VIII-Semester B. E. (Computer Science & Engineering)

Course Code: CS801
Title of the Course: Software Testing & Quality Assurance

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
03	01	--	04	04	03	10	10	80	100

Unit	Contents	Hours
I	Testing as an Engineering Activity – Role of Process in Software Quality – Testing as a Process – Basic Definitions – Software Testing Principles – The Tester's Role in a Software Development Organization – Origins of Defects – Defect Classes – The Defect Repository and Test Design – Defect Examples – Developer/Tester Support for Developing a Defect Repository.	9
II	Introduction to Testing Design Strategies – The Smarter Tester – Test Case Design Strategies – Using Black Box Approach to Test Case Design Random Testing Requirements based testing – positive and negative testing -–Boundary Value Analysis – decision tables - Equivalence Class Partitioning state-based testing– cause effect graphing – error guessing - compatibility testing – user documentation testing –domain testing Using White–Box Approach to Test design – Test Adequacy Criteria –static testing vs. structural testing – code functional testing - Coverage and Control Flow Graphs – Covering Code Logic – Paths – Their Role in White–box Based Test Design –code complexity testing – Evaluating Test Adequacy Criteria.	9
III	The Need for Levels of Testing, Unit Test, Unit Test Planning, Designing the Unit Tests. The Test Harness, Running the Unit tests and Recording results, Integration tests, Designing Integration Tests, Integration Test Planning, Scenario testing –defect bash elimination, System Testing – types of system testing, Acceptance testing – performance testing , Regression Testing, Internationalization testing, ad-hoc testing, Alpha Test , Beta Tests, Testing OO systems – usability and accessibility testing	9
IV	People and organizational issues in testing – organization structures for testing teams –testing services - Test Planning – Test Plan Components – Test Plan Attachments – Locating Test Items – test management – test process - Reporting Test Results – The role of three groups in Test Planning and Policy Development – Introducing the test specialist – Skills needed by a test specialist – Building a Testing Group	9
V	Software test automation – skills needed for automation – scope of automation – design and architecture for automation – requirements for a test tool – challenges in automation Test metrics and measurements –project, progress and productivity metrics – Status Meetings – Reports and Control Issues – Criteria for Test Completion – SCM – Types of reviews – Developing a review program – Components of Review Plans– Reporting Review Results. – evaluating software quality – defect prevention – testing maturity model	9
Total		45

Text Book/s:

1. Srinivasan Desikan and Gopalaswamy Ramesh, " Software Testing – Principles and Practices ", Pearson education, 2006.
2. Aditya P.Mathur, "Foundations of Software Testing", Pearson Education,2008.

Reference Book/s:

1. Boris Beizer, "Software Testing Techniques", Second Edition,Dreamtech, 2003
2. Elfriede Dustin, "Effective Software Testing", First Edition, Pearson Education, 2003.
3. Renu Rajani, Pradeep Oak," Software Testing–Effective Methods, Tools and Techniques ", Tata McGraw Hill, 2004.
4. Burnstein, "Practical Software Testing", Springer International Edition

VIII-Semester B. E. (Computer Science & Engineering)

Course Code: CS802
Title of the Course: Compiler Construction

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
03	01	--	04	03	03	10	10	80	100

Unit	Contents	Hours
I	**Introduction to Compilor:** Compilers and Translators, why to write compiler, The structure compiler, phases of compiler, bookkeeping, error handling, compiler construction tools, Interpreter and the related issues, Cross compiler, Incremental compiler, Boot strapping, Lexical Analyzer(LEX), LEX specification details.	09
II	**Syntax Analysis Introduction:** Role of parsers & issues of separating lexical & syntax analysis, parsing technique: Top down parser, Predictive parser, Bottom up parsing, LR parse (SLR, CLR & LALR etc), Implementation of LR parser. Automatic constructions of parser (YACC), YACC specification file details.	09
III	**Intermediate code Generation:** Syntax-directed translation schemes, Intermediate code, postfix notation, parse tree and syntax tree, Three address codes, quadruples, triples, translation of assignment statements, Boolean expression, Array references in arithmetic expression, procedure calls, Declaration, case statement.	09
IV	**Symbol Tables:** Contents, Data structure for symbol tables, representing scope information. Error detection and recovery: Error handling: Lexical-phase, Syntactic phase and semantic phase, Code Generation Introduction: Issues in code generation, Target machine, Run-time storage management, Basic blocks and flow graphs, Next-use information, A simple code generator, Register allocation and assignment, The dag representation of basic blocks, Peephole optimization, Generating code from dags.	09
V	**Code Optimization:** Introduction, Principle sources Of Optimization, optimization of basic blocks, Loop in flow graphs, Introduction to global data flow analysis, Iterative solution of data-flow equations, code improving transformation.	09
	Total	45

Text Book/s:
1. A V Aho, R. Sethi, .J D Ullman, "Compilers: Principles, Techniques, and Tools", Pearson Education, ISBN 81 - 7758 - 590 - 8
2. Aho & Ullman , Principles of compiler Design.

Reference Book/s:
1. Lex and Yece-O'relly.
2. Dhamdhere. Compiler Construction, McMillan India
3. Muchnlk -Advanced compiler design & Implementation.

VIII-Semester B. E. (Computer Science & Engineering)

Course Code: CS803
Title of the Course: Computer System Security

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
03	01	--	04	03	03	10	10	80	100

Unit	Contents	Hours
I	Security Attacks (Interruption, Interception, Modification and Fabrication), Security Services (Confidentiality, Authentication, Integrity, Non-repudiation, access Control and Availability) and Mechanisms, A model for Internetwork security, Internet Standards and RFCs, Buffer overflow & format string vulnerabilities, TCP session hijacking, ARP attacks, route table modification, UDP hijacking, and man-in-the-middle attacks.	9
II	Conventional Encryption Principles, Conventional encryption algorithms, cipher block modes of operation, location of encryption devices, key distribution Approaches of Message Authentication, Secure Hash Functions and HMAC.	9
III	Public key cryptography principles, public key cryptography algorithms, digital signatures, digital Certificates, Certificate Authority and key management Kerberos, X.509 Directory Authentication Service.	9
IV	Email privacy: Pretty Good Privacy (PGP) and S/MIME. IP Security Overview, IP Security Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations and Key Management. Web Security Requirements, Secure Socket Layer (SSL) and Transport Layer Security (TLS), Secure Electronic Transaction (SET).	9
V	Basic concepts of SNMP, SNMPv1 Community facility and SNMPv3. Intruders, Viruses and related threats, Firewall Design principles, Trusted Systems. Intrusion Detection Systems.	9
	Total	45

Text Book/s:
1. Network Security Essentials (Applications and Standards) by William Stallings Pearson Education.
2. Cryptography & Network Security by Atul Kahate , Tata Mc Graw Hill

Reference Book/s:
1. Fundamentals of Network Security by Eric Maiwald (Dreamtech press)
2. Network Security - Private Communication in a Public World by Charlie Kaufman, Radia Perlman and Mike Speciner, Pearson/PHI.
3. Cryptography and network Security, Third edition, Stallings, PHI/Pearson
4. Principles of Information Security, Whitman, Thomson.
5. Network Security: The complete reference, Robert Bragg, Mark Rhodes, TMH
6. Introduction to Cryptography, Buchmann, Springer.

VIII-Semester B. E. (Computer Science & Engineering)

Course Code: **CS804**
Title of the Course: Advanced Database (Elective-III)

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
03	01	--	04	04	03	10	10	80	100

Unit	Contents	Hours
I	**DATABASE DESIGN ISSUES:** ER Model :Normalization, Security, Integrity,Consistency ,Database Tuning, Optimization and Research Issues, Design of Temporal Databases ,Design of Spatial Databases.	09
II	**DISTRIBUTED DATABASES** Distributed Databases Vs Conventional Databases, Architecture, Advantages, Disadvantages, Fragmentation, Horizontal, vertical, hybrid Replication Top-up design, the allocation problem, Bottom-down design, Data Replication, Data Fragmentation, Transparently Naming & Autonomy, Distributed Query Processing, Recovery, Concurrency Control,Deadlock Handling	09
III	**OBJECT ORIENTED & OBJECT RELATIONAL DATABASES** Introduction to Object Oriented Data Bases – Approaches, Modeling and Design, Persistence, Query Languages, Transaction – Concurrency, Multi Version Locks, Recovery.	09
IV	**EMERGING SYSTEMS** Enhanced Data Models: Client/Server Model, Data Warehousing and Data Mining, Web Databases, Mobile Databases.	09
V	**CURRENT TRENDS** Rules Knowledge Bases, Active and Deductive Databases, Parallel Databases, Multimedia Databases, Image Databases, Text Database, Unstructured Databases, Cloud Computing, Data streaming.	09
	Total	45

Text Book/s:
1. R. Elmasri and S.B. Navathe, "Fundamentals of Database ", Pearson Education, 2004.
2. F.Henry Korth, Abraham Silberschatz, S.Sudharshan, " Database System Concepts", Fourth Ediion, Tata Mcgraw Hill, 2002.

Reference Book/s:
1. Elisa Bertino, Barbara Catania, Gian Piero Zarri, "Intelligent Database Systems", Addison-Wesley, 2001.
2. Carlo Zaniolo, Stefano Ceri, Christos Faloustsos, R.T.Snodgrass, V.S.Subrahmanian, "Advanced Database Systems", Morgan Kaufman, 1997.
3. N.Tamer Ozsu, Patrick Valduriez, "Principles Of Distributed Database Systems", PHI, Inc., 1999.
4. Abdullah Uz Tansel Et Al, "Temporal Databases:"Theory, Design And Principles", Benjamin Cummings Publishers, 1993.

VII-Semester B. E. (Computer Science & Engineering)

Course Code: CS804
Title of the Course: Neural Network & Fuzzy System (Elective-III)

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
03	01	--	04	04	03	10	10	80	100

Unit	Contents	Hours
I	Fundamental Concepts and Models of Artificial Neural Systems: Biological Neurons and Their Artificial Models, Models of Artificial Neural Networks, Learning and Adaptation, Neural Network Learning Rules, Overview of Neural Networks.	09
II	Single-Layer Perceptron Classifiers: Discriminant Functions, Linear Machine and Minimum Distance Classification, Training and Classification using the Discrete Perceptron: Algorithm and Example, Single Layer continuous Perceptron Networks for Linearly Separable Classifications,	09
III	Multilayer Feedback Networks: Linearly Non-separable Pattern Classification, Delta learning Rule, Feedforward Recall and error Back-Propagation Training, Learning factors, Classifying and expert Layered Networks, Functional Link Networks.	09
IV	From Classical (CRISP) Sets to Fuzzy Sets: Introduction, Crisp sets: An overview, Fuzzy sets: Basic Types, Fuzzy sets: Basic Concepts, characteristics and significant of the Paradigm Shift. Fuzzy Sets Versus Crisp Sets: Additional Properties of a - cuts, Representation of Fuzzy sets, Extension Principles for Fuzzy sets.	09
V	Operations on Fuzzy Sets: Types of Operations, Fuzzy Complements, Fuzzy Intersections: t-Norms, Fuzzy Unions: t-Conorms, Combinations of operations, Aggregation Operations. Fuzzy Arithmetic: Fuzzy Numbers, Linguistic Variables, Arithmetic Operations on Intervals, and Arithmetic Operations on Fuzzy Numbers, Lattice Fuzzy Numbers, And Fuzzy Equations.	09
	Total	45

Text Book/s:
1. J.M.. Zurada, Introduction to Artificial Neural Systems, Jaico Publishing House, India
2. George J. Klir and Bo Yuan, Fuzzy Sets and Fuzzy Logic, Theory and Applications, PHI, Pvt. Ltd. - 1997.

VIII-Semester B. E. (Computer Science & Engineering)

Course Code: CS804
Title of the Course: Soft Computing (Elective-III)

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
03	01	--	04	04	03	10	10	80	100

Unit	Contents	Hours
I	Soft Computing: Introduction, requirement, different tools and techniques.Fuzzy sets and Fuzzy logic: Introduction, Fuzzy sets versus crisp sets, operations on fuzzy sets, Extension principle, Fuzzy relations and relation equations, Fuzzy numbers, Linguistic variables, Fuzzy logic, Linguistic hedges, Applications, fuzzy controllers, fuzzy pattern recognition, fuzzy image processing, fuzzy database.	09
II	Artificial Neural Network: Introduction, basic models, Hebb's learning, Adaline, Perceptron, Multilayer feed forward network, Back propagation, Different issues regarding convergence of Multilayer Perceptron, Competitive learning, Self-Organizing Feature Maps, Adaptive Resonance Theory, Associative Memories, Applications.	09
III	Evolutionary and Stochastic techniques: Genetic Algorithm (GA), different operators of GA, analysis of selection operations, Hypothesis of building blocks, Schema theorem and convergence of Genetic Algorithm, Simulated annealing and Stochastic models, Boltzmann Machine, Applications.	09
IV	Rough Set: Introduction, Imprecise Categories Approximations and Rough Sets, Reduction of Knowledge, Decision Tables, and Applications.	09
V	Hybrid Systems: Neural-Network-Based Fuzzy Systems, Fuzzy Logic-Based Neural Networks, Genetic Algorithm for Neural Network Design and Learning, Fuzzy Logic and Genetic Algorithm for Optimization, Applications.	09
	Total	45

Reference Book/s:
1. Neural Fuzzy Systems, Chin-Teng Lin & C. S. George Lee, Prentice Hall PTR.
2. Fuzzy Sets and Fuzzy Logic, Klir & Yuan, PHI, 1997.
3. Neural Networks, S. Haykin, Pearson Education, 2ed, 2001.
4. Genetic Algorithms in Search and Optimization, and Machine Learning, D. E. Goldberg, Addison-Wesley, 1989.
5. Neural Networks, Fuzzy logic, and Genetic Algorithms, S. Rajasekaran& G. A. V. Pai, PHI.
6. Neuro-Fuzzy and Soft Computing, Jang, Sun, &Mizutani, PHI.
7. Learning and Soft Computing, V. Kecman, MIT Press, 2001.
8. Rough Sets, Z. Pawlak, Kluwer Academic Publisher, 1991.
9. Intelligent Hybrid Systems, D. Ruan, Kluwer Academic Publisher, 1997.

VIII-Semester B. E. (Computer Science & Engineering)

Course Code: **CS804**
Title of the Course: **High Performance Network (Elective-III)**

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
03	01	--	04	04	03	10	10	80	100

Unit	Contents	Hours
I	**Gigabit Ethernet:** Business Drivers and need of it, Architecture and Overview of Gigabit Ethernet, Gigabit Ethernet Media Access Control (Half Duplex operation Vs Full Duplex Operation),Gigabit Ethernet Physical layer (lOOOBase X and lOOOBase T),Applications of Gigabit Ethernet, Ethernet summery Migration from lOMbps to Gigabit Ethemet,Network Design using Gigabit Ethernet a case study .	09
II	**Integrated Services Digital Network:** Conceptual view of ISDN and ISDN standards, ISDN Interfaces and functions (transmission structure, U-N Configuration, Protocol architecture etc),ISDN Data Link layer (LAPD protocol, terminal adoption, 1.465/v. 120),ISDN Network layer (Overview, basic call control using Q.931) ISDN services, Conceptual overview of Signaling System Number 7 **Frame Relay:** Frame relay Vs X.25, Frame relay Protocols and services (protocol architecture, Frame Mode call control),LAPF protocol (Both Core and Control),Concept of DLCI and its significance, Frame Relay Congestion control, Need, Congestion Control frame Work, Network use of CIR, and DE bit, Congestion Notification (FECN,BECN and CLLM)	09
III	**Broadband ISDN (B-ISDN):** Driving forces and need, B-ISDN standards and services, B-ISDN Functional Architecture, B-ISDN Transmission structure, B-ISDN protocol architecture, SONET/SDH and comparison with other available standards **ATM:** Overview, ATM protocol architecture, Virtual Channels and Virtual Path Switching, Detail Functionality of ATM Layer , Cell structure , HEC, Cell Delineation etc),ATM Adoption layer (need; different types and comparison),ATM traffic and Congestion control Requirements, ATM service categories ,ATM traffic descriptors, ATM QOS parameters, Classical IP over ATM, ATM in LAN environment (LANE)	09
IV	**ADSL and DSL Technologies:** Background and technological capabilities, Standards and associations, Architecture, Conceptual overview of VDSL, Deployment Case study, Market status and future.	09
V	**MPLS&RSVP:** MPLS, RSVP, Integrated & differential Services	09
	Total	45

Text Books:

1. William Stallings, "ISDN and Broadband ISDN with Frame Relay and ATM" 4th edition , Pearson Education
2. Rich Seifert ,"Gigabit Ethernet" Addison Wesley Inc.

Reference Books:

1. Sumit kasera and Pankaj Sethi , "ATM Networks Concepts and protocols" , Tata McGraw Hill Publication.

VIII-Semester B. E. (Computer Science & Engineering)

Course Code: CS805
Title of the Course: Distributed Systems (Elective-IV)

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
03	01	--	04	04	03	10	10	80	100

Unit	Contents	Hours
I	**Introduction:**Definition, Goals, Types of distributed systems: Distributed Computing System, Distributed Information System, Architecture: Architectural, Styles, System Architecture, **Processes and Communication**: Virtualization, Servers, Code Migration, Software Agents, Remote Procedure Call, Message Oriented Transient Communication	10
II	**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	10
III	**Distributed File Systems:** Architecture, Processes, Communication, Naming, Synchronization, Consistency and Replication, **Fault Tolerance:** Introduction, Process Resilience, Distributed Commit, Recovery.	09
IV	**Distributed Operating Systems:** Amoeba: Design goals, architecture, process management, file management. Mach: Design goals, architecture, process management, memory management	08
V	**Distributed Multimedia Systems:** Introduction, Characteristics of multimedia data, Quality of service management, Resource management, Stream adaptation, Case study : The Tiger Video file server	08
	Total	45

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)

Course Code: CS805
Title of the Course: E-Commerce (Elective-IV)

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
03	01	--	04	04	03	10	10	80	100

Unit	Contents	Hours
I	Introduction to E-Commerce: Overview, Traditional vs. Electronic Business Transactions, Benefit of Electronic Commerce, Information Technology and Business, Internet structure and growth. Network infrastructure, other Networks.	09
II	EDI to E-Commerce: Electronic Data Interchange, The UN/EDIFACT Standard, The Internet and Extranet for E-Commerce, Identification and Tracking tools for Electronic Commerce. Transactions on the Internet, requirements of payment system. Types of electronic payment. Tools for implementation.	09
III	Security and E-Commerce: The benefit of Cryptography, The process of Encryption, The working of Public-key Cryptography, The importance of digital Certificates, The Comparison of encryption methods, An overview of Internet Security Systems.	09
IV	Consumer and Business Markets: Consumer Demographics, Loyalty and Acceptance, Value chain and the market place. Business evaluation on the internet.	09
V	Electronic Customer Support: The web response system and PPI, security and software modules, Submitting and tracking Online Problems, Dividing process to protect corporate Information. The Beginnings of a Virtual Factory: Virtual Co-ordination, Implementation CITIS operations Controlling Access to shared Data and applications. Entrusting access to an intermediatory.	09
	Total	45

Text Book/s:
1. Bajaj & Nag - E-Commerce the cutting edge of business.
2. David Kosiur - Understanding electronics Commerce.

VIII-Semester B. E. (Computer Science & Engineering)

Course Code: **CS805**
Title of the Course: Embedded System (Elective-IV)

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
03	01	--	04	04	03	10	10	80	100

Unit	Contents	Hours
I	**AN INTRODUCTION TO EMBEDDED SYSTEMS** An Embedded system processor in the system, other hardware units, software embedded into a system. Exemplary embedded systems, embedded system - on- chip (SOC) and in VLSI circuit. Processor and memory organization - Structural Units in a Processor. Processor selection for an embedded system, memory devices. memory selection for an embedded systems, allocation of memory to program cache and memory management links segments and blocks and memory map of a system, DMA. Interfacing processors, memories and Input Output Devices.	09
II	DEVICES AND BUSES FOR DEVICE NETWORKS 1/0 devices timer and colmting devices. serial communication using the "12 C' CAN. profibus foundation field bus. And advanced I/O buses between the network multiple devices. host systems or computer parallel communication between the networked 1/0 multiple devices using the ISA. PCL PCI-X and advanced buses.	09
III	DEVICE DRIVERS AND INTERRUPTS SERVICING MECHANISM Device drivers, parallel port and serial port device drivers in a system, device drivers for internal programmable timing devices, interrupt servicing mechanism.	09
IV	PROGRAMMING CONCEPTS AND EMBEDDED PROGRAMMING IN C, C++, VC++,AND JAVA: Interprocess communication and synchronization of processes, task and threads. multiple processes in an application. problem of sharing data by multiple tasks and routines, interprocess communication.	09
V	HARDWARE - software co-design in an embedded system, embedded system project management. embedded system design and co-design issues in system development process, design cycle in the development phase for an embedded system, use of target systems, use of software tools for development of an embedded system, use of scopes and logic analysis for system. hardware tests. Issues in embedded system design.	09
	Total	45

Text Book/s:
1. Embedded systems: Architecture, programming and design by Rajkamal, TMH
2.

Reference Book/s:
1. Embedded system design by Arnold S Burger. CMP
2. An embedded software primer by David Simon. PEA

VIII-Semester B. E. (Computer Science & Engineering)
Course Code: CS805
Title of the Course: Open Source Softwares (Elective-IV)

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
03	01	--	04	04	03	10	10	80	100

Unit	Contents	Hours
I	Overview of Free/Open Source Software-- Definition of FOSS & GNU, History of GNU/Linux and the Free Software Movement , Advantages of Free Software and GNU/Linux, FOSS usage , trends and potential—global and Indian.GNU/Linux OS installation-- detect hardware, configure disk partitions & file systems and install a GNU/Linux distribution ; Basic shell commands - logging in, listing files, editing files, copying/moving files, viewing file contents, changing file modes and permissions, process management ; User and group management, file ownerships and permissions, PAM authentication ; Introduction to common system configuration files & log files ; Configuring networking, basics of TCP/IP networking and routing, connecting to the Internet (through dialup, DSL, Ethernet, leased line).	09
II	Configuring additional hardware - sound cards, displays & display cards, network cards, modems, USB drives, CD writers ; Understanding the OS boot up process; Performing every day tasks using gnu/Linux -- accessing the Internet, playing music, editing documents and 09spreadsheets, sending and receiving email, copy files from disks and over the network, playing games, writing CDs ; X Window system configuration and utilities -- configure X windows, detect display devices ; Installing software – from source code as well as using binary packages. Setting up email servers-- using postfix (SMTP services), courier (IMAP & POP3 services), squirrel mail (web mail services) ; Setting up web servers -- using apache (HTTP services), php (server-side scripting), perl (CGI support) ; Setting up file services -- using samba (file and authentication services for windows networks), using NFS (file services for gnu/Linux / Unix networks) ; Setting up proxy services -- using squid (http / ftp / https proxy services) ; Setting up printer services - using CUPS (print spooler), foomatic (printer database)	09
III	Setting up a firewall - Using netfilter and ip tables; Using the GNU Compiler Collection – GNU compiler tools ; the C preprocessor (cpp), the C compiler (gcc) and the C++ compiler (g++), assembler (gas) ; Understanding build systems -- constructing make files and using make, using autoconf and autogen to automatically generate make files tailored for different development environments ; Using source code versioning and management tools -- using CVS to manage source code revisions, patch & diff.	09
IV	Understanding the GNU Libc libraries and linker -- linking against object archives (.a libraries) and dynamic shared object libraries (.so libraries), generating statically linked binaries and libraries, generating dynamically linked libraries ; Using the GNU debugging tools -- gdb to debug programs, graphical debuggers like ddd, memory debugging / profiling libraries mpatrol and valgrind ; Review of common programming practices and guidelines for GNU/Linux and FOSS ; Introduction to Bash, sed&awk scripting. Basics of the X Windows server architecture.	09
V	Basics of the X Windows server architecture ; Qt Programming ; Gtk+ Programming ; Python Programming ; Programming GUI applications with localization support.	09
	Total	45

Text Book/s:

1. N. B. Venkateshwarlu (Ed); "Introduction to Linux: Installation and Programming", B S Publishers; 2005.
2. Matt Welsh, Matthias Kalle Dalheimer, Terry Dawson, and Lar Kaufman, "Running Linux", Fourth Edition, O'Reilly Publishers, 2002.
3. Carla Schroder, "Linux Cookbook", First Edition, O'Reilly Cookbooks Series, 2004

ON-LINE Material:

1. Open Sources: Voices from the Open Source Revolution, First Edition, January1999,ISBN:1-56592-582-3. URL**:** Http://www.oreilly.com/catalog/opensources/book/toc.html
2. The Linux Cookbook: Tips and Techniques for Everyday Use, First Edition, Michael Stutz, 2001. URL: http://dsl.org/cookbook/cookbook_toc.html
3. The Linux System Administrators' Guide, Lars Wirzenius, Joanna Oja, Stephen Stafford, and AlexWeeks, December2003.

VIII-Semester B. E. (Computer Science & Engineering)

Course Code:CS806
Title of the Course: Compiler Construction

Course Scheme					Evaluation Scheme (Laboratory)		
Lecture	Tutorial	Practical	Periods/week	Credits	TW	POE	Total
--	--	01	03	02	25	25	50

	List of Practicals
	The student is expected to perform practicals based on following topics.
I	Practical no. 1 , 2 & 3 should be based on the Lex
II	Practical no. 4 should be based on Flex.
III	Practical no. 5,6,7 & 8 should be based on Yacc to recognize arithmetic expression, Strings, valid variable ,grammar
IV	Practical no. 9 & 10 should be based on Yacc to evaluate arithmetic expression

VIII-Semester B. E. (Computer Science & Engineering)

Course Code: CS807
Title of the Course: Computer System Security

Course Scheme					Evaluation Scheme (Laboratory)		
Lecture	Tutorial	Practical	Periods/week	Credits	TW	POE	Total
--	--	01	03	02	25	25	50

	List of Practical's
	The student is expected to perform 10-12 practical's based on following topics.
I	Practical 1 & 2 should be based on Security Services, TCP session, Routing, UDP.
II	Practical 3 & 4 should be based on Encryption algorithms, Hash Functions and HMAC.
III	Practical 5 & 6 should be based on Public key cryptography, Private key cryptography algorithms, digital signatures, digital and key management Kerberos, X.509 Directory Authentication Service.
IV	Practical 7, 8 & 9 should be based on Email, IP Security, Web Security, Secure Socket Layer (SSL) and Transport Layer Security (TLS), Secure Electronic Transaction (SET).
V	Practical 10, 11 & 12 should be based on SNMP, Viruses and threats, Intrusion Detection Systems.

VIII-Semester B. E. (Computer Science & Engineering)

Course Code: **CS808**
Title of the Course: Project

Course Scheme					Evaluation Scheme (Laboratory)		
Lecture	Tutorial	Practical	Periods/week	Credits	TW	POE	Total
--	--	01	06	06	75	75	150

Project Work
As the project topic has already chosen in Seventh Semester under Project Seminar, The Student is expected to carry out the following-   1. Literature Review related to proposed topic   2. Formulation of Scope & Methodology for the proposed study.   3. Implementation of project work   4. Carry out necessary experiments for analysis and testing of the project work   On completion of above mentioned activities of project work, the given student has to prepare a project report in the specified format and deliver a seminar on project work before final submission. Evaluation of project work will be on the basis of quality of work carried out, submitted Report, Seminar & Viva-Voce.