LAN: IEEE 802.11– System Architecture – Protocol Architecture – Blue Tooth – MAC layer –Security and Link Management.

UNIT IV **(12 Hrs)**

MOBILE IP: Goals– Packet Delivery– Agent Advertisement and Solicitation - Registration-Tunneling and Reverse Tunneling.

UNIT V **(11 Hrs)**

WIRELESS APPLICATION PROTOCOL: Objectives of WAP– Architecture of WAP– WML Features-WML Script.

Text Book:

1. Jochen Schiller, “Mobile Communications”, PHI/Pearson Education, 2/e.Delhi,2000.

Reference Book(s):

1. Sandeep Singhal,ThomasBridgman,Lalitha Suryanarayana,DanilMouney,JariAlvinen,David Bevis,Jim Chan and StetanHild, ”The Wireless Application Protocol:Writing Applications for the Mobile internet”,Pearson Education Delhi,2001.
2. Asoke K Talukder,Roopa R Yavagal,”Mobile Computing”,TMG,2006.

II M.Sc(C.S)	DIGITAL IMAGE PROCESSING	EPCS914A
SEMESTER –III		HRS/WK-4
Elective – 3C		CREDIT-3

Objectives:

Digital image Processing is an area which is ever growing in the research side. This paper intends to improve the student's perspective on research side with an eye opener on Digital image processing.

UNIT – I **[10 Hrs]**

Introduction : Examples of fields that use digital image processing, fundamental steps in digital image processing, components of image processing system. Digital Image Fundamentals: A simple image formation model, image sampling and quantization, basic relationships between pixels (p.nos. 15-17, 21- 44, 50-69).

UNIT-II **[14 Hrs]**

Image enhancement in the spatial domain : Basic gray-level transformation, histogram processing, enhancement using arithmetic and logic operators, basic spatial filtering, smoothing and sharpening. (p.nos76-141).

UNIT-III **[12 Hrs]**

Image restoration: A model of the image degradation/restoration process, noise models, restoration in the presence of noise–only spatial filtering, Weiner filtering.

UNIT-IV **[12 Hrs]**

Geometric transforms : Introduction to the Fourier transform and the frequency domain, estimating the degradation function (p.nos147-167,220-243,256-276).

UNIT-V **[12 Hrs]**

Image Compression : Fundamentals, image compression models, error-free compression. (p.nos: 409-467,492-510).

Text Books

Rafeal C.Gonzalez, Richard E.Woods, Digital Image Processing, , Second Edition, Pearson Education/PHI.

Reference Books

1. Milan Sonka, Vaclav Hlavac and Roger Boyle, Image Processing, Analysis, and Machine Vision, Second Edition, Thomson Learning.
2. Adrian Low, Computer Vision and Image Processing, Second Edition, B.S.Publications.
3. William K. Prat ,Digital Image Processing, , Wily Third Edition.
4. Chanda, D. Datta Majumder , Digital Image Processing and Analysis, , Prentice Hall of India, 2003.

II-MSC (CS)	WEB GRAPHICS	EPCS915T
SEMESTER – III		HRS/WK – 4
Elective – 4A		CREDIT - 3

Objectives:

- The purpose of the course is to learn the basic concepts on web in graphics
- To understand the importance of graphics
- To know the needs and various types of web graphics tools

Unit – I **(11 Hrs)**

Introduction:HTML Coding – Basic Web Graphics – Web Page Design – Site building – Image Maps – Adding Multimedia to the Web.

Unit – II **(12 Hrs)**

Print Sharp Pro/Photoshop: Introduction – Image Basics – File Formats – GIF – JPEG – Color Palette – Layers – Creating new Images – Brushes – Grids – Scaling Images – Moving and Merging layer – Tool Pality – Skin Capturing – Gray – Using Style Palette – Animation.

Unit – III **(13 Hrs)**

Image Handling: Scanning images – adding text to the images – Designing icons – Creating background images – Color models – Color Depths – Color Calibration – Creating Gradians – Oil paint effect.

Unit – IV **(13 Hrs)**

Multimedia: Creating Clipping- Animation with sound effect – audio or video – Window's M.P activates control – Agent Control – Embedding VRML in a web page – Real player activates control.

Unit – V **(12 Hrs)**

Applications: Creating Website with a particular theme using all the utilities- Graphics – Animations and Interactions.

Reference Text Books:

1. Photoshop 6 Visual jump start, Adobe +2000 – Richard Schrand.
2. Flash 5.0 graphics, Animation and Interaction, Macromedia 2000 – James L Mohles.

II M.Sc (CS)	**NETWORK SECURITY** **For the students admitted in the year 2008**	**PCS915A**
SEMESTER – III		**HRS/WK – 4**
Elective – 4B		**CREDIT – 3**

Objectives:

- ❖ This course provides a way to understand the various security techniques in networks.

UNIT I **(10 Hrs)**

CONVENTIONAL AND MODERN ENCRYPTION : Services - Attacks - Steganography - Classical Encryption Techniques - SDES - DES - Differential and Linear Cryptanalysis - Modes of operation - Encryption Algorithms - Triple DES - Blowfish - CAST128 - RC5 - Traffic Confidentiality.

UNIT II **(11 Hrs)**

PUBLIC KEY ENCRYPTION : Uniqueness - Number Theory concepts - Primality - Modular Arithmetic - Fermet& Euler Theorem - Euclid Algorithm - RSA - Elliptic Curve Cryptography - Diffie Hellman Key Exchange.

UNIT III **(13 Hrs)**

AUTHENTICATION: Digests - Requirements - MAC - Hash function - Security of Hash and MAC - Birthday Attack - MD5 - SHA - RIPEMD - Digital Signature Standard - Proof of DSS.

UNIT IV **(14 Hrs)**

SECURITY PRACTICE : Authentication applications - Kerberos - Kerberos Encryption Techniques - PGP - Radix64 - IP Security Architecture - Payload - Key management - Web security requirements - SSL - TLS – SET.

UNIT V **(12 Hrs)**

SYSTEM SECURITY : Resources - Intruders and Intrusion - Viruses and Worms - OS Security - Firewalls - Design Principles - Packet Filtering - Application gateways - Trusted systems - Counter Measures.

Text Books:

1.William Stallings, "Cryptography & Network Security", Pearson Education, 3rd Edition 2003.

Reference Book(s):

1. Charlie Kaufman, Radia Perlman, Mike Speciner, "Network Security, Private communication in a public world", PHI, 2nd edition, 2002.
2. Douglas R.Stinson, "Cryptography - Theory and Practice ", CRC Press, 1995.
3. Bruce Schneier, Niels Ferguson, "Practical Cryptography", Wiley Dreamtech India Pvt. Ltd., 2003.

I M.Sc(C.S)	E –COMMERCE	EPCS915B
SEMESTER –III		HRS/WK-4
ELECTIVE – 4C		CREDIT-3

Objective:
Almost all Business that is done in this world is electronically. This paper deals with all issues pertaining to the E-Commerce and equips the students with almost all technical issues regarding E-Commerce.

Unit-1 **[12 Hrs]**
Electronic commerce environment and opportunities: Background – the electronic commerce environment - electronic marketplace technologies – models of electronic commerce:Overview – electronic data interchange – migration to open EDI – electronic commerce with WWW/Internet – Commerce Net Advocacy – Web commerce going forward.

Unit-2 **[12 Hrs]**
Approaches to safe electronic commerce: Overview – secure transport protocols – secure transactions – secure electronic payment protocol(SEPP) – Secure electronic transaction(SET) – certificates for authentication – security on web servers and enterprise networks – electronic cash and electronic payment schemes: Internet monetary payment and security requirements – payment and purchase order process – on-line electronic cash.

Unit-3 **[12 Hrs]**
Internet/Intranet security issues and solutions: The need for computer security – specific intruder approaches – security strategies – security tools – encryption – enterprise networking and access to the internet – antivirus programs – security teams.

Unit-4 **[12 hrs]**
MasterCard/visa secure electronic transaction: Introduction – business requirements – concepts – payment processing – E-mail and secure E-mail technologies for electronic commerce: Introduction – The means of distribution A Model for message handling – how does E-mail work? – MIME: Multipurpose internet mail extensions – S/MIME: Secure multipurpose internet mail extensions – MOSS: Message object. Security services – Comparisons of security methods – MIME and related facilities for EDI over the internet.

Unit-5 **[12 Hrs]**

Internet and web site establishment: Introduction – technologies for web servers – internet tools relevant to commerce – internet applications for commerce – internet charges – internet access and architecture – searching the internet – internet resources: A travelogue of web malls: Introduction – a shopping experience – a travelogue – applications: Advertising on the internet: Issues and technologies: Introduction – advertising on the web – "Marketing 101" – creating a web site.

Text Books:

1. Daniel Minoli and Emma Minoli. 1999. Web commerce technology handbook. Tata Mc Graw Hill.
2. Kamalesh K Bajaj and Debjani Nag. 1999. E-Commerce, the cutting edge of business. TataMc Graw Hill.
3. Janice Reynolds. 2004. The Complete E-Commerce Book: Design, Build & Maintain a Successful Web-based Business. Focal Press Publication.

Reference Books:

1. Kenneth C. Laudon, Carol Guercio Traver. 2001. E-commerce: Business, Technology, Society. Addison Wesley Publication.
2. Constance H. McLaren, Bruce J. McLaren. 1999. E-commerce: Business on the Internet South. Western Educational Publication.

II M.SC (CS)	**PHP & MYSQL KAB**	**PCSP305S**
SEMESTER – III		**HRS/WK – 5**
CORE PRACTICAL - 5		**CREDIT – 3**

Objective:

- Gain an in-depth understanding of database programming in PHP using MySQL.

1. Multiplication Table.
2. Creating Bio-Data Using PHP and HTML.
3. Marksheet Preparation.
4. Shopping Cart.
5. Using Class and Objects.
6. Creating Feedback Form Using PHP Functions.
7. Shell Program in PHP to find User Session.
8. Cookie to Find the Visit of user in a Web page.
9. Connecting the MySQL Database with PHP.
10. Accessing Operations in MySQL DB using PHP.

M.Sc (CS)	**MINIPROJECT ((SYSTEM PROGRAMMING)**	**JPCS306**
SEMESTER - III		**HRS/WK-3**
Core Practical-6		**CREDIT - 3**

Objective:

The main objective of this Mini project is to expose the students to get a broad idea to develop project.

YEAR – II SEMESTER –I V Core Practical-7	PROJECT	JPCS1016 HRS-30 CREDIT-22

Objective:

The main objective of this Main project is to expose the student to industry atmosphere and help them to gain knowledge on software development.

FORMAT FOR PREPARING MINI & MAIN PROJECT REPORT

Arrangement of contents

1. Title Page
2.Bonafide Certificate
3. Acknowledgement
4. Table of contents
5. Abstract
6. Chapters of the Report
7. References
8. Appendices,if any

Appendices should be named as
APPENDIX – A
APPENDIX - B

BINDING SPECIFICATION
Report should be found using flexible cove of thick white art paper.
The Spine for the bound volume should be of black calio of 2cms width.
The Cover should be printed in block letters.

MARGIN SPECIFICATION
Top : 4 cms
Bottom : 3 cms
Left : 4.5 cms
Top : 2.5 cms

PAGE NUMBERING
All Page numbers should be typed without punctuation on the bottom-center portion of the page. The Preliminary pages(table of contents and abstract) should be numbered in lowercase roman literals. Papers of main text, starting with chapter-1,Should be consecutively numbered using Arabic numerals.

TITLE PAGE

TITLE OF THE PROJECT

A project report

Submitted for the partial fulfillment for

the award of degree of

MASTER OF COMPUTER SCIENCE

By

STUDENT'S NAME

(Register Number)

Under the Guidance of

GUIDE'S NAME

COLLEGE ADDRESS

Month and year

CERTIFICATE

CERTIFICATE

This is to certify that the mini project report entitled

TITLE OF THE PROJECT

being submitted to the St.Joseph's College of Arts and Science (Autonomous),Affiliated to Thiruvalluvar University-Vellore.

By

Mr./Ms.STUDENT'S NAME

For the partial Fulfillment for the award of degree of

MASTER OF COMPUTER SCIENCE

Is a Bonafide record of work carried out by him/her, under

my guidance and supervision.

Head of the Department Internal Guide

Submitted for the viva-voce examination on----------

Examiners:

1.

2.

THEORY EXAMINATION

Continuous internal assessment (CIA) (25 marks)

Two internal Examinations	15 marks
Assignment / Seminar	10 marks
Total	**25 marks**

External Examination (75 marks)

Question Pattern

M. Sc COMPUTER SCIENCE

Time: 3 Hours **Max. Marks: 75**

Section – A (5 X 5 = 25)

(Answer any FIVE questions out of EIGHT)
(One question from each unit and three questions from important topics with problems and programs)

Section – B (5 X 10= 50)

(Answer any FIVE questions out of EIGHT)
(One question from each unit and three questions from important topics with problems and programs)

PRACTICAL EXAMINATION

Continuous internal assessment (CIA) (40 marks)

Based on the periodical evaluation of record and experiments assessed by the staff in charge

External Examination (60 marks)

3 Hrs. Exam
Total Marks: 60

experiments	- 50 marks
Viva	- 5 marks
Record	- 5 marks
Total	**- 60 marks**

MINI PROJECT

Continuous internal assessment (CIA) (40 marks)

Based on the periodical evaluation of record and experiments assessed by the staff in charge

External Examination (60 marks)

3 Hrs. Exam
Total Marks: 60

experiments	- 50 marks
Viva	- 5 marks
Record	- 5 marks
Total	**- 60 marks**

MAIN PROJECT

Continuous internal assessment (CIA) (20 marks)

Based on the periodical evaluation of record and experiments assessed by the staff in charge

External Examination (80 marks)

3 Hrs. Exam
Total Marks: 80

Total - 80 marks