BHARATHIAR UNIVERSITY, COIMBATORE.

M. Sc. SOFTWARE ENGINEERING DEGREE COURSE WITH COMPULSORY DIPLOMA IN OPEN SYSTEMS *(Affiliated Colleges)*

(Effective from the academic Year 2008-2009)

SCHEME OF EXAMINATIONS – CBCS PATTERN

Sem	Study Components	Course title	Ins. hrs/ week	Exam				Credit
				Dur.Hrs	CIA	Marks	Total Marks	
	Semester I							
I	Paper I Data Structures and algorithm analysis in C++		5	3	25	75	100	4
	Paper II Database Technology		5	3	25	75	100	4
	Paper III Operating System and System Software		5	3	25	75	100	4
	Paper IV Data Communication & Computer Networks		5	3	25	75	100	4
	Practical I Data Structures Lab using C++		3	3	40	60	100	5
	Practical II RDBMS Lab		4	3	40	60	100	5
	Elective / Dip. Paper I Introduction to Open Source Tools		3	3	25	75	100	3
II	Paper V Web Programming		5	3	25	75	100	4
	Paper VI Programming in JAVA		5	3	25	75	100	4
	Paper VII Client / Server Technology		5	3	25	75	100	4
	Paper VIII Special Elective I		5	3	25	75	100	4
	Practical III Web Programming Lab		3	3	40	60	100	5
	Practical IV JAVA Lab		4	3	40	60	100	5
	Elective / Dip. Paper II Introduction to Open Source Environment		3	3	25	75	100	3
III	Paper IX .Net Technology		5	3	25	75	100	4
	Paper X Mobile Computing		5	3	25	75	100	4
	Paper XI Special Elective II		5	3	25	75	100	4
	Practical V .Net Programming Lab		5	3	40	60	100	5
	Elective / Dip. Paper III Advanced Programming in Open Source - PHP		5	3	25	75	100	3
	Elective / Dip. Paper IV Web Application in PHP Programming-lab		5	3	40	60	100	3
IV	Project work and Viva voce		-	-	-	-	200*	9
		Total					2200	90

SPECIAL ELECTIVES

1. Digital Image Processing
2. Bio Informatics
3. WAP
4. Web Services
5. Neural Networks & Fuzzy Logic
6. Network Security and Cryptography
7. E-Commerce
8. ERP

Paper I : DATA STRUCTURES AND ALGORITHM ANALYSIS IN C++

Subject Description:
This course presents the Data structures and Algorithms, emphasizing Basic data types, Algorithm design techniques and parallel models.

Goals:
To enable the students to learn the basic functions, principles and concepts of Data Structures and algorithms in C++.

Objectives:
On Successful completion of the course the students should have:

- Understood Data structures, Algorithms in C++.

Contents

UNIT-I: Introduction to C++: key concepts of Object-Oriented Programming –Advantages – Object Oriented Languages – I/O in C++ - C++ Declaration. **Control Structures: Decision Making and Statements**: *if ..else, goto, break, continue, switch…case* statements. **Loops in C++:** *for, while, do* - Functions in C++ - Inline functions – Function Overloading.

UNIT-II: Classes and Objects: Declaring Objects – Defining Member Functions – Static Member variables and functions – array of objects –friend functions – Overloading member functions – Bit fields and classes – Constructor and destructor with static members. **Operator Overloading**: Overloading unary, binary operators – Overloading Friend functions – type conversion – Inheritance: Types of Inheritance – Single, Multilevel, Multiple, Hierarchal, Hybrid, Multi path inheritance – Virtual base Classes – Abstract Classes.

UNIT-III: Pointers: Declaration – Pointer to Class, Object – this pointer – Pointers to derived classes and Base classes. **Arrays:** Characteristics – array of classes – Memory models – new and delete operators – dynamic object –binding, Polymorphism and Virtual Functions. **Files:** File stream classes – file modes – Sequential read / write operations – Binary and ASCII Files – Random Access Operation – Templates – Exception Handling – **String**: Declaring and initializing string objects – String Attributes – Miscellaneous functions.

UNIT–IV: Linear data structures: Introduction to data structures – List: Implementations, Traversal, Searching and retrieving an element, Predecessor and Successor, Insertion, Deletion, Sorting, Merging lists – Stack: Representation, Terms, Operations on stack, Implementation. Single linked list, Linked list with and without header, Insertion, Deletion, Double linked list – Queues: Various positions of queue, Representation. Programs using C++ for the above functions.

UNIT-V: Searching and Sorting – Searching: Linear, Binary. Sorting – Insertion, Selection, Bubble, Quick, Tree, Heap . Programs using C++ for the above functions.

REFERENCE BOOKS:

1. Ashok N Kamthane, "OBJECT-ORIENTED PROGRAMMING WITH ANSI AND TURBOC C++", Pearson Education publication. 2003.
2. E.Balagurusamy, "OBJECT-ORIENTED PROGRAMMING WITH C++", 1998, TMH.

3. Steven Holzner, "C++ PROGRAMMING Black Book", Wiley Student edition, Wiley India.
4. Yedidyah Langsam, Moshe J. Augenstein & Aaron M. Tanenbaum, "DATA STRUCTURES USING C & C++", 2nd edition, PHI.

Paper II :: DATABASE TECHNOLOGY

Subject Description:
This course presents the Data base technology and emphasizing Data base design, Relational Model Techniques and SQL Programming.

Goals:
To enable the students to learn the basic functions, principles and concepts of Database and SQL Programming.

Objectives:
On Successful completion of the course the students should have:

- Understood Database design and SQL Queries

Contents

UNIT I: Overview of database systems: Managing data- A historical perspective – File systems versus a DBMS- Advantages of a DBMS- Describing and storing Data in a DBMS- Queries in a DBMS- Transaction management – Structure of a DBMS.

Database design & ER diagrams – Entities, Attributes, and Entity Sets – Relationships and Relationship Sets- Additional feature of the ER model- conceptual Database design with the ER model.

UNIT II: Relational Model: Integrity constraints over relations –Enforcing integrity constraints – Querying relational data –Logical database design : ER to Relational –Introduction to Views – Destroying / Altering Tables & Views.

Relational Algebra and Calculus: Relational Algebra – Relational Calculus

UNIT III: SQL: Queries, Programming, Triggers: The form of a basic SQL Query – UNION, INTERSECT and EXCEPT –Nested Queries – Aggregate operators –Null values –Complex integrity constraints in SQL- Triggers & Active data bases.

Transaction Management Overview: The ACID Properties- Transactions & Schedules – Concurrent execution of Transactions –Lock-based concurrency control –performance of Locking –Transaction support in SQL.

UNIT IV: Schema Refinement and Normal forms: Introduction to Schema refinement – Functional dependencies –Reasoning about functional dependencies –Normal forms –Properties of Decompositions –Normalization – Schema Refinement in data base design – other kinds of dependencies.

Security: Introduction to Database security-Access control – Discretionary Access control – Mandatory Access control – Additional issues to security.

Concurrency control: 2PL, serializability and Recoverability –Introduction to Lock Management- Lock Conversions –Specialized Locking techniques- Concurrency control without locking.

UNIT V: Parallel & Distributed databases:
Introduction –Architecture for parallel databases –Parallel Querry evaluation – Parallelizing individual operations –Parallel Querry Optimization –Introduction to distributed Databases – Distributed DBMS architecture sorting data in a distributed DBMS.
Object Database Systems: Motivation Example –Structured data types –Operation on structured data types – Encapsulation & ADTS –Inheritance- Objects, OIDS and Reference Types-Database design for and ORDBMS – OODBMS –comparing RDBMS, OODBMS and ORDBMS.

REFERENCE BOOKS

1. Raghu Ramakrishnan, Johannes Gehrke –"DATABASE MANAGEMENT SYSTEMS", Third Edition, McGraw-Hill Higher Education.
2. Silberschatry, Korth, Sundarshan, "DATABASE SYSTEM CONCEPTS", Fourth Edition, Mc Graw-Hill Higher Education.
3. Elmasri, Navathe, "FUNDAMENTALS OF DATABASE SYSTEMS", Third Edition, Pearson Education Asia.

Paper III : OPERATING SYSTEM AND SYSTEM SOFTWARE

Subject Description
This course presents the Introduction & Evolution of Operating Systems, Interprocess Communication, distributed systems and UNIX OS.
Goals
To enable the students to learn the basics of operating systems, distributed operating systems and Unix OS**.**
Objectives
On Successful completion of the course the students should have:

- Understood the IPC problems and File caching schemes.
- Gained knowledge in Distributed OS and Unix OS

Contents
UNIT-I: Introduction: operating system structure-operating-system operations-process management-memory management-storage management-production and security. Process management: process-concept: process scheduling-operation on process-inter process communication. Process scheduling: scheduling criteria-scheduling algorithms-multiple-processor scheduling-thread scheduling.

UNIT-II: Process coordination: synchronization: the critical section problem-Peterson's solution- synchronization hardware-semaphores. Deadlocks: deadlock characterization-methods for handling deadlocks-deadlock prevention-deadlock avoidance-deadlock detection-recovery from deadlock. Memory management: strategies: swapping-contiguous memory allocation paging structure of the page table-segmentation. Virtual memory management: demand paging-copy on-write-page replacement-allocation of frames-thrashing memory-mapped files.

UNIT-III: Storage management: file system: file concept-access methods-directory structure-file sharing-protection-file-system implementation. Secondary-storage structure: overviews of mass storage structure-disk structure-disk attachment-disk scheduling. I/O systems-I/O hardware-application I/O interface–kernel I/O subsystem-transforming I/O request to hardware operations.

UNIT-IV: Introduction to system software and machine structure: System programs- Assembler, Compiler, Interpreter, Operating system. The Simplified Instructional computer (SIC) – SIC architecture.
ASSEMBLERS: Basic assembler functions, machine–dependent assembler features – Instruction formats – program relocation – and machine independent assembler features – Literals – Symbol defining statements – Expressions – Program blocks – Control sections and Program Linking. Assembler design – Two – pass assembler with overlay structure, one–pass assembler and multi-pass assembler.

UNIT-V :LOADERS AND LINKERS: Basic loader functions,-Design of an absoluter loader – A Simple bootstrap loader –machine –dependent Loader features – Relocation – Program Linking – Algorithms and Data Structures for a Linking Loader –machine –independent loader features – Loader design – Linkage editors, dynamic linking and bootstrap loaders.

REFERENCE BOOKS

1. Abraham silberschatz, Peter Baer Galvin, Greg Game"OPERATING SYSTEM PRINCIPLES" Seventh Edition, Willy Asia Student Edition, 2006
2. Richard L. Peterson, THE COMPLETE REFERENCE "LINUX", Fifth edition Tata McGraw-Hill Edition 2005
3. Charles Crowley, OPERATING SYSTEM A DESIGN ORIENTED APPROACH, Tata McGraw Hill Publishing Company limited 2005
4. H.M.Deitel, OPERATING SYSTEM, Second edition, Pearson Education, 2003
5. John Goerzen, LINUX PROGRAMMING BIBLE, Wiley-Dream tech India (P) Ltd, 2004

Paper IV :: **DATA COMMUNICATION & COMPUTER NETWORKS**

Subject Description:
This course presents the introduction to computer networks and communication media, data transfer, network layer protocols, transport protocols and presentation layer.

Goal:
To enable the students to learn the basic functions, principles and concepts of computer networks and data communications.

Objectives:
On successful completion of the course the students should have:
- Understood the functionality of Data communication and networks protocols and layers.

Contents:

UNIT I : Introduction: Use of computer networks – Network Hardware – Network software – Reference models – Example of networks.

UNIT II: The Physical Layer: The Theoretical basis for data communication – Guided transmission Media – Wireless transmission – Communication satellites – The Public switched Telephone network – Cable Television - Mobile telephone system.

UNIT III: Data link layer :Data link layer design issues – Error detection and correction – Elementary data link protocols – Sliding window protocols – Protocol Verification-Example data link Protocols.

UNIT IV: Network layer :Network layer design issues – Routing algorithms – Congestion, Control algorithms – Quality of service – Internetworking – Network layer in the internet

UNIT V: Transport layer: The transport service – Elements of transport protocol – A simple transport protocol - The internet Transport Protocols : UDP – The Internet Transport Protocols : TCP-Performance issues.

REFERENCE BOOKS

1. Andrew S. Tanenbaum, "COMPUTER NETWORKS", IV Edition, Pearson Education,
2. P. Green, "COMPUTER NETWORK ARCHITECTURES AND PROTOCOLS" , Plenum Press, 1982.
3. Harry Katzan "AN INTRODUCTION TO "DISTRIBUTED DATA PROCESSING", A Petrocelli Book, New York / Princeton.
4. Tittel, "THEORY AND PROBLEMS OF COMPUTER NETWORKING", Schaum's outline series, TMH.
5. Godbole, "DATA COMMUNICATION & NETWORKING", TMH.
6. Leon Garcia, "COMMUNICATION NETWORKS : FUNDAMENTAL CONCEPTS & KEY ARCHITECTURE" , TMH.

Paper V : WEB PROGRAMMING

Subject Description:
This course presents the introduction to web programming and tools for web programming like HTML, Java Script and ASP

Goal:
To enable the students to learn the basic functions, principles and concepts of web programming.

Objectives:
On successful completion of the course the students should have:

- Understood the functionality of HTML and Java Script

Contents:

UNIT I: Introduction to computers and the internet: history of the world wide web-Hardware trends-The say software trend: object technology –Java script: object –based scripting for the web-browser portability.
Introduction to HTML: introduction- markup language –editing HTML –common tags-headers-text styling –linking- images-formatting text with <FONT>-special characters, horizontal rules and more line breaks –internet and www resources.
Intermediate HTML: introduction- unordered lists- nested and ordered lists-basic HTML tables-intermediate HTML tables and formatting –basic HTML forms- more complex HTML forms-internal linking –creating and using image maps <META> Tags, -<FRAMESET> tags – internet and www resources.

UNIT II: Java script- Introduction to scripting: introduction- memory concepts- arithmetic –decision making –java script internet & www resources.
Java script control structures: If, if/else selection structure while, for, do/while repetition structure-switch multiple-selection structure- break and continue Statements –Laballed Break and continue Statements –Logical Operators.
Java Script Functions: Introduction –Program Modules in Java Script- Programmer –Defined Functions –Function Definitions –Duration of Identifiers –Scope Rules –Recursion –Recursion Vs Iteration –Java Script Global Functions.

UNIT III: Java Script Arrays: Introduction –Arrays-Declaring and Allocating Arrays –References and References Parameters –Passing Arrays to Functions –Sorting Arrays –searching Arrays- Multiple Subscripted Arrays.
Java Script Objects: Introduction –Thinking about Objects- Math String, Data, bookan and Number Objects.
Dynamic HTML: CSS: Introduction –Inline Styles – Creating Style Sheets with the Style Element –Conflicting Styles –Linking External Style Sheets-Positioning Elements –Backgrounds –Element Dimensions- Text flow and the Box model- user Style sheets –Internet &www resources.

UNIT IV: Dynamic HTML: Object model and collections: Introduction –Object Referencing –Collections all and Children- Dynamic Styles-Dynamic Positioning- using the Frames Collection –Navigator object.
Dynamic HTML: event model: Introduction-event ON CLICK-Event ON LOAD –error handling with ON ERROR-Tracking the mouse with event ON MOUSE MOVE-Rollovers with ON MOUSE OVER and ONBLUR –more form processing with ON SUBMIT and ON RESET-event Bubbling more DHTML events.
Dynamic HTML: Filters and Transitions:
Introduction-Flip filters: Flipu and Fliph-transparency with the Chroma filter –Creating Image filters: Invert, Gray and x ray –Adding Shadows to Text –Creating Gradients with Alpha-Making Text Glow –Creating Motion with blur- using the Wave filter-Advanced filters: Drop Shadow and Light –Transitions I: Filter Transitions II: Filter Reveal Trans.
Dynamical HTML: Client Side Scripting with VB Script:

Introduction –Operators- Data Types and Control Structures – VB Script Functions –Arrays – String Manipulation Classes and Objects –Internet &www resources.

UNIT V: Active Server Pages (ASP): Introduction –How ASP Work- Client –Side Scripting Versus – Server Side Scripting –Using Personnel Web Server or Internet Information Server-Server – Side Activex Components – File System Objects –Session Tracking and cookies – Accessing a Database from an ASP – Internet &www resources.
CGI and Perl: CGI-Introduction to Perl –Configuring Personal Web Server or Perl / CGI –String Processing and Regular Expressions –Viewing Client/Server Environment Variables –Form Processing and Business Logic-Server-Side Includes –verifying a username and password – sending E-Mail from a web browser –using ODBC to connect to a Database- Cookies and Perl-Internet &www resources.
XML: Introduction- Structuring Data –Document Type Definitions-Customized Markup Language- XML Parsers –XHTML – Internet &www resources.

REFERENCE BOOKS

1. Deitel, Deitel, Nieto, "INTERNET AND WORD WIDE WEB –HOW TO PROGRAM", Pearson Education Asia, 2003.
2. Thomas A.Powell, "THE COMPLETE REFERENCE HTML AND XHTML", fourth Edition, Tata McGraw Hill Pub. Company Ltd.
3. Achyut s. Godbole, Atul Kahate, "WEB TECHNOLOGIES –TCP/IP TO INTERNET APPLICATION ARCHITECTURES", Tata McGraw -Hill Pub. Company Ltd, 2003.

Paper VI : PROGRAMMING IN JAVA

Subject Description:
This course presents the concepts, features and class definition in java with java applets.

Goals:

Enable the student to be familiar in applet and java programming.

Objectives:
On successful completion of the course the student should have:

- Understood java application and programming.

Contents:
UNIT I: Basic Concepts of Object –Oriented Programming: Objects and Classes – Data Abstraction and Encapsulation – Inheritance – Polymorphism – Dynamic Binding – Message Communication – Benefits of Oops – History of Java.

UNIT II: Features of Java – Differences between C , C++ and Java – Data Types of Java – Variables – Declaration of Variables – Operators in Java – Decision Making and Branching – Decision Making and Looping –Methods.

UNIT III: Class Defining – Creating Objects – Constructors – Method Overloading – Method Overriding – Final Classes – Abstract Method and Classes. Arrays - Creating any array – Declaration of Array – Creation of Array – Initialization of Arrays – Array Length – 2 Dimensional Arrays – Strings – String Arrays – String Methods – String Buffer Class.

UNIT IV: Creating Threads – Extending the Thread class – Lifecycle of thread – Exception – Exception Handling – Multiple Catch Statements Throwing our own exceptions – Using Exceptions for Debugging.

UNIT V: Introduction to Applets : How to Write Applets – Building Applet Code – Applet Life Cycle – Applet Tag – Running the Applet – Concepts of Streams – Stream Classes – Byte Stream class – Character Stream Class – Using Streams.

REFERENCE BOOKS:

1. E. BALAGURUSAMY, "PROGRAMMING WITH JAVA A PRIMER", 3rd Edition TMH.

Paper VII : CLIENT / SERVER TECHNOLOGY

Subject Description
This course presents the concepts of Network Monitoring & control
Goals
To enable the students to learn the concepts of network security and management
Objectives
On Successful completion of the course the students should have:

- Understood the Network Monitoring concepts and protocols

UNIT-I: Basic concepts of client /server: Characteristics. File servers – transaction servers – groupware servers – object servers – web severs – fat servers or fat clients – 2-tier – client/server building blocks. Operating system services: Base services –extended services – server scalability- client anatomy.

UNIT-II: NOS middleware peer-to-peer communication –Remote Procedure Calls –MOM middleware – SQL database servers: Server architecture – stored procedures – triggers – rules.

UNIT-III: Online transaction processing – Decision support systems – OLTP vs. DSS – Data warehouses: elements – hierarchies – replication vs. direct access – replication mechanism – EIS /DSS tools – client/server transaction processing: transaction models – TP monitors - transaction management standards.

UNIT-IV: Groupware: Components – components and distributed objects. CORBA: components - object management architecture – services – business objects.

UNIT-V: Client/server distributed system management-components - management application – the internet management protocols –OSI management protocols – OSI management framework -

the desktop management interface - X/OPEN management standards – client/server application development tools - client /server application design.

REFERENCE BOOKS:

1. Robert Orafli, Dan Harkey and John Wiley, "THE ESSENTIAL CLIENT/SERVER SURVIVAL GUIDE", 2^{nd} Edition Galgotia Publication, 2005.
2. Dawna Travis Dewire, "CLIENT /SERVER COMPUTING", Tata Mc Graw Hill 2003.

Paper IX : .NET TECHNOLOGY

Subject Description

This Course presents the Introduction to .NET programming.

Goals

To enable the students to learn what is .NET fundamentals, Components & Web forms

Objective

On successful completion of the course the students should have:

- Understood how to build the applications using .NET.

Contents

UNIT I : Introduction to .Net: .net framework- difference between VB6 and VB.Net-Object-Oriented programming and VB.Net-Data types-Variables-Operators-Arrays-Conditional logic.

UNIT II: Procedures- Dialog boxes- File IO and System objects- Error handling- Namespaces-Classes and Objects- Multithreading-Message Queue- Programming MSMQ.

UNIT III: VB.Net IDE-Compiling and Debugging-Customizing- Data access: ADO.Net- Visual studio .Net and ADO.Net. Windows Forms: Controls-Specific controls- Irregular forms.

UNIT IV: Vb.Net and web: Introduction to ASP.Net page framework- HTML server controls-Web controls- Validation controls- Events-CSS- State management- Tracing- Security.

UNIT V: Web Services: Introduction- Infrastructure- SOAP-Building web services- Deploying and publishing web services- Finding and consuming web services.

REFERENCE BOOKS:

1. Bill Evjen, Jason Beres, et.al, "VISUAL BASIC .NET PROGRAMMING", Wiley Dreamtech India (p) Ltd. ISBN 81-265-0254-1
2. Fergal Grimes, "MICROSOFT .NET FOR PROGRAMMERS", shroff publishers & distributors (p) Ltd. ISBN 81-7366-540-0.
3. Thuan Thai & Hoang Q.Lam, ".NET FRAMEWORK ESSENTIALS", shroff publishers & distributors (p) Ltd. ISBN 81-7366-654-7

Paper X : MOBILE COMPUTING

Subject Description:
This course presents an introduction to mobile computing, discusses mobile computing architecture, emerging technologies and security issues.
Goals:
To enable the student learn the basics of mobile computing.
Objectives:
On successful completion of the course the student should have:

- Understood the concept of wireless mobile computing.

Contents:

UNIT I: Introduction – Vertical and applications of Wireless Networking – Positioning of Wireless networking relative to wired networks – Wireless LAN and Wireless WAN – Wireless PBXs map – The Radio Spectrum cell size and achievable throughput. Wireless transmission – Frequencies for radio transmission – Regulations – Signals, Antennas, Signal propagation, path loss of radio signals, Additional signal propagation effects- Multi-path propagation – Multiplexing.

Chapters: (1, 2.1 – 2.5)

UNIT II: Space division multiplexing – Frequency division multiplexing – time division multiplexing – Code division multiplexing. Spread spectrum – Direct sequence spread spectrum – Frequency hopping spread spectrum – Cellular systems. Medium access control – Hidden and exposed terminals – Near and far terminals – SDMA, FDMA, TDMA, Fixed TDM, Classical Aloha, slotted Aloha, Carrier sense multiple access – Reservation TDMA – Multiple access with collision avoidance – Polling – CDMA – Spread Aloha multiple access.
Chapters: (2.5.1, 3, 3.5.1)

UNIT III: Comparison of S/T/F/CDMA.GSM – Mobile services – System architecture – Radio interface – Protocols – Localization and calling – Handover – Security – Location Management for Mobile Cellular Systems – GPRS – Mobile services – System Architecture.
Chapters: (3.6, 4, 4.2).

UNIT IV: UMTS and IMT – 2000.Wireless LAN – Infra red vs. radio transmission – Infrastructure and ad-hoc network – IEEE 802.11 – System architecture – Protocol architecture – Physics layer – Medium access control layer – MAC management – Blue tooth. Mobile network

layer – Mobile IP – Goals, assumptions and requirements – entities and terminology – packet delivery – Agent discovery – Registration – Tunneling and encapsulation Recent technologies
Chapters: (4.4, 7.1, 7.2, 7.3, 7.5, 8, 8.1).

UNIT V: World Wide Web - WAP – Architecture – wireless datagram Protocol, Wireless transport layer security, Wireless transaction protocol, Wireless session protocol, Wireless application environment, Wireless markup language, WML script – Mobile computing applications using J2ME.
Chapters: (10.2, 10.3).

REFERENCE BOOKS:

1. John Schiller, "MOBILE COMMUNICATIONS", Addison Wesley, 2003.
2. Rifaat A. Dayen "MOBILE DATA & WIRELESS LAN TECHNOLOGIES", Prentice Hall, 1997.
3. Steve Mann and Scoot Schibli, "THE WIRELESS APPLICATION PROTOCOL", John Wiley &Sons, inc., 200.
4. Steve Mann, "PROGRAMMING APPLICATIONS WITH THE WIRELESS APPLICATION PROTOCOL", John Wiley & Sons, Inc., 2000

SPECIAL ELECTIVES

Subject Title: DIGITAL IMAGE PROCESSING
Subject Description
This course presents the basic concepts of Image processing.
Goals
To enable the students to learn the fundamentals of image processing and compression
Objectives
On Successful completion of the course the students should have:

- Understood the concepts and functions of image processing
- Understood the image segmentation and compression technology

Contents:
UNIT I: Introduction: -What is Digital image processing – the origin of DIP – Examples of fields that use DIP – Fundamentals steps in DIP – Components of an image processing system
Digital Image Fundamentals:
Elements of Visual perception – Light and the electromagnetic spectrum – Image sensing and acquisition – Image sampling and Quantization – Some Basic relationship between Pixels – Linear & Nonlinear operations.

UNIT II: Image Enhancement in the spatial domain:- Background – some basic Gray level Transformations – Histogram Processing – Enhancement using Arithmetic / Logic operations – Basics of spatial filtering – Smoothing spatial filters – Sharpening spatial filters – Combining spatial enhancement methods.

UNIT III: Image Restoration: A model of the Image Degradation / Restoration Process – Noise models – Restoration is the process of noise only – Spatial Filtering – Periodic Noise reduction by frequency domain filtering – Linear, Portion – Invariant Degradations – Estimating the degradation function – Inverse filtering – Minimum mean square Error Filtering – Constrained least squares filtering – Geometric mean filter – Geometric Transformations.

UNIT IV : Image Compression: Fundamentals – Image compression models – Elements of Information Theory – Error Free compression – Lossy compression – Image compression standards.

UNIT V: Image Segmentation: Detection and Discontinuities – Edge Linking and Boundary deduction – Thresholding – Region-Based segmentation – Segmentation by Morphological watersheds – The use of motion in segmentation.

REFERENCE BOOKS:

1. Rafael C. Gonzalez, Richard E. Woods, “DIGITAL IMAGE PROCESSING”, Second Edition, Pearson Education.
2. B. Chanda, D. Dutta Majumder, “DIGITAL IMAGE PROCESSING AND ANALYSIS”, PHI, 2003.
3. Nick Efford, “DIGITAL IMAGE PROCESSING A PRACTICAL INTRODUCING USING JAVA”, Pearson Education, 2004.

Subject Title : BIO INFORMATICS

Subject Description:

This course presents the fundamentals of Bio informatics technology.

Goals:
To enable the students to learn the basic fundamentals and applications of Bio informatics.

Objectives:
On successful completion of the course the student should have:

- Learnt the basics of component technology used in Bioinformatics

Contents:

UNIT I: Introduction – Importance of Bioinformatics – Biological Sequence / Structure – Deficit – Genome Projects – Status – Sequence analysis – Homology and analogy.

EMBNET – NCBI – Virtual Tourism. Primary Sequence Databases

Biological data base – Primary Sequence Database – Composite Protein Sequence Database – Secondary database – Composite protein – Pattern database – structure and classification of database.

UNIT II: Genome Information Resources- DNA Sequences data base – Specialized genomic Resources.

DNA Sequence analysis

Why analyse DNA? – Gene structure – Features of DNA sequence analysis – Issues in the interpretation and EST search – Approach of Gene hunting – Cell CDNA libraries and ESTs – Approaches to EST analysis – Effect of EST data on DNA data base examples of EST analysis.

UNIT III: Data Base Searchers and Pair Wise Alignment
Data base searching – Alphabets and Complexity – Comparing Two Sequences – Sub-Sequence – Identity and Similarity – Dot plots – Simple alignment – Gaps – Scoring Matrices – Dynamic Programming – BLAST and its relative – FASTA and related algorithms – Alignment scores and statistical significance of database sequences.Global and local Alignments:
Algorithms – Similarities – Semi global alignment.

UNIT IV: Multiple Sequence Alignment
Goal – Definition – Consensus – Complex – Methods – Database of multiple Alignment – searching database with multiple alignment.
Methods of Photo Genetics
Distance Based Methods – Based Methods – Comparison.

UNIT V: RNA Structure
Amino Acids – Polypeptide Composition Algorithm – Modeling protein folding prediction – RNA Sequence Structure.
Proteomics: Classification – Techniques – Inheritors – Drying Design – Structures – X-Ray Crystal – NMR – Empirical Methods and prediction techniques.

REFERENCE BOOKS:

1. T.K. Attwood, D.J. Parry-Smith, "INTRODUCTION TO BIOINFORMATICS", Pearson Education Asia, 2003.
2. Dan E. Krane, Michale L. Raymer, "FUNDAMENTAL CONCEPTS OF BIOINFORMATICS", Pearson Education Asia, 2003.

Subject Title: WIRELESS APPLICATION PROTOCOL (WAP)

Subject Description:
This course presents the overview of wireless application protocol and wireless telephone applications.
Goal:
To enable the students to learn the advanced concepts of Wireless applications.
Objectives:
On successful completion of the course the students should have:
- Gained skills on wireless telephone application.

Contents:
UNIT I: The Rise of Mobile Data: Market Convergence Enabling Convergence – Key Services for the Mobile Internet. **Overview of the Wireless Application Protocol**: The Origins of WAP

– Overview of the WAP Architecture – Components of the WAP Standard – Network Infrastructure Services Supporting WAP Clients – WAP Architecture Design Principles – Relationship to Other Standards.

UNIT II: The Wireless Markup Language: Overview – The WML Document Model – WML Authoring – URLs Identify Content – Markup Basics – WML – Basics – Basic Content – Events, Tashs and Bindings

UNIT III: Variables – Other Content you can Include – Controls – Miscellaneous Markup – Sending Information – Application Security – **Other Data**: The Meta Element – Document Type Declarations – Errors and Browser Limitations – Content Generation – WML Version Negotiation.

UNIT IV: User Interface Design: Making Wireless Applications, **Easy to Use**: Web Site Design: Computer Terminals Vs Mobile Terminals – Designing a Usable WAP Site – Structured Usability Methods – User Interface Design Guidelines – Design Guidelines for Selected WML Elements.

UNIT V: Wireless Telephony Applications: Overview of the WTA Architecture – WTA Client Framework – WTA Server & Security – Design Considerations – Application Creation Toolbox – Future WTA Enhancements.

The Mobile Internet Future: Better Content, Easier Access – Beyond Browsing – Beyond Cellular – Mobile Data Unleashed.

REFERENCE BOOKS:

1. Sandeep Singhal, Thomas Bridgman, Lalitha Suryanarayana, Daniel Mauney, Jari Alvinen, David Bevis, Jim Chan, Stefan Hild, “THE WIRELESS APPLICATION PROTOCOL”, Pearson Education, 2003.

Subject Title: WEB SERVICES

Subject Description:

This course presents an Overview of Distributed Computing, XML, web services

Goals:

To enable the student to be familiar with distributed services, XML and web services

Objectives:

On successful completion of the course the student should have:

- Understood the concepts of web services

Contents:

UNIT I : Introduction to Web Services – Industry standards, Technologies and Concepts underlying Web Services – their support to Web Services, Applications that consume Web Services.

UNIT II: XML – its choice for Web Services – Network protocols to backend databases – Technologies – SOAP, WSDL – exchange of information between applications in distributed environment – Locating remote Web Services – its access and usage, UDDI Specification – an introduction.

UNIT III : A brief outline of Web Services – Conversation – static and interactive aspects of system interface and its implementation, Work Flow – Orchestration and refinement, Transactions, Security issues – the Common attacks – security attacks facilitated within Web services Quality of Services – Architecting of systems to meet users requirement with respect to latency, performance, reliability, QOS metrics, Mobile and wireless Services – energy consumption, network bandwith utilization, Portals and Services Management.

UNIT – IV: Building real world Enterprise applications using Web Services – sample source codes to develop Web Services – Steps necessary to build and deploy Web Services and Client applications to meet Customer's requirement – Easier development, Customisation, maintenance, Transactional requirements, seamless porting to multiple devices and platforms.

UNIT – V: Development of Web Services and applications onto Tomcat application Server and Axis SOAP server (both are freewares) – Web Services Platform as a set of Enabling technologies for XML based distributed Computing.

REFERENCE BOOKS:

1. Sandeep Chatterjee, James Webber, "DEVELOPING ENTERPRISE WEB SERVICES: AN ARCHITECTS GUIDE", Prentice Hall, Nov 2003
2. Keith Ballinger, "NET WEB SERVICES: ARCHITECTURE AND IMPLEMENTATION WITH **.**NET", Pearson Education, First Education Feb 2003.
3. Ramesh Nagappan, "DEVELOPING JAVA WEB SERVICES: ARCHITECTING AND DEVELOPING SECURE WEB SERVICES USING JAVA", John Wiley and Sons, first Edition Feb 2003
4. Eric A Marks and Mark J Werrell, "EXECUTIVE GUIDE TO WEB SERVICES", John Wiley and sons, March 2003
5. Anne Thomas Manes, "WEB SERVICES: A MANAGERS GUIDE" Addison Wesley, June 2003.

Subject Title: NEURAL NETWORKS AND FUZZY LOGIC

Subject Description:
This course presents the introduction, the basic neuron, kohenen self- organizing network, hop field networks, associative memory and fuzzy systems.
Goal:
To enable the students to learn the basic functions, principles and concepts of Neural Networks and fuzzy systems.
Objectives:

On successful completion of the course the students should have:

- Understood the pattern classification in Neural Networks
- Understood the Self-organizing Network and Hopfield Networks
- Understood the Fuzzy rules and logic

Contents:

UNIT I: Fundamentals of Neural Networks: Basic concepts of Neural Networks –Human Brain – Model of an Artificial Neuron- Neural Network Architectures- characteristics of Neural Networks –Learning methods- Taxonomy of Neural Network Architectures –History of Neural Network Research-Easy Neural Network Architectures- Some Application domains.

UNIT II: Back propagation Networks: Architecture of a Back propagation Network – Back propagation Learning – Illustration –Applications –Effect of Tuning parameters of the Back propagation Neural Network- Selection of various parameters in BPN- Variations of standard Back Propagation algorithm.

UNIT III: Adaptive Resonance Theory: Introduction – ART1- ART2-Applications.

UNIT IV: Fuzzy Set Theory: Fuzzy versus crisp- Crisp sets –Fuzzy sets –Crisp relations – Fuzzy relations.

UNIT V: Fuzzy Systems: Crisp logic –Predicate logic –Fuzzy logic –Fuzzy rule based system-Defuzzification Methods.

REFERENCE BOOKS:

1. S.Rajasekaran, G.A.Vijayalakshmi Pai –"NEURAL NETWORKS, FUZZY LOGIC, AND GENETIC ALGORITHMS SYNTHESIS AND APPLICATIONS, PHI, 2003.
2. James A. Freeman, David M.Skapura-"NEURAL NETWORKS – ALGORITHMS, APPLICATIONS, AND PROGRAMMING TECHNIQUES", Pearson Education, 2003.
3. Fredric M. Ham, Ivica Kostanic, "PRINCIPLES OF NEURO COMPUTING FOR SCIENCE OF ENGINEERING", TMCH, 2003.
4. Simon Haykin-"NEURAL NETWORKS-A COMPREHENSIVE FOUNDATION", Pearson Education, Second Edition.

Subject Title: NETWORK SECURITY AND CRYPTOGRAPHY

Subject Description

This course presents the concepts of Network Monitoring & security

Goals

To enable the students to learn the concepts of network security and management

Objectives

On Successful completion of the course the students should have:

- Understood the Network concepts and protocols

UNIT I: Introduction, Attacks, services and Mechanisms – security attacks – security services – A model for internetwork security – Internet standards and RFCS. Classical Encryption Techniques: symmetric cipher Model – Substitution Techniques – Transportation Techniques – Rotor Mechanisms – Steganography.

UNIT II: Block ciphers and the data encryption standard simplified DES – Block Cipher Principles – The Data encryption standard – The Strength of DES – Differentials and linear Cryptanalysis – Block cipher design principles – Block cipher modes of operations.
Public Key Cryptography and RSA: Principles of Public – Key Cryptosystems – The RSA Algorithm.

UNIT III: Key management; Other Public-key Cryptosystems: Key Management – Diffie-Hellman key exchange – Elliptic curve Arithmetic – Elliiptic curve Cryptography Message Authentication & Hash functions: Authentication Requirements – Authentication functions – Message Authentication codes – Hash functions – Security of Hash functions & MACS.
Digital Signatures – Authentication Protocols – Digital Signature Standard

UNIT IV : Authentication applications: Kerberos - X 509 Authentication service. Electronic Mail security : Pretty good Privacy – S/ MIME 455 IP Security: IP Security overview – IP Security Architecture – Authentication Header – Encapsulation security Payload.

UNIT V: Web Security: Web Security Considerations – Secure Sockets Layer and Transport Layer security – Secure Electronic Transactions
System Security: Intruders – Intrusion detection – Password Management.
Firewalls: Firewall Design Principles – Trusted Systems

REFERENCE BOOKS:

1. William Stallings, "CRYPTOGRAPHY AND NETWORK SECURITY – PRINCIPLES AND PRACTICES", Pearson Education, Third Edition, 2003.
2. William Stallings, "NETWORK SECURITY ESSENTIAL – APPLICATIONS AND STANDARDS", Pearson Education, 2003.
3. Atul kahate, "CRYPTOGRAPHY AND NETWORK SECURITY", TMCH, 2003.
4. Charlie Kanfman, Radio Perlman, Mike Speciner, "NETWORK SECURITY", Second Edition, Pearson Education Asia.

Subject Title: E-COMMERCE

Subject Description:
This course presents the introduction to E-Commerce, Network Infrastructure, Information publishing technology, Securing network transaction, search engines.

Goal:
To enable the students to learn the basic functions, principles and concepts of E-Commerce.
Objectives:

On successful completion of the course the students should have:

- Understood the E-Commerce framework

Contents:

UNIT I: Electronic Commerce framework – Electronic Commerce of Media convergence- The Anatomy of E-commerce applications – Electronic Commerce Applications – Electronic Commerce Organization Applications – Masket Forces Influencing the I-way – Components of the I-way – Network Access Equipment – the Last Mile: Local roads and access Ramps – Global Information Distribution Networks – Public policy Issues shaping the I-way

UNIT II: Architectural framework for electronic commerce – World Wide web (WWW) as the architecture – Web background: Hypertext publishing – Technology behind the web – security and the web – Consumer-oriented applications – Mercantile models from the consumer's perspective – Mercantile models from the Merchant's Perspective

UNIT III : Types of Electronic payment systems – Digital Token-Based Electronic Payment Systems – Smart cards and Electronic Payment Systems – Credit Card based Electronic Payment systems – Risk and Electronic Payment Systems – Designing electronic payment systems - Electronic data interchange – EOI Applications in Business – EDI: Legal, Security, and Privacy issues – EDI and Electronic Commerce.

UNIT IV: Internal Information systems – Macroforces and Internal Commerce – Work Flow Automation and Coordination Customization and Internal commerce – Supply chain commerce systems – making a business case for a document Library – Types of digital documents – Issues behind Document Infrastructure – corporate Data warehouses.

UNIT V: The New Age of Information-Based Marketing – Advertising on the Internet- charting the Online Marketing process – Market Research – Search and Resource Discovery Paradigms – Information search and Retrival – Electronic commerce Catalogs or Directories – Information Filtering – Consumer – Data Interface Emerging Tools.

REFERENCE BOOKS:

1. Ravi Kalakota, Andrew B. Whinston, " FRONTIERS OF ELECTRONIC COMMERCE", Pearson Education Asia, 2003
2. Jeffery F. Rayport, Bernard J. Jaworski, "E- COMMERCE", TMCH, 2002
3. P.T. Joseph, "E- COMMERCE – A MANAGERIAL PERSPECTIVE", PHI, 2003

Subject Title: ENTERPRISE RESOURCE PLANNING (ERP)

Subject Description:

This course presents the introduction to ERP, ERP and related technologies, ERP Market, Vendors

Goal:

To enable the students to learn the basic functions, principles and concepts of Enterprise Resource Planning.

Objectives:

On successful completion of the course the students should have:

- Understood the Enterprise Resource Planning and related technologies

Contents:

UNIT 1: Introduction to ERP – Evolution – what is ERP – Reasons for the growth of the ERP market – The advantages of ERP – Why do many ERP implementation Fail- Why are ERP Packaging being used now ERP – A Curtain Raiser:

Accommodating Variety – Integrated Management Information – Seamless Integration – Supply Chain Management – Resource Management – Integrated Data model – Scope – Technology. Business Engineering and ERP: An overview – what is B.E? – Significance of B.E – Principles of B.E – BRP, PER & IT – Business Engineering with IT – ERP and Management Concerns

UNIT II: Business Modeling for ERP: An overview – Building the Business model.

ERP – A Manufacturing perspective: Introduction – ERP – MRP – BOM – closed loop MRP – MRP II – DRP – JIT and Kanban – CAD/CAM – PDM – Data Management benefits of PDM – MTO and MTS – ATO – ETO – CTO

UNIT III: ERP modules: Introduction – Finance – Plant Maintenance – Quality Management – Materials Management.

Benefits of ERP: Introduction – Reduction of Lead time – On-time shipment – Reduction in cycle time – Improved Resource Utilization – Better customer satisfaction – Improved supplier performances – Increases flexibility – Reduced flexibility – reduced quality corts – Improved information accuracy & decision making capability.

UNIT IV: ERP Implementation Lifecycle:

Introduction – Pre-evaluation screening – package evaluation – project planning phase – GAP analysis – Reengineering – configuration – Implementation Team Training – Testing – Going Live – End-user Training – Post implementation.

ERP Implementation:

An over view – Role of Consultants, Vendors & Users – customization –Precautions – ERP implementation customization – Precautions – ERP implementation methodology – Guidelines for ERP implementation ERP and the Competitive Advantage: An overview – ERP and the competitive strategy.

UNIT V: The ERP Domain: An overview – MFG / PRO – IFS / Avalon – Industrial and Financial systems – Baan IV – SAP – SAP R/3 applications – Example of an Indian ERP package – The arrival of ERP III.

Marketing of ERP : An overview – Marketing Dynamics & Competitive strategy.

Future direction in ERP:
Introduction – New Markets – New channels – Faster Implementation methodologies – Business models & BAPIs – Convergence on windows NT – application Platforms – New Business segments – More features – Web enabling- Market snapshot

REFERENCE BOOKS:

1. Vinod Kumar Garg, N.K.Venkitakrishnan "ENTERPRISE RESOURCE PLANNING CONCEPTS & PRACTICE", PHI, Second Edition, 2003.
2. Alex Leon, "ENTERPRISE RESOURCE PLANNING", TMCH, 2003.

COMPULOSRY DIPLOMA PAPER I: Introduction to Open Source Tools

(for the candidates admitted during 2008-09 batch and onwards)

Number of Instruction Hours: 3 **Number of Credits: 4**

Subject Description : This Course presents the introduction to the open source tools
Goals : To enable the students to learn the Introduction to Linux, Unix networking programming, PHP programming Basics, and Perl programming.
Objectives :
On successful completion of the course the students should have:

- Understood the Linux concept
- Understood the Unix networking programming
- Understood the PHP programming Basics
- Understood Perl programming

Contents

Unit 1: Introduction to Linux – What every Linux users knows- The shell-The X windows system –Files and Directories.

Unit 2: Viewing Text – Editing Text – Grammar and Reference – Analyzing text – Formatting Text.

Unit 3: UNIX Network Programming-Introduction to TCP/IP: Introduction –The Transport Layer TCP and UDP.

Elementary sockets: Sockets Introduction, Elementary TCP sockets – I/O multiplexing – Socket options

Unit 4: PHP Programming Basics

PHP - Introduction, PHP Basics: - Syntax- Variables- Controls and functions- passing information between pages -Strings. Arrays: - Using Arrays, Manipulating Arrays, Associative Arrays

Unit 5: Perl Programming

Perl - Introduction, Perl Basics: - Syntax, Variables, Strings, Numbers, Operators, Arrays: - Using Arrays, Manipulating Arrays, Associative Arrays, Chop, Length, and Sub string.

Hashes, Arguments, Logic, Looping, Files, Pattern Matching, Environment Variables, Using cgi-lib for Forms.

File Management PERL: - File Handling, Reading From Files, Appending Files, Writing to Files, File Checking, Reading Directories.

Databases PERL: - DBI Module, DBI Connect, DBI Query, MySQL Module, MySQL Connect, MySQL SelectDB, MySQL Query.

REFERENCES

1. Linux CookBook 2nd Edition Michael Stutz , SPD Pvt.ltd 2004 edition.
2. Linux Ina Nutshell – A desktop Quick Reference – O'Reilly 5th Edition, Ellen sivever, Aarom weber,Stephen Figgins, Robers Love and Arnold Robbins
3. Unix Network programming –The Sockets networking API volume I –Third Edition- W.Richard stevens, Bill Fenner,, Andrew M Rudoff
4. PHP 5 and MySQL Bibble Wiley Dream tech India Pvt.ltd 2006 Edition.
5. Perl CookBook –Tom Christinasen & Nathan Torkington , O'Relliy ,SPD Pvt ltd,2006 Edition.

COMPULSORY DIPLOMA PAPER II: Introduction to Open Source Environment
(for the candidates admitted during 2008-09 batch and onwards)

Number of Instruction Hours: 3 **Number of Credits: 4**

Subject Description : This Course presents the Open Source environment

Goals : To enable the students to learn the Concepts OOP with PHP and Ruby on Rails

Objectives :

On successful completion of the course the students should have:

- Understood the concepts OOP with PHP
- Understood the concepts of PHP
- Understood the concepts of Ruby on Rails

Contents

Unit 1: OOP with PHP –Advanced Array functions-Sessions-cookies and HTTP

Unit 2: String and regular Expression function –Files system and System function, - Mathematics - PEAR-Security-Apache Tricks.

Unit 3: Exceptions and Error Handling-Debugging- style

Unit 4: Ruby on Rails: How Ruby works - How Rails works Ruby – Informed Rails Development.

Unit 5: Objects and variables –Organizing with classes – model and program organization

Reference Book

1. PHP 5 and MySQL Bible Wiley Dreamtech India Pvt.ltd 2006 Edition
2. Professional LAMP Linux, Apache,MySQL and PHPs Web Development Wiley dreamtech 2006 Edition
3 Ruby for Rails, David A Black Dream tech Press 2006

Diploma Paper III : Advanced Programming in Open Source – PHP

Subject Description : This Course presents the Advanced programming in Open Source
Goals : To enable the students to learn the Concepts PHP in MySQL, AJAX, Smarty, SOAP, CMS(Joomla)

Objectives :
On successful completion of the course the students should have:

- Understood the concepts of PHP and My SQL
- Understood the concepts of PHP and AJAX
- Understood the concepts of PHP and Smarty
- Understood the concepts of PHP SOAP
- Understood the concept of PHP and CMS(Joomla)

Contents :
Unit 1: PHP and MySQL Part II: SQL tutorial - PHP/MySQL function – Displaying Queries in Tables- Building forms from Queries.

Unit 2: PHP and AJAX: AJAX Introduction, History of AJAX, How does AJAX work, IE memory leaks, XML HTTP Request - GET or POST?, XML Http Request in IE FireFox, callback URL and URL rewriters, Problems and Challenges, Benefits of AJAX, How and when to use AJAX, Selecting the right tools and framework for Ajax.

Unit 3: PHP and Smarty: What is Smarty?, Basic Syntax, Variables, Variable Modifiers, Combining Modifiers, Built-in Functions, Custom Functions, Config Files, Debugging Console, Constants, Smarty Class Variables, Smarty Class Methods, Caching, Advanced Features, Extending Smarty With Plugins, Troubleshooting: Smarty/PHP errors, Tips & Tricks, Resources, BUGS.

Unit 4: PHP and SOAP: Introduction to Web Services SOAP, Creating and Consuming Web Services With PHP, XML-RPC, Creating an XML-RPC Web service, Consuming an XML-RPC Web service, NuSOAP and PHP, Creating a NuSOAP Client using PHP, Creating a NuSOAP Web service, Creating a NuSOAP Web Service Client, REST, Consuming an XML Web service using REST.

Unit 5: PHP and CMS(Joomla): Types of CMS – Open source web CMS packages, All Inclusive web CMS's, Micro CMS, Other Helpful Resources.

Reference Book

1. PHP 5 and MySQL Bible Wiley Dream teck India Pvt.ltd 2006 Edition.
2. Professional LAMP Linux, Apache ,MySQL and PHPs Web Development –Wiley dream teach 2006 Edition.
3. www.phpfreaks.com - Smarty
4. www.w3schools.com - AJAX
5. www.php.net/manual/en - PHP notes

Diploma Paper 4. Web Application in PHP Programming-lab

1. Write a program to send an HTML formatted Email with attachment in PHP.
2. Write a program for login authentication using PHP and MySQL .
3. Write a program to upload a file in PHP.
4. Write a program to create a RSS feed using PHP and MySQL .
5. Create a Pay slip for an employee using PHP and MySQL
6. Download a small project module and convert into our Requirement
   Example website
   1. www.phpclasses.com
   2. www.codeguru.com