DEPARTMENT OF TECHNOLOGY
FINAL YEAR B.TECH.
COMPUTER SCIENCE AND TECHNOLOGY
Scheme of Teaching and Examination
Semester – VII

Subject Code	Subject	Teaching Scheme (Hours / Week)				Examination Scheme (Marks)					
		L	T	P	Total	Theory			Practical		
						Scheme	Max. marks	Min. Passing	Scheme	Max. marks	Min. Passing
CS411	Advanced Computer Architecture	3	-	-	03	CIE	50	20	--------	-------	--------
						SEE	50	20	--------	-------	--------
CS412	Information Technology	3	1	-	04	CIE	50	20	--------	-------	--------
						SEE	50	20	--------	-------	--------
CS413	Distributed Systems	3	-	-	03	CIE	50	20	--------	-------	--------
						SEE	50	20	--------	-------	--------
CS414	Network Engineering	3	-	-	03	CIE	50	20	--------	-------	--------
						SEE	50	20	--------	-------	--------
CS415	Elective-1	3	-	-	03	CIE	50	20	--------	-------	--------
						SEE	50	20	--------	-------	--------
CS416L	Web Technology Lab-1	2	-	2	04	--------	--------	--------	IPE	50	20
									EPE	50	20
CS414L	Network Lab	-	-	4	04	--------	--------	--------	IPE	50	20
									EPE	50	20
CS417L	Project Phase – I	-	-	4	04	--------	--------	--------	IPE	50	20
									EPE	50	20
	Total	**17**	**1**	**10**	**28**		**500**			**300**	

Elective-1
  1.Storage Networks
  2.Grid Computing
  3.Project Management

CIE – Continuous Internal Evaluation

SEE – Semester End Examination

IPE – Internal Practical Evaluation

DEPARTMENT OF TECHNOLOGY
FINAL YEAR B.TECH

COMPUTER SCIENCE AND TECHNOLOGY

Scheme of Teaching and Examination
Semester – VIII

Subject Code	Subject	Teaching Scheme (Hours / Week)				Examination Scheme (Marks)					
		L	T	P	Total	Theory			Practical		
						Scheme	Max. marks	Min. Passing	Scheme	Max. marks	Min. Passing
CS421	Mobile Technology	3	-	-	03	CIE	50	20	--------	-------	--------
						SEE	50	20	--------	-------	--------
CS422	Soft Computing	3	-	-	03	CIE	50	20	--------	-------	--------
						SEE	50	20	--------	-------	--------
CS423	Software Testing and Quality Assurance	3	1	-	04	CIE	50	20	--------	-------	--------
						SEE	50	20	--------	-------	--------
CS424	Management and Entrepreneurship	3	-	-	03	CIE	50	20	--------	-------	--------
						SEE	50	20	--------	-------	--------
CS425	Elective- 2	3	-	-	03	CIE	50	20	--------	-------	--------
						SEE	50	20	--------	-------	--------
CS426L	Web Technology Lab-2	2	-	4	06	--------	--------	--------	IPE	50	20
									EPE	50	20
CS422L	Soft Computing Lab	-	-	2	02	--------	--------	--------	IPE	50	20
									EPE	50	20
CS427L	Project Phase – II	-	-	4	04	--------	--------	--------	IPE	50	20
									EPE	50	20
	Total	17	1	10	28		**500**			**300**	

Elective-2
1.Cyber Laws
2.Data Mining And Warehousing
3.Business Intelligent System

CIE – Continuous Internal Evaluation

SEE – Semester End Examination

IPE – Internal Practical Evaluation

Detailed Examination Scheme

1. Out of total 100 theory marks, 50 marks are assigned for Continuous Internal Evaluation (CIE). In each subject, in CIE, minimum 20 marks are required to become eligible for Semester End Examination (SEE) of that particular subject. A student will be given an additional attempt to acquire passing marks in CIE. Upon failing to clear the CIE in the additional attempt, he/she will be allowed to appear for the Continuous Internal Evaluation scheme of the respective subject in the next semester. The tests will be conducted by the subject teacher. Only after passing the CIE, the particular student will become eligible for the Semester End Examination.

2. CIE (50 marks) includes:
   - Surprise Test – I of 10 marks in 4th week
   - Mid Semester Test of 30 marks in 8th week
   - Surprise Test - II of 10 marks in 12th week

3. For the Semester End Examination (SEE), 100 marks (3 hrs.) paper will be set and finally it will be converted to 50 marks, in which student must secure minimum 40% i.e. 20 marks as university examination passing head.

4. Final theory marks (out of 100) will be the addition of CIE (out of 50 marks) and SEE (out of 50 marks).

5. IPE means Internal Practical Evaluation in which students have to demonstrate the practical work of his Project Topic as an internal examination at the term end.

6. IOE means Internal Oral Evaluation in which students have to face an internal oral examination at the term end. This examination is based on the practical work carried out by them throughout the year

7. EPE means External Practical Examination in which students have to demonstrate the practical work of his Project Topic as an external examination at the term end. It is as university passing head.

8. EOE means External Oral Examination in which students have to face an external oral examination at the term end. It is as university passing head.

B.Tech. (COMPUTER SCIENCE & TECHNOLOGY) Sem – VII
1.ADVANCED COMPUTER ARCHITECTURE(CS411)

TEACHING SCHEME	**EXAMINATION SCHEME**
Lectures : 3 hrs/week	Theory : CIE (50)+IEE(50)=100Marks

UNIT 1
Overview of Parallel Processing and Pipelining Processing
Necessity of high performance, Constraints of conventional architecture, Parallelism in uniprocessor system, Evolution of parallel processors, future trends, Architectural Classification, Applications of parallel processing, Instruction level Parallelism and Thread Level Parallelism, Explicitly Parallel Instruction Computing (EPIC) Architecture, Case study of Intel Itanium Processor, Principles of scalable performance:Performance Metrics and Measures, Speedup PerformanceLaws.   (6)

UNIT 2
Pipeline Architecture
Principles and implementation of Pipelining, Classification of pipelining processors, General pipelining reservation table, Design aspect of Arithmetic and Instruction pipelining, Pipelining hazards and resolving techniques, Data buffering techniques, Job sequencing and Collision, Advanced pipelining techniques, loop unrolling techniques, out of order execution, software scheduling, trace scheduling, Predicated execution, Speculative loading, Register Stack Engine, Software pipelining, VLIW (Very Long Instruction Word) processor, Case study: Superscalar Architecture- Pentium, Ultra SPARC, Recent advances in pipelining.   (6)

UNIT 3
Vector and Array Processor
Basic vector architecture, Issues in Vector Processing, Vector performance modeling, vectorizers and optimizers, Case study: Cray Arch. SIMD Computer Organization Masking and Data network mechanism, Inter PE Communication, Interconnection networks of SIMD, Static Vs Dynamic network, cube hyper cube and Mesh Interconnection network.
Parallel Algorithms for Array Processors: Matrix Multiplication. Sorting, FFT   (6)

UNIT 4
Multiprocessor Architecture
Loosely and Tightly coupled multiprocessors, Processor characteristics of multiprocessors, Inter Processor communication network, Time shared bus, Crossbar switch, Multiport Memory Model, Memory contention and arbitration techniques, Cache coherency and bus snooping, Massively Parallel Processors (MPP), COW's and NOW's Cluster and Network of Work Stations), Chip Multiprocessing (CMP), Case Study of IBM Power4 Processor, Inter Processor Communication and Synchronization   (6)

UNIT 5

Multithreaded Architecture

Multithreaded processors, Latency hiding techniques, Principles of multithreading, Issues and solutions, Parallel Programming Techniques: Message passing program development, Synchronous and asynchronous message passing, Message passing parallel programming, Shared Memory Programming, Data Parallel Programming. (6)

UNIT 6

Parallel Software Issues

Parallel algorithms for multiprocessors, classification of parallel algorithms, performance of parallel algorithms, Operating systems for multiprocessors systems, Message passing libraries for parallel programming interface, PVM (in distributed memory system), Message Passing Interfaces (MPI), pThreads (in shared memory system), Parallel Programming Languages : Fortran 90, Occam, C-Linda, CCC etc., Issues towards cluster computing. Introduction to Neuro Computing and Grid Computing **Study:** Study of dual core and multi core architecture, comparatively advances. (6)

Text Books:

1. Kai Hwang, Faye A. Briggs, "Computer Architecture and Parallel Processing" McGrawhill international Edition
2. Kai Hwang, "Advanced Computer Architecture", Tata McGrawhill Edition
3. Advanced Computer Architecture a design space approach. - Sima, Fauntain, Kscucle, Pearson Edition

Reference Books:

1. V. Rajaraman, L Sivaram Murthy, "Parallel Computers", PHI.
2. William Stallings, "Computer Organization and Architecture, Designing for performance" Prentice Hall, Sixth edition
3. Kai Hwang, Scalable Parallel Computing
4. Harrold Stone, High performance computer Architecture
5. Richard Y. Kain , Advanced Computer Architecture

2.INFORMATION TECHNOLOGY (CS412)

TEACHING SCHEME   **EXAMINATION SCHEME**

Lectures   : 3 hrs/week   Theory   : CIE (50)+IEE(50)=100Marks
Tutorial   : 1 hrs/week

UNIT 1

Organizations, Environments & Information Technology: The new world of business, Examples of Information systems at work world wide, Information technology developments and trends (4)

UNIT 2
Information Technologies : concepts and managements – Information systems concepts and definitions, classification of information systems, transactional and functional processing, operational, managerial and strategic systems, information infrastructure and architecture, Managing information resources. (4)

UNIT 3
Strategic Information systems : Strategic advantage and information technology, Porter's competitive forces model and strategies, Porter's value chain analysis model, strategic information systems frameworks. (4)

UNIT 4
Business Process Re-engineering & Information Technology : Basic concepts & need for BPR, principles of BPR & the role of IT, BPR & restructuring the organization, The networked organizations. (5)

UNIT 5
Network computing: Discovery, communication & collaboration – The Internet, Groupware technology & infrastructure, some internet implementation topics. (5)

UNIT 6
Impacts of IT on Organizations, Individuals and Society: Does it have only positive effects? Ethical issues, impacts on organization, impacts on individuals at work, Societal impacts and the internet community. (6)

UNIT 7
Supporting Management and Decision making: The Managers and decision making, decision support systems, Corporate-level decision support, Advance decision support topics. (6)

Text Books:

1. Information Technology for Management – Turban, McLean, Wetherbe (John Wiley & Sons Inc., 2nd Edi.)
2. Information systems, theory and practice – John Burch Jr., Felix Strater Jr.(Hamilton publishing company).
3. Information system design – Brookes, Grouse, Jeffery and Lawrence (PHI).

3.DISTRIBUTED SYSTEMS(CS413)

TEACHING SCHEME   **EXAMINATION SCHEME**

Lectures   : 3 hrs/week   Theory : CIE(50)+IEE(50)=100Marks

UNIT 1
Introduction

Definition, Goals, Types of distributed systems: Distributed Computing System, Distributed Information System, Architecture: Architectural, Styles, System Architecture   (5)

UNIT 2
Processes and Communication

Virtualization, Servers, Code Migration, Software Agents, Remote Procedure Call,   Message Oriented Transient Communication   (5)

UNIT 3
Synchronization

Distributed Shared Memory: General architecture, Design and Implementation Issues, Consistency Models, Implementing Sequential Consistency Model, Replacement Strategy, Thrashing, Heterogeneous DSM, Physical Clock Synchronization, Logical   Clock, Mutual exclusion, Election Algorithms   (8)

UNIT 4
Distributed File Systems

Architecture, Processes, Communication, Naming, Synchronization, Consistency Replication   (6)

UNIT 5
 Fault Tolerance

Introduction, Process Resilience, Distributed Commit, Recovery.   (3)

UNIT 6
Distributed Operating Systems

Amoeba: Design goals, architecture, process management, file management.
Mach: Design goals, architecture, process management, memory management   (5)

UNIT 7
Distributed Multimedia Systems

Introduction, Characteristics of multimedia data, Quality of service management, Resource management, Stream adaptation, Case study : The Tiger Video file server   (5)

Reference Books:
1. Distributed Systems Principles and Paradigms- A. S. Tanenbaum (2nd Edition) , Pearson Education
2. Distributed Operating Systems - P. K. Sinha (PHI) (For Distributed shared memory and distributed operating systems)
3. Distributed Systems – Concepts & Design by George Coulouris, Jean Dollimore, Tim Kindberg (Pearson Education)

4. NETWORK ENGINEERING(CS414)

TEACHING SCHEME   **EXAMINATION SCHEME**

Lectures   : 3 hrs/week   Theory: CIE (50)+IEE(50)=100Marks
Practical   : 4 hrs/week   IPE :   50 Marks
                                         EPE: 50 Marks

UNIT 1
Introduction to concepts and tools of Windows Operating System:
Introduction to networking components, architectures, windows flavours of network operating systems, Foundation Concepts and Terms, Windows API, Services, Functions, Routines, Processes, Threads, Jobs, Virtual Memory, Kernel Mode vs. User Mode, Terminal Services and Multiple Sessions, Objects and Handles, Registry.   (4)

UNIT 2
System Architecture:
Requirements and Design Goals, Operating System Model, Architecture Overview, Key System Components.   (3)

UNIT 3
 Security:
Security Ratings, Security System Components, Protecting Objects, Account Rights and Privileges, Security Auditing.   (3)

UNIT 4
I / O system:
Device Drivers, Types of Device Drivers, Structure of a Driver, Types of I/O, The Plug and Play (PnP) Manager, Installation.   (2)

UNIT 5
Storage Management & File system:
Storage Terminology, Disk Drivers, Volume Management,   Windows File System Formats,
File System Driver architecture.   (3)

UNIT 6
Windows Networking Architecture, The OSI Reference Model ,Windows Networking Components, Networking APIs, Windows Sockets, Winsock Kernel (WSK), Remote Procedure Call, Web Access APIs, Named Pipes and Mailslots , NetBIOS, Other Networking APIs.   (4)

UNIT 7
Linux: - Introduction, Boot and system configuration services, Network Tools, SElinux policy rules and configuration files, Linux services and protocols – FTP, SMTP, Telnet, IP Sec. and VPN (Virtual Private Network), managing services, Superuser control, system runlevels, performance analysis tools, GRUB and RAID.   (5)

Reference Books:
1. Windows Internals, Including Windows Server 2008 and Windows Vista 5th Edition (2009) – Mark E. Russinovich and David A. Solomon with Alex Ionescu. (MS Press).
2. Introducing Server 2008 R2 by Charlie Russel and Craig Zacker (Microsoft Press).
3. Linux: The Complete Reference sixth edition by Richard Petersen (TMGH).

4. Network Programming for MS Windows 2nd Edition – Anthony Jones & Jim Ohlund (Microsoft Corporation).
5. Windows Server 2008: The Definitive Guide by Jonathan Hassell (SPD O'Reilly).
6. Windows Server 2008 – Jeffrey R. Shapiro (Wiley India Edition).

Lab: It should consist of the following –
I)   Minimum 8-10 network programming assignments on different network services and protocols using socket programming, Named pipes, Mailslots, NetBIOS, RPC, etc.

II)   Installing, configuring, managing and troubleshooting any one or more network operating systems and services – Win 2008 / 2003, Linux / Unix, Mac, etc and use their services like – FTP, Telnet, DHCP, HTTP, Clustering, Terminal services, Remote Desktop Enabling, DNS, Active Directory Services, User management , etc.

5. ELECTIVE – 1: 1. STORAGE NETWORKS (CS415)

TEACHING SCHEME   **EXAMINATION SCHEME**

Lectures   : 3 hrs/week   Theory: CIE(50)+IEE(50)=100Marks

UNIT 1
Introduction to information storage and Storage System Environment
Evolution of storage technology and architecture, Data Center Infrastructure, Key challenges in Managing Information, Information Lifecycle. Components of Storage System Environment, Disk Drive Components, Disk Drive Performance, Laws governing disk Performance, Logical Components of Host, Application requirements and disk performance.   (5)

UNIT 2
Intelligent Storage System and Direct Attached Storage
Components of Intelligent Storage System, Intelligent Storage Array. Direct Attached Storage – types , benefits and limitation, Disk drive Interface, Introduction to parallel SCSI, SCSI command model.   (4)

UNIT 3
Storage Area Network
SAN – Evolution, Components of SAN, Fibre Channel Protocol Stack- Links, ports and topologies, FC-0: Cables, plugs and Signal Encoding,   FC-1: 8b/10b encoding, ordered sets and link control protocol, FC-2: data Transfer, FC-3: common Services, FC-4 and ULPs, Fibre Channel SAN – point-to- point topology, Fabric topology, Arbitrated loop topology, Hardware components of Fibre channel SAN. IP SAN – iSCSI – components, connectivity, topology, protocol stack, discovery, names, session, PDU   (6)

UNIT 4
Data Protection: RAID
Implementation of RAID, RAID array components, RAID levels, Comparison, RAID Impact on disk performance, Hot Spares.   (2)

UNIT 5
Network -Attached Storage
Local File Systems, Network File System and File Servers, Benefits of NAS, NAS file I/O, Components of NAS, NAS Implementations, NAS File sharing Protocols, NAS I/O operations, Factors affecting NAS Performance.
Case Study: Direct Access File System, Shared Disk File System
Comparison: NAS Fibre Channel SAN and iSCSI SAN   (6)

UNIT 6
Storage Virtualization
Introduction, Virtualization in the I/O path, Limitations and requirements, Definition of Storage Virtualization, Implementation considerations, Storage Virtualization on block level, File level Virtualization, Storage Virtualization on various levels of the storage network, Symmetric and Asymmetric Storage Virtualization   (5)

UNIT 7
Business Continuity, Backup and Recovery
Introduction, Information Availability, Cause of Information unavailability, Measuring information Availability, Consequences of down time, BC terminology, BC planning life cycle, Failure Analysis, BC Technology Solutions, Backup Purpose, Backup Considerations, Backup Granularity, Recovery Considerations, Backup Methods, Backup Process, Backup and Restore Operations, Backup Topology, Backup in NAS environment, Backup Technologies,   (5)

UNIT 8
Replication
Local Replication, Uses of Local Replicas, Data Consistency, Local Replication Technologies, Restore and Restart Considerations   (2)

Text Book:
1. Information Storage and Management
        -   G. Somasudaram – EMC Education Services (Wiley India Edition)
2. Storage Networks Explained
        -   Ulf Troppen, Rainer Erkens, Wolfgang Müller (Wiley India Edition)

5. ELECTIVE – 1 : 2. GRID COMPUTING (CS415)

TEACHING SCHEME   **EXAMINATION SCHEME**
Lectures   : 3 hrs/week   Theory: CIE (50)+IEE(50)=100Marks

UNIT 1
 Introduction to Grid Architecture
Characterization of Grid,Grid related standard bodies, Grid types, Topologies, Components and Layers.Comparison with other approaches.   (5)

UNIT 2
System Infrastructure
Traditional paradigms for distributed computing,Web Services,Grid standards : OGSA &
WSRF,Introduction to Globus Toolkit 3 & GT 4   (9)

UNIT 3
Semantic Grid & Autonomic Computing
Metadata & Ontology in semantic Web,Semantic Web Services,Layered Structure of Semantic
Grid,Semantic Grid Activities , Autonomic Computing   (9)

UNIT 4
Basic Services
Grid Security, Grid Monitoring, GMA, Review criteria overview of Grid Monitoring system –
Autopilot.   (8)

UNIT 5
Grid Scheduling & Resource Management
Scheduling Paradigms, How Scheduling Works ,Review of Condor   (4)

UNIT 6
Introduction to Cloud Computing
Definition, Characteristics, Components, Cloud provider, SAAS, PAAS, IAAS / HAAS and Others,
Organizational scenarios of clouds, Administering & Monitoring cloud services, benefits and
limitations   (4)

UNIT 7
Virtualization, SOA & Cloud
Virtualization characteristics, Managing virtualization, Virtualization in cloud, Virtualization
desktop and managing desktops in the cloud and security issues, characteristics of SOA, SOA and
cloud.   (5)

UNIT 8
Cloud Storage and Data Security
Storage basics, Storage as a service providers, security, aspects of data security, data security
mitigation, provider data and it's security.   (3)

Text Books:
1. The Grid (Chapter 1,2,3,4,5) Core Technologies
             by Maozhen Li, Mark Baker (John Wiley & Sons)
2. Cloud Computing for Dummies (Chapter 6,7)
             by Judith Hurwitz, R.Bloor, M.Kanfman, F.Halper (Wiley India Edition)
3. Cloud Security & Privacy (Chapter 8)
             by Tim Malhar, S.Kumaraswammy, S.Latif (SPD,O'REILLY)

Reference Books:
1. A networking Approach To Grid Computing
             by Daniel Minoli (Chapter 1) (John Wiley & Sons, INC Publication)

2. Cloud Computing: A Practical Approach
    by J.Vette, Toby J. Vette, Robert Elsenpeter (Tata McGraw Hill)

5. ELECTIVE – 1: 3. PROJECT MANAGEMENT (CS415)

TEACHING SCHEME	**EXAMINATION SCHEME**
Lectures : 3 hrs/week	Theory: CIE (50)+IEE(50)=100Marks

UNIT 1
Introduction to Project Management:
Project, project management(PM), role of project manager, project management profession, system view of PM, organization ,stakeholders, project phases and lifecycle, context of IT projects, process groups, mapping groups to knowledge areas.   (5)

UNIT 2
Project Integration Management:
Strategic planning and project selection, preliminary scope statements, project management plans, project execution, monitoring and controlling project work, integrated change control, closing project, software assistance.   (4)

UNIT 3
Scope management: scope planning and scope management plan, scope definition and project scope statement, creating the work breakdown structure, scope verification and control, software assistance.
                                                            (3)
UNIT 4
Time management: Importance of project schedules, activity - definition, sequencing, resource estimating, duration estimating; schedule development and control, software assistance.   (3)

UNIT 5
Cost management: Importance, basic principles, cost estimating, budgeting and control, software assistance.   (3)

UNIT 6
Quality management: Importance, quality - planning assurance control, tools and techniques, modern quality management and improving IT project quality, software assistance.   (4)

UNIT 7
Human Resource management: Importance, keys to managing people, human resource planning, acquiring, developing and managing project team, software assistance.   (4)

UNIT 8
Communication management: Importance, communication planning, information distribution, performance reporting, managing stakeholders, suggestions for improving project communication, software assistance.   (3)

UNIT 9
Risk management: Importance, risk management planning, sources of risk, riskidentification, qualitative and quantitative risk analysis, risk response planning, risk monitoring and control, software assistance. **(**4)

UNIT 10
Procurement management: Importance, planning purchases and acquisitions, planning contracting, requesting seller responses, selecting sellers, administering the contract, closing the contract, software assistance. (3)

Text Book:
1. Information Technology Project Management (4th Edition) – Kathy Schwalbe (Cengage
Learning – India Edition).

Reference Books:
1. Project Management Core Textbook – Mantel Jr., Meredith, Shafer, Sutton with Gopalan
(Wiley India Edition)
2. Project Management- A systems Approach to planning, scheduling and controlling -
Harold Kerzner (John Wiley & Sons, Inc)
3. A Guide to the Project Management Body of Knowledge (3rd Edition)- Newtown Square,
PA, Project Management Institute, 2005.

6. WEB TECHNOLOGY LAB-1(CS416L)

TEACHING SCHEME	**EXAMINATION SCHEME**
Lectures : 2 hrs/week	
Practical : 2 hrs/week	IPE : 50 Marks
	EPE: 50 MARKS

UNIT 1
Introduction to XML: What is XML, XML verses HTML, XML terminology, XML standards, XML syntax checking, The idea of markup, XML Structure, Organizing information in XML, Creating Well-formed XML, XML Namespaces. DTD- Introduction to DTD, Document Type Declaration, Element Type Declaration, Attribute Declaration, Conditional Section, Limitations of DTD (2)

UNIT 2
Parsing XML: Introduction to Parser, Parsing approaches, JAXP, JAXP and SAX, JAXP and DOM. (3)

UNIT 3
Extensible Stylesheet Language(XSL): Introduction to XSL, overview, XPATH, XSLT– templates, creating elements and attributes, looping and sorting, conditional processing, defining variables. (2)

UNIT 4
XML Schema: Introduction, basic and complex schema, specifying frequency, element contents, content model reuse, anonymous types, mixed content, grouping of data, mandating all elements, choices, sequences, simple types- numeric, time, xml, string, binary data types, deriving types-

facets, attributes. (2)

UNIT 5
Introduction to Servlet: History of web applications, support for web application, power of servlet, a Servlet's job, basic servlet code, configuration of apache tomcat server, setup Development Environment, Compiling and Deploying Servlet, Web Application -directory structure, Deployment descriptor, Assigning custom URLs to servlet. (1)

UNIT 6
Structure of Servlet: HTTP basic, The servlet API, Page Generation, The Servlet Life Cycle – The Service method, doGet and doPost methods, Init method, destroy method, The Single Thread Model Interface. (1)

UNIT 7
Retrieving Information : Servlet Init Parameters and Parameter Names, Information about server, Context Init Parameters, The Client Information – information about client machine, Restricting Access, Information about user, The Request – Request Parameter, path information, Serving files, Serving Resources, Request Headers, Handling Post Request. (2)

UNIT 8
Creating Response in Servlet: The Structure of response, sending normal response,using persistent connection, response buffering, controlling response buffer, status codes,setting status code, HTTP headers, setting HTTP headers, Redirecting request, client pull, configuring error pages, logging, Exceptions. (2)

UNIT 9
Session Management in servlet: Session tracking, Session tracking Mechanisms – Hidden Form Fields, URL Rewriting, cookies, Session Tracking APIs, session life cycle,Setting session timeout, life cycle methods, manually invalidating session, Session ID,non cookie Fallbacks. (2)

UNIT 10
Java Server Pages: Need for JSP, Benefits of JSP, Advantages of JSP over other technologies, Installation of JSP pages, Creating Template Text, Invoking Java Code From JSP, Limiting the JAVA code in JSP, Using JSP Expression, Example of JSP Expression, Comparing Servlet to JSP, Writing Scriptlets, Scriptlet examples, Scriptlet for conditional execution, Using Declaration, Declaration Example, Using Predefined Variables, JSP page Directive – import, contentType, pageEncoding, session, buffer, autoFlush, errorPage. (3)

UNIT 11
Web Services : Introduction to Web Services, Comparison of Web Services with traditional technologies, Buzzwords in Web Services, Java Web Services, RESTful Web Services (3)

Text Books:
1. XML and Related Technologies – Atul Kahate[Pearson Education]
2. Java Servlet Programming – Jason Hunter[SPD O'REILLY]
3. Core-Servlet and JavaServer Pages Volume -1 , 2nd Edition [Marty Hall, Larry Brown, Pearson Education]

Reference Books:
1. The XML Handbook – Charls Goldfarb.
2. Learning XML – Erik Ray[SPD O'REILLY 2nd Edition]
3. Web Technologies - Black Book [Dreamtech Press]
4. Head First – Servlet and JSP - Bryan Basham[SPD O'REILLY, 2nd Edition]

Lab: It should consist of 10-12 experiments based on the following topics.
1. Create different types of XML documents.
2. Search information from XML document using SAX parser.
3. Navigating the Document Object Model tree for given XML Document.
4. Editing, Updating XML document using DOM.
5. Write XSLT styles-sheet to convert XML document to HTML.
6. XML Validation using Xschema.
7. Remote Procedure call using XML.
8. Storing XML contents to database.
9. Installation, Configuration of Tomcat Server and Deployment of servlet based application.
10. Write a servlet to store form data to database – use Type 4 JDBC driver and Database connectivity support from server.
11. Session Management using Servlet.
12. Write a JSP application to display database contents.
13. Write an JSP application to search particular information in database
14. Session Management using JSP.

7. PROJECT – I (CS417L)

TEACHING SCHEME   **EXAMINATION SCHEME**
Practical   : 4 Hrs/week   IPE   : 50 Marks
                                                         EPE   : 50 Marks

The project work is to be carried out in two semesters of B.E. The project should be undertaken preferably by group of 4-5 students who will jointly work and implement the project in the two semesters.

In Semester VII, The group will select a project with the approval of the Guide (teaching staff) and submit the name of the project with a synopsis of the proposed work of not more than 02 to 08 pages before second week of August in the academic year. The group is expected to complete detailed system design, analysis, data flow design, procurement of hardware and/or software, implementation of a few modules of the proposed work at the end of semester –VII as a part of the term work submission in the form of a joint report.

The term work assessment will be done jointly by teachers appointed by Head of the Department.

The oral examination will be conducted by an internal and external examiner as appointed by the University.

Note:

1. Project work should be continually evaluated based on the contributions of the group members, originality of the work, innovations brought in, research and developmental efforts, depth and applicability, etc.

2. Two mid-term evaluations should be done, which includes presentations and demos of the work done.

3. Care should be taken to avoid copying and outsourcing of the project work.

B.Tech. (COMPUTER SCIENCE & TECHNOLOGY) SEM – VIII

1. MOBILE TECHNOLOGY(CS421)

TEACHING SCHEME   **EXAMINATION SCHEME**

Lectures   : 3 hrs/week   Theory: CIE (50) +IEE(50)=100Marks

UNIT 1
Introduction to wireless communication:
Need and Applications of wireless communication, Wireless Data Technologies, Market for mobile communication, Mobile and wireless devices.   (2)

UNIT 2
Wireless transmission:
Frequencies for radio transmission, signals, antennas, signal propagation, Multiplexing, Modulation, Spread spectrum and Cellular systems.   (3)

UNIT 3
Medium Access Control:
Specialized MAC, SDMA, FDMA, TDMA and CDMA.   (3)

UNIT 4
Telecommunication Systems :
GSM, DECT systems – Architecture and protocols, Tetra frame structure, UMTS basic architecture and UTRA modes.   (4)

UNIT 5
Wireless LAN :
 Introduction, Infrared v/s Radio transmission, Infrastructure and ad-hoc networks, IEEE 802.11, HIPERLAN, Blue Tooth.   (6)

UNIT 6
Wireless ATM : WATM services, Reference model, functions, radio access layer, handover, Location management, Addressing, Mobile QoS, Access point control protocol.   (6)

UNIT 7
Mobile Network Layer : Mobile IP, DHCP.   (2)

UNIT 8
Mobile Transport Layer :
Traditional TCP, Indirect TCP, Snooping TCP, Mobile TCP, Fast and selective retransmission & recovery.   (4)

UNIT 9
Support for Mobility :
File systems, Wireless Application Protocol with example applications.   (6)

Books :
1. Mobile Communications – Jachen Schiller (Addison-Wesley).
2. Wireless LAN – Peter T. Davis, Craig R. Mc Guffin (MGH International Edn).
3. The Wireless Application Protocol – Sandeep Singhal, Jari Alvinen and group. (Addison-Wesley).
4. Professional WAP – Charles Arehart and group (SPD).

2. SOFT COMPUTING(CS422)

TEACHING SCHEME   **EXAMINATION SCHEME**

Lectures   : 3 hrs/week   Theory: CIE(50)+IEE(50) = 100Marks

Practical   : 2hrs/week   IPE : 50Marks

                                          EPE : 50Marks

UNIT 1
Introduction : Artificial Neural Network ,Advantages of Neural Network , Fuzzy Logic , Genetic Algorithms , Hybrid Systems : Neuro Fuzzy Hybrid System, Neuro Genetic Hybrid System, Fuzzy Genetic Hybrid System. (4)

UNIT 2
Artificial Neural Networks: Fundamental Concept, Evolution Of Neural Networks, Basic Models of Artificial Neural Network, Terminologies of ANNs, McCulloch-Pitts Neuron , Linear Reparability, Hebb Network. (7)

UNIT 3
Supervised Learning Network: Perceptron Networks, Adaptive Linear Neuron (Adaline) ,Mutiple Adaptive Linear Neuron, Back Propagation Network, Radial Basis Function Network. (7)

UNIT 4
Introduction to Fuzzy Sets : Introduction , Classical Sets , Fuzzy Sets, Fuzzy relations , Membership Function , Defuzzification , Fuzzy Arithmetic and Fuzzy Measures, Fuzzy Rule base and Approximate Reasoning , Fuzzy Decision Making, Fuzzy Logic Control System. (7)

UNIT 5
Genetic Algorithms : Introduction , Basic Operators and Terminologies in Gas , Traditional Algorithm vs Genetic Algorithms , Simple GA, General Genetic Algorithm, The Schema Theorem, Classification of Genetic Algorithm, Holland Classifier System, Genetic Programming, Applications of GA. (7)

UNIT 6
Applications of Soft Computing: GA Based Internet Search Technique; Soft Computing Based Hybrid Fuzzy Controllers. (4)

Lab: It should consist of minimum 8 - 10 assignments based on the syllabus.

Text Books :
1) Principles of Soft Computing - S.N. Sivanandam , S.N. Deepa. (Wiley India Edition).
2) Elements of Artificial Neural Networks - K. Mehrotra, C.K. Mohan, and S. Ranka Published by MIT Press, 1997 (http://mitpress.mit.edu/book-home.tcl?isbn=0262133288

Reference Books:
1. Soft Computing and Intelligent Systems Design – theory, tools and applications – F.O. Karray & C.D. Silva (Pearson Education).
2. Neuro-Fuzzy and Soft Computing – A computational approach to learning and machine intelligence – J.S.R. Jang, C.T. Sun & E. Mizutani (Pearson Education).

3. SOFTWARE TESTING AND QUALITY ASSURANCE (CS423)

TEACHING SCHEME
Lectures   : 3 hrs/week
Tutorial   : 1 hrs/week

EXAMINATION SCHEME
Theory: CIE(50)+IEE(50) = 100Marks

UNIT 1
Principles of Measurement:
Representation Theory of Measurement, Measurement and models, Measurement Scales, Classification of Software Measures, Determining what to measure, Applying Framework, Software Measurement Validation, Four principles of Investigation, Planning Formal Experiments, What is a good data, How to define/collect data, How to Store and Extract data.   (8)

UNIT 2
Internal Product attributes Measurement
Size: Aspects of software size, length, reuse, functionality, complexity Structure: Types of structural measures, control-flow structures, Modularity and information flow attributes, Object-oriented metrics, Data structure, Difficulties with general complexity measures, Halstead's Software Science.
                                                                                                                    (8)

UNIT 3
Software Measurement Programs and Principles of Testing:
What is a metric plan?, Goal-Question-Metric model, Measurement tools, Measurement in small, Measurement in Large systems. Defects: Origins of Defects, Defect Classes, Defect repository and Test Design, Developer/Tester support for Defect Repository Test Case Design I [White-Box]: Test Adequacy criteria, Static testing by humans, Static analysis tools, Structural Testing, Code Complexity testing, Mutation Testing Test Case Design II [Black-Box]: Test case Design Criteria, Requirement based testing, Positive and negative testing, Boundary Value analysis, Equivalence Partitioning, State-based or Graph based Testing, Compatibility Testing, User Documentation Testing, Domain Testing   (8)

UNIT 4
Software testing:
Test plan, Management, Execution and Reporting, GUI testing, Validation testing, Integration testing, System and Acceptance testing, Scenario testing, Regression testing, Specification-based testing, Performance Testing, Ad hoc Testing, Usability and Accessibility Testing, Software Test Automation. (8)

UNIT 5
Software Quality metrics and tools:
Quality concepts, Software Quality Assurance, Six Sigma principles, Malcolm Baldridge Assessment, ISO 9000, Edward Deming's principles, Total Quality Management, Product Quality Metrics, In process Quality Metrics, Software maintenance, Ishikawa's 7 basic tools, Checklists, Pareto diagrams, Histogram, Run Charts, Scatter diagrams, Control chart, Cause Effect diagram. Defect Removal Effectiveness & Process Maturity Level. (8)

UNIT 6
Software Maintenance:
Problem Reporting: Customer side Preliminary activities, Defects reported by Internal Customers, Logistics and Tooling, Challenges and Best Practices. Problem Resolution: Overview of Problem Resolution, Categorizing and Identifying problem, Making the Fix and Testing it, Challenges and Best Practices. Fix Distribution: Overview of Fix Distribution, Choosing method of Fix Distribution, Composing Fixes, Preparing and Testing Shipment unit. (8)

Text Books:
1. Fenton, Fleeger, " Software Metrics: A Rigourous and Practical Approach", Thomson, ISBN 981-240-385-X
2. Stephen H. Kan, "Metrics & Models in Software Quality Engineering", Pearson Education, ISBN 81-297-0175-8

Reference Books:
1. Ramesh, Bhattiprolu, " Software Maintenance", Tata McGraw Hill, ISBN 0-07-048345-0
2. Desikan, Ramesh, "Software Testing : Principles and Practices", Pearson Education, ISBN 81-7758-121-X
3. Burnstein, "Practical Software Testing", Springer International Edition, ISBN 81-8128-089-X

5. MANAGEMENT AND ENTERPRENEURSHIP (CS425)

TEACHING SCHEME	EXAMINATION SCHEME
Lectures : 3 hrs/week	Theory: CIE(50)+IEE(50) = 100Marks

UNIT 1
MANAGEMENT:

Introduction - Meaning - nature and characteristics of Management, Scope and functional areas of management - Management as a science, art or profession Management & Administration - Roles of Management, Levels of Management, Development of Management Thought-early management approaches-Modern management approaches.   (7)

UNIT 2

PLANNING: Nature, importance and purpose of planning process - Objectives - Types of plans (Meaning only) - Decision making - Importance of planning - steps in planning & planning premises - Hierarchy of plans.   (6)

UNIT 3

ORGANIZING AND STAFFING: Nature and purpose of organization - Principles of organization - Types of organization - Departmentation - Committees – Centralization Vs Decentralization of authority and responsibility - Span of control - MBO and MBE (Meaning only) Nature and importance of Staffing - Process of Selection & Recruitment (in brief)   (6)

UNIT 4

DIRECTING & CONTROLLING: Meaning and nature of directing - Leadership styles, Motivation Theories, Communication - Meaning and importance –Coordination, meaning and importance and Techniques of Co - ordination. Meaning and steps in controlling - Essentials of a sound control system - Methods of establishing control (in brief)   (7)

UNIT 5

ENTREPRENEUR: Meaning of Entrepreneur; Evolution of the Concept, Functions of an Entrepreneur, Types of Entrepreneur, Intrapreneur - an emerging Class. Concept of Entrepreneurship - Evolution of Entrepreneurship, Development of Entrepreneurship; Stages in entrepreneurial process; Role of entrepreneurs in Economic Development; Entrepreneurship in India; Entrepreneurship – its Barriers.   (6)

UNIT 6

SMALL SCALE INDUSTRY: Definition; Characteristics; Need and rationale: Objectives; Scope; role of SSI in Economic Development. Advantages of SSI Steps to start an SSI - Government policy towards SSI; Different Policies of S.S.I.; Government Support for S.S.I. during 5 year plans, Impact of Liberalization, Privatization, Globalization on S.5.1., Effect of WTO/GATT Supporting Agencies of Government for S.5.!., Meaning; Nature of Support; Objectives; Functions; Types of Help; Ancillary Industry and Tiny Industry (Definition only).   (6)

UNIT 7

INSTITUTIONAL SUPPORT: Different Schemes; TECKSOK; KIADB; KSSIDC; KSIMC; DIC Single Window Agency: SISI; NSIC; SIDBI; KSFC .   (6)

UNIT 8

PREPARATION OF PROJECT : Meaning of Project; Project Identification; Project Selection; Project Report; Need and Significance of Report; Contents; formulation; Guidelines by Planning Commission for Project report; Network Analysis; Errors of Project Report; Project Appraisal. Identification of Business Opportunities :Market Feasibility Study; Technical Feasibility Study; Financial Feasibility Study & Social Feasibility Study   (6)

Text Books:
1. **Principles of Management** – P.C. Tripathi, P.N. Reddy – Tata McGraw Hill, 2007.
2. **Dynamics of Entrepreneurial Development & Management** – Vasant Desai:, Himalaya Publishing House, 2007.
3. **Entrepreneurship Development** – Poornima M Charantimath – Small Business Enterprises,   Pearson Education, 2006.

Reference Books:
1. **Management Fundamentals Concepts, Application, Skill Development** – Robert Lusier , Thompson, 2007.
2. **Entrepreneurship Development** – S S Khanka, S Chand & Co, 2007.
3. **Management** – Stephen Robbins:, 17th Edition, Pearson Education / PHI, 2003.
4. Web Sites for the Institutions listed in the Unit 7 on Institutional Support.

5. ELECTIVE – 2 : 1. CYBER LAWS(CS425)

TEACHING SCHEME   **EXAMINATION SCHEME**
Lectures   : 3 hrs/week   Theory: CIE(50)+IEE(50) = 100Marks

UNIT 1

Object and Scope of the IT Act : Genesis, Object, Scope of the Act, Amendments.   (3)

UNIT 2

E-Governance and IT Act 2000 : Legal recognition of electronic records, Legal recognition of digital signature, Use of electronic records and digital signatures in Government and its agencies. (7)

UNIT 3

Certifying Authorities: Need of Certifying Authority and Power, Appointment, function of Controller, Who can be a Certifying Authority?, Digital Signature Certifications, Generation, Suspension and Revocation Of Digital Signature Certificate.   (7)

UNIT 4

Domain Name Disputes and Trademark Law : Concept of Domain Names, New Concepts in Trademark Jurisprudence, Cyber squatting, Reverse Hijacking, Meta tags, Framing, Spamming, Jurisdiction in Trademark Dispute.   (6)

UNIT 5

The Cyber Crimes (S-65 to S-74) : Tampering with Computer Source Documents(S-65), Hacking with Computer System(S-66),Publishing of Information Which isObscene in Electronic Form(s-67), Offences : Breanch of Confidentiality & Privacy (S-72), Offences : Related to Digital Signature Certificate (S-73 & S-74)   (7)

UNIT 6

E-banking and legal issues: Regulating e-transactions, Role of RBI and legal issues, International transactions of e-cash, Credit card and internet, Laws relating to internet credit cards.   (6)

References:
1. Cyber Law in India by Farooq Ahmad – Pioneer Books
2. Information Technology Law and Practice by Vakul Sharma – Universal Law Publishing Co. Pvt. Ltd.
3. The Indian Cyber Law by Suresh T Vishwanathan – Bharat Law house New Delhi.
4. Hand book of Cyber & E-commerce Laws by P.M. Bakshi & R.K.Suri – Bharat Law house, New Delhi.
5. Guide to Cyber Laws by Rodney D. Ryder – Wadhwa and Company Nagpur.
   The Information Technology Act,2000 – Bare Act – Professional Book Publishers – New Delhi

5. ELECTIVE – 2 : 2. DATA MINING AND WAREHOUSING (CS425)

TEACHING SCHEME   **EXAMINATION SCHEME**

Lectures   : 3 hrs/week   Theory: CIE(50)+IEE(50) = 100Marks

UNIT 1
Machine Learning and Data Mining-Data Flood, Data Mining and Knowledge Discovery, Data Mining Tasks Data Preparation for Knowledge Discovery, Data understanding, Data cleaning,

Data transformation, False "predictors" , Feature reduction, Randomization, Learning with unbalanced data. (4)

UNIT 2
Knowledge Representation -Decision tables, Decision trees, Decision rules, Rules involving relations, Instance-based representation ,Classification -Statistical Based Algorithms, Decision Trees Based Algorithms, Neural Networks Based Algorithms, Rules, Regression, Instance-based (Nearest neighbor), Case study (6)

UNIT 3
Clustering: Introduction, Clustering Methods, Ways of scaling clustering algorithms,Case study (4)

UNIT 4
Associations:Transactions, Frequent itemsets, Association rules, Applications. (6)

UNIT 5
Data warehousing, OLAP and Data mining, web warehousing, Schema integration and data cleaning, Deduplication, Data marts: Multidimensional databases (OLAP**)**
Advanced topics
ETL, Integrating OLAP and mining, Online aggregation, Recap, future and visions. (8)

UNIT 6
Advanced Topics:Mining Multimedia Databases, Text Mining, Web Mining, Spatial Mining, Temporal Mining Applications and Trends in Data Mining- Data Mining Applications, Data Mining System Products and Research Prototypes, Additional Themes on Data Mining, Social impacts of Data Mining, Trends in Data Mining (8)

Reference Books :
1. Jiawei Han, Micheline Kamber. Data Mining: Concepts and Techniques
2. Heikki Mannila, Padhraic Smyth, David Hand. Principles of Data Mining
3. Margaret H. Dunham. Data Mining: Introductory and Advanced Topics
4. Soumen Chakrabarti Mining the Web- Discovering Knowledge from Hypertext Data
5.Pang-Ning Tan, Michael Steinbach, Vipin Kumar. Introduction to Data Mining
6.Ian H. Witten & Eibe Frank. Data Mining: Practical Machine learning Tools and Techniques
7.T Hastie, R Tibshirani, J H Friedman. The Elements of Statistical Learning: Data Mining, Inference, and Prediction

5. ELECTIVE – 3: BUSINESS INTELIGENCE SYSTEM (CS425)

TEACHING SCHEME **EXAMINATION SCHEME**
Lectures : 3 hrs/week Theory: CIE(50)+IEE(50) = 100Marks

UNIT 1

Introducing the technical architecture: the value of architecture, technical architecture overview, back room architecture, presentation server architecture, front room architecture, infrastructure, metadata, security. (7)

UNIT 2

Introducing dimensional modeling: making the case for dimensional modeling, dimensional modeling primer, enterprise data warehouse bus architecture, more on dimensions & facts　　　(6)

UNIT 3
Designing the dimensional modeling: modeling process overview, getting organized, four step modeling process, design the dimensional model.　　　　　　　　　　　　　(5)

UNIT 4

Introducing extract, transformation & load: round up the requirements, the 34 subsystems of etl, extracting data, cleaning & conforming data.　　　　　　　　　(6)

UNIT 5

Introducing business intelligence applications: importance of b.i. applications, analytical cycle for b.i., types of b.i. applications, navigating applications via the b.i. portal.　　　(6)

UNIT 6
Designing & developing b.i applications: b.i. application resource planning, b.i. application specification, b.i. application development, b.i. application maintenance　　　(6)

Text book:
1. the data warehouse lifecycle toolkit by raiph kimball,ross, 2nd edition, wileypublication

Reference books:
1. data warehousing in the real world – anahory & murray, pearson edt.
2. data warehousing fundamentals – ponniah [wiley publication]

6. WEB TECHNOLOGY LAB – 2(CS426L)

TEACHING SCHEME　　　　　　　　　　　　　　**EXAMINATION SCHEME**
Lectures　　　: 2 hrs/week
Practical　　: 4 hrs/week　　　　　　　　　IPE: 50 Marks
　　　　　　　　　　　　　　　　　　EPE: 50MARKS

UNIT 1
Introduction to ASP.NET : The Evolution of Web Development, Important facts about
 Web Development　　　　　　　　　　　　　　　　　(1)

UNIT 2

ASP.NET, The Code Model, Web Project.
Web Forms : Page Processing, Web Form Processing Stages, The Page as Control
Container, The Page Class. (2)

UNIT 3
Server Controls : Types of Server Controls, HTML Server Controls, Web Controls, List Controls,
Input Validation Controls, Rich Controls (2)

UNIT 4
ASP.NET Application : Anatomy of ASP.NET application, global.asax Application file, ASP.NET
Configuration, .NET Components, Extending the HTTP Pipeline (2)

UNIT 5
State Management : ASP.NET State Management, View State, Transferring Information between
pages, Cookies, Session State, Application State (2)

UNIT 6
ADO.NET Fundamentals : ADO.NET Architecture, The Connection Class, The Command and
DataReader Classes (2)

UNIT 7
Data Binding : Basic Data binding, Data source Control, TheSqlDataSource. (2)

UNIT 8
JavaScript and Ajax Techniques : JavaScript Essentials, Basic JavaScript Example,Understanding
Ajax, Using Ajax with client callbacks (1)

UNIT 9
ASP.NET Ajax : Introduction, Sever Callbacks, ASP.NET Ajax Server Controls, Deeper into the
Client Libraries, Control Extenders (2)

UNIT 10
Introduction to PHP scripting language: Basics of PHP script, combining HTML and PHP,
variables, data types, static and predefined (super-global) variables, operators, expressions, flow &
looping control (2)

UNIT 11
Functions and Arrays : Structure of function, defining & calling function, returning values,
arguments, scope of variables, static functions, include & require statements, Arrays, Associative
arrays, multidimensional arrays, array related functions (2)

UNIT 12
Advanced topics in PHP : Object oriented programming in PHP, File & Directory handling in PHP,
Database handling in PHP. (2)

UNIT13
Managing State Information &Security : Working with forms, cookies, sessions and security related
issues (2)

Lab:

It should consist of 20-22 experiments based on the following topics.
1. Accepting and validating user entered data using ASP.NET.
2. Create a Web Application which detect capabilities of Browser and handle Page and Application level error.
3. Accepting and validating book catalog information using validating controls.
4. Create a Web Application which implement authentication and authorization features (Membership class).
5. Display database contents from SQL server or Oracle database using SQL Command class from ASP.NET.
6. Display parameterized data using SQLDataReader and GridView in ASP.NET.
7. Database access using DataSet in ASP.NET.
8. Displaying data using DataView in ASP.NET.
9. Create a setup web application for deployment of ASP.NET application.
10. Develop sample form with validation code using PHP.
11. Develop file up-loader form to upload a file using PHP.
12. Develop sample application for session management using PHP.
13. Develop sample application with database connectivity using PHP.
14. Create a form to send mail using PHP.
15. Use of Foss documentation tools – Latex
16. Introduction to packaging – Debian
Content Management Systems – Drupal

Text Books:
1. Professional ASP.NET 3.5 in C# 2008, Matthew MacDonald [Wiley-APRESS Publication]
2. Teach Yourself PHP, MYSQL, Apache - Julie C Meloni [SAMS Publication]
3. PHP5 and MySQL Bible Tim Converse, Joyce Park, Clark Morgan

Reference Books:
1.Beginning PHP5 [WROX]
2.PHP Bible-John [Wiley]
3.Professional ASP.NET 2.0 by Bill Evjen, Scott Hanselman [Wiley Wrox publication].
4.Debian New maintainers guide - http://www.debian.org/doc/maint-guide/
5.LaTeX: A document preparation system, User's guide and reference manual by Leslie
6. Getting started with Drupal - http://drupal.org/getting-started/

7. PROJECT – II (CS427L)

TEACHING SCHEME   **EXAMINATION SCHEME**
Practical   : 4 Hrs/week   IPE   : 50 Marks
                                                     EPE   : 50 Marks

Objective :

The group will continue to work on the project selected during the semester VII and submit the completed project work to the department at the end of semester VIII as mentioned below-

1. The workable project.
2. The project report in the bound journal complete in all respect with the following : -
     i) Problem specifications.
     ii) System definition – requirement analysis.
     iii) System design – dataflow diagrams, database design
     iv) System implementation – algorithm, code documentation
     v) Test results and test report.
     vi) In case of object oriented approach – appropriate process be followed.

Oral examination will be conducted by internal and external examiners as appointed by the University.

Note:
1. Project work should be continually evaluated based on the contributions of the group members, originality of the work, innovations brought in, research and developmental efforts, depth and applicability, etc.
2. Two mid-term evaluations should be done, which includes presentations and demos of the work done.
3. **Care should be taken to avoid copying and outsourcing of the project work.**