

7IT1 SOFTWARE PROJECT MANAGEMENT (Common to Comp. Engg. & Info. Tech)

Class: VII Sem. B.Tech.	Evaluation
Branch: Info. Tech Schedule per Week Lectures: 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Mid-term (20) & End-term (80)]

Units	Contents of the subject
I	Project Management: The management spectrum, the people, the product, the process, the project, the W ⁵ HH principle, critical practices Metrics for Process and Project: Metrics in the process and project Domains, software measurements, metrics for software quality, integrating metrics within software process, metrics for small organizations, establishing a software metrics program.
II	Estimation: Observations, Project planning Process, software scope and feasibility, resources, software project estimation, decomposition techniques, empirical estimation models, estimation for object oriented projects, estimation for Agile development and web engineering projects, the make/buy decision.
III	Project Scheduling: Basic concepts, project scheduling, defining a task set and task network, scheduling, earned value analysis. Risk Management: Reactive V/S proactive Risk Strategies, software risks, Risk identification, Risk projection, risk refinement, risk mitigation, monitoring and management, the RMMM plan Quality Planning: Quality Concepts, Procedural Approach to Quality Management, Quantitative Approaches to Quality Management, Quantitative Quality Management Planning, Setting the Quality Goal, Estimating Defects for Other Stages, Quality Process Planning, Defect Prevention Planning.
IV	Quality Management: Quality Concepts, Software Quality assurances, software reviews, formal technical reviews, Formal approaches to SQA, Statistical Software Quality assurances, Change Management: software Configuration Management, The SCM repository, SCM Process, Configuration Management for Web Engineering
V	Project Execution And Closure: Reviews. The Review Process, Planning, Overview and Preparation, Group Review Meeting, Rework and Follow-up, One-Person Review, Guidelines for Reviews in Projects, Data Collection, Analysis and Control Guidelines, Introduction of Reviews and the NAH Syndrome. Project Monitoring and Control: Project Tracking, Activities Tracking, Defect Tracking, Issues Tracking, Status Reports, Milestone Analysis, Actual Versus Estimated Analysis of Effort and Schedule, Monitoring Quality, Risk-Related Monitoring. Project Closure: Project Closure Analysis, The Role of Closure Analysis, Performing Closure Analysis.

References:

1. R. S. Pressman, Software Engineering
2. Pankaj Jalote, Software project management in practice, Addison-Wesley
3. B. Hughest & M. Cotterell, Software Project Management.

7IT2 WIRELESS COMMUNICATION & NETWORKS (Common to Comp. Engg. & Info. Tech.)

Class: VII Sem. B.Tech.	Evaluation
Branch: Info. Tech. Schedule per Week Lectures: 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Mid-term (20) & End-term (80)]

Units	Contents of the subject
I	<p>Introduction to Wireless Communication Systems: Evolution of mobile Radio Communications, Applications of mobile communication, Mobile Radio Systems Around the World, Example of Wireless Communication Systems, Second Generation(2G) Cellular Networks, Third Generation(3G) Wireless Networks, Frequency Reuse, Channel Assignment Strategies, Handoff Strategies, Interference and System Capacity, Improving Coverage and Capacity in Cellular Systems [3].Frequencies for radio transmission & regulations [1].</p> <p>Introduction to signals, analog & digital data transmission, transmission impairments, effect of multipath propagation, type of fading & error compensation [2].</p>
II	<p>Medium access control: need for specialized MAC, hidden and exposed terminal, near and far terminals, MAC schemes: Fixed TDMA, Aloha, CSMA, DAMA, PRMA, reservation TDMA, MACA, polling, ISMA, CDMA- SAMA, comparisons [1].</p> <p>Telecommunication systems: GSM: mobile services, system architecture, radio interface, protocols, localization and calling, handover, security, new data services-HSCSD, introduction to GPRS [1,3].</p>
III	<p>Wireless LAN: advantages, disadvantages and design goals, infra red v/s radio transmission, infrastructure and ad-hoc network, IEEE 802.11: System architecture, protocol architecture, physical layer, medium access control layer, MAC management and functions, brief idea of - 802.11b, 802.11a, newer developments [1].</p> <p>HIPERLAN: HIPERLAN 1, Bluetooth: user scenarios, architecture, radio layer, base band layer, link manager protocol, L2CAP, security, SDP, profiles, IEEE 802.15 [1].</p>
IV	<p>Mobile network layer: mobile IP - Goals, assumptions and requirements, entities and terminology, IP packets delivery, agent discovery, registration, tunneling and encapsulation, optimizations, reverse tunneling, DHCP. Mobile Ad hoc network – usage & routing- global state routing (GSR), Destination sequenced distance vector routing (DSDV), Dynamic source routing (DSR), Ad Hoc on demand distance vector routing (AODV), Temporary ordered routing algorithm (TORA) [1].</p> <p>Mobile transport layer: Implications of mobility in Traditional TCP, classical TCP improvements: indirect TCP, snooping TCP, mobile TCP, fast retransmit/fast recovery, transmission/time-out freezing, selective retransmission, transaction-oriented TCP [1].</p>
V	<p>Support for mobility: File systems - Introduction to coda, little work, Ficus, MIO-NFS, rover. World wide web - hypertext transfer protocol, hypertext language, system architecture. Wireless Application Protocol - architecture, wireless datagram protocol, wireless transport layer security, wireless transaction protocol, wireless session protocol, wireless application environment, wireless markup language, WML Script, wireless telephony application, push architecture, push/pull services, example stacks with WAP1.x [1].</p>

Text Books & References:

1. Mobile Communications, Schiller, 2nd Ed., Pearson.
2. Wireless Communications, Theodore S. Rappaport, 2nd Ed., PHI.
3. Wireless Communications, William Stallings, Prentice Hall
4. WIRELESS COMMUNICATIONS & NETWORKING, Vijay Garg, The Morgan Kaufmann Series in Networking

7IT3 DATA MINING & WARE HOUSING (Info. Tech.)

Class: VII Sem. B.Tech.	Evaluation
Branch: Info. Tech. Schedule per Week Lectures: 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Mid-term (20) & End-term (80)]

Units	Contents of the subject
I	Overview, Motivation(for Data Mining),Data Mining-Definition & Functionalities, Data Processing, Form of Data Preprocessing, Data Cleaning: Missing Values, Noisy Data, (Binning, Clustering, Regression, Computer and Human inspection), Inconsistent Data, Data Integration and Transformation. Data Reduction:-Data Cube Aggregation, Dimensionality reduction, Data Compression, Numerosity Reduction, Clustering, Discretization and Concept hierarchy generation.
II	Concept Description: Definition, Data Generalization, Analytical Characterization, Analysis of attribute relevance, Mining Class comparisons, Statistical measures in large Databases. Measuring Central Tendency, Measuring Dispersion of Data, Graph Displays of Basic Statistical class Description, Mining Association Rules in Large Databases, Association rule mining, mining Single-Dimensional Boolean Association rules from Transactional Databases– Apriori Algorithm, Mining Multilevel Association rules from Transaction Databases and Mining Multi- Dimensional Association rules from Relational Databases.
III	What is Classification & Prediction, Issues regarding Classification and prediction, Decision tree, Bayesian Classification, Classification by Back propagation, Multilayer feed-forward Neural Network, Back propagation Algorithm, Classification methods K-nearest neighbour classifiers, Genetic Algorithm. Cluster Analysis: Data types in cluster analysis, Categories of clustering methods, Partitioning methods. Hierarchical Clustering- CURE and Chameleon. Density Based Methods-DBSCAN, OPTICS. Grid Based Methods- STING, CLIQUE. Model Based Method –Statistical Approach, Neural Network approach, Outlier Analysis
IV	Data Warehousing: Overview, Definition, Delivery Process, Difference between Database System and Data Warehouse, Multi Dimensional Data Model, Data Cubes, Stars, Snow Flakes, Fact Constellations, Concept hierarchy, Process Architecture, 3 Tier Architecture, Data Mining.
V	Aggregation, Historical information, Query Facility, OLAP function and Tools. OLAP Servers, ROLAP, MOLAP, HOLAP, Data Mining interface, Security, Backup and Recovery, Tuning Data Warehouse, Testing Data Warehouse.

Text Books & References:

1. Data Warehousing in the Real World – Anahory and Murray, Pearson Education.
2. Data Mining – Concepts and Techniques – Jiawei Han and Micheline Kamber.
3. Building the Data Warehouse – WH Inmon, Wiley.

7IT4 INTERNET PROGRAMMING (Info. Tech.)

Class: VII Sem. B.Tech.	Evaluation
Branch: Info. Tech Schedule per Week Lectures: 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Mid-term (20) & End-term (80)]

Units	Contents of the subject
I	Introduction , Editing XHTML , First XHTML Example , W3C XHTML Validation service , Headings, Linking , Images , Special Characters and horizontal rules, Lists, Tables, forms, Internet linking, web resources. Cascading Style Sheets Introduction , Inline Styles, Embedded Style Sheets, Conflicting Styles , Linking External Style Sheets, Positioning Elements , Backgrounds , Element Dimensions , Box Model and Text Flow Media types, Building a CSS drop-down menu, User Style Sheets ,CSS3, Web Resources
II	JavaScript: Introduction to Scripting, Control Structures, Functions, Arrays, Objects, and Document object model (DOM): Objects and Collections, Events. XML and RSS: Introduction, XML basics, structuring data, XML namespaces, document type definitions (DTDs), W3C XML schema documents ,XML vocabularies, Extensible style sheet language and XSL transformations, Document object model(DOM),RSS
III	Ajax-enabled rich internet applications: introduction , traditional web applications vs Ajax application , rich internet application (RIAs)with Ajax, history of Ajax, “Raw” Ajax example using the XMLHttpRequest object , using XML and the DOM, creating a full-scale Ajax –enabled application ,dojo toolkit Web Servers (IIS and Apache): introduction, HTTP transactions , multi tier application architecture ,client-side scripting versus server-side scripting ,accessing web servers, Microsoft internet information services(IIS), Apache HTTP server, requesting documents.
IV	PHP: Introduction, PHP basics, string processors and regular expressions , form processing and business logic, connecting to a database, using cookies, dynamic content, operator precedence chart ASP.NET 2.0 and ASP.NET Ajax: introduction, creating and running a simple web form example, web controls, session tracking case study : connecting to a database in ASP.NET
V	Java Server Faces Web applications: introduction, java web technologies, creating and running a simple application in NetBeans, JSF components , session tracking

References

1. Internet & WWW, How to program, DEITEL P.J., H.M., Prentice Hall

7 IT 5 COMPUTER GRAPHICS & MULTIMEDIA TECHNIQUES (Common to Comp. Engg. & Info. Tech.)

Class: VII Sem. B.Tech.	Evaluation
Branch: Info. Tech Schedule per Week Lectures: 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Mid-term (20) & End-term (80)]

Units	Contents of the subject
I	Introduction: Introduction to Raster scan displays, Storage tube displays, refreshing, flicking, interlacing, color monitors, display processors, resolution, Introduction to Interactive. Computer Graphics: Picture analysis, Overview of programmer's model of interactive graphics, Fundamental problems in geometry. Scan Conversion: point, line, circle, ellipse polygon, Aliasing, and introduction to Anti Aliasing (No anti aliasing algorithm).
II	2D & 3D Co-ordinate system: Homogeneous Co-ordinates, Translation, Rotation, Scaling, Reflection, Inverse transformation, Composite transformation. Polygon Representation, Flood Filling, Boundary filling. Point Clipping, Cohen-Sutherland Line Clipping Algorithm, Polygon Clipping algorithms.
III	Hidden Lines & Surfaces: Image and Object space, Depth Buffer Methods, Hidden Facets removal, Scan line algorithm, Area based algorithms. Curves and Splines: Parametric and Non parametric Representations, Bezier curve, B-Spline Curves.
IV	Rendering: Basic illumination model, diffuse reflection, specular reflection, phong shading, Gourand shading, ray tracing, color models like RGB, YIQ, CMY, HSV
V	Multimedia: Multimedia components, Multimedia Input/Output Technologies: Storage and retrieval technologies, Architectural considerations, file formats. Animation: Introduction, Rules, problems and Animation techniques.

Text/References:

1. J. Foley, A. Van Dam, S. Feiner, J. Hughes: Computer Graphics- Principles and Practice, Pearson
2. Hearn and Baker: Computer Graphics, PHI
3. Multimedia Systems Design, Prabhat Andleigh and Thakkar, PHI.
4. Multimedia Information Networking, N.K.Sharda, PHI..

7IT6.1 ADVANCE DATABASE MANGEMENT SYSTEMS (Common to Comp. Engg. & Info. Tech.)

Class: VII Sem. B.Tech.	Evaluation
Branch: Info. Tech. Schedule per Week Lectures: 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Mid-term (20) & End-term (80)]

Units	Contents of the subject
I	Query Processing and Optimization: Overview of Relational Query Optimization, System Catalog in a Relational DBMS, Alternative Plans, Translating SQL, Queries into Algebra, Estimating the Cost of a Plan, Relational Algebra Equivalences, Enumeration of Alternative Plans. [2]
II	Object Database Systems: Motivating Examples, Structured Data Types, Operations On Structured Data, Encapsulation and ADT's, Inheritance, Objects, OIDs and Reference Types, Database Design for an ORDBMS, ORDBMS Implementation Challenges, ORDBMS, Comparing RDBMS, OODBMS, and ORDBMS.
III	Parallel and Distributed Databases: Architectures for Parallel, Databases, Parallel Query Evaluation, Parallelizing Individual Operations, Parallel Query Optimization, Distributed DBMS Architectures, Storing Data in a Distributed DBMS, Distributed Catalog Management, Distributed Query Processing, Updating Distributed Data, Introduction to Distributed Transactions, Distributed Concurrency Control, Distributed Recovery. [2]
IV	Database Security and Authorization: Introduction to Database Security, Access Control, Discretionary Access Control- Grant and Revoke on Views and Integrity Constraints, Mandatory Access Control- Multilevel Relations and Polyinstantiation, Covert Channels, DoD Security Levels, Additional Issues Related to Security- Role of the Database Administrator, Security in Statistical Databases, Encryption. [2]
V	POSTGRES: POSTGRES user interfaces, sql variations and extensions, Transaction Management, Storage and Indexing, Query processing and optimizations, System Architectures. XML: Motivation, Structure of XML data, XML Document Schema, Querying and Transformation, Application Program Interface to XML, Storage of XML Data, XML applications. [2]

Text/References

1. Elmasri R and Navathe SB, Fundamentals of Database Systems, 3rd Edition, Addison Wesley, 2000.
2. Connolly T, Begg C and Strachan A, Database Systems, 2nd Edition, Addison Wesley, 1999
3. Ceri Pelagatti , Distributed Database: Principles and System - (McGraw Hill)
4. Simon AR, Strategic Database Technology: Management for the Year 2000, Morgan Kaufmann, 1995
5. A. Silversatz, H. Korth and S. Sudarsan: Database Cocepts 5th edition, Mc-Graw Hills 2005.

7 IT 6.2 INTELLIGENT SYSTEMS (Info. Tech)

Class: VII Sem. B.Tech.	Evaluation
Branch: Info. Tech Schedule per Week Lectures: 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Mid-term (20) & End-term (80)]

Units	Contents of the subject
I	Introduction, Problems & Heuristic Search: The AI Problems and assumption, AI Technique, Problem, Problem space, Production System & characteristics, Problem characteristics, Heuristics search Technique- Generate and test, Hill Climbing, BFS, Problem Reduction, constraint satisfaction, Means-ends analysis.
II	Knowledge Representation: Representation and Mapping, approaches, Issue, Predicate Logic-Representation of Simple facts in logic, instance and ISA representation, computable functions and predicates, Resolution, natural deduction. Representing Knowledge Using Rules- Procedural v/s Declarative Knowledge, Forwarded v/s Backward Reasoning, Logic Programming, and Matching.
III	Game playing- Introduction, Minimax Search Procedure, adding Alpha Beta Cutoff, additional refinements, Iterative Deepings, reference on specific games. Planning- Component of Planning System, Goal Stack Planning, Nonlinear Planning, Hierarchical Planning and Reactive System. Understanding.
IV	Learning- Introduction, role of learning, learning in problem solving, example and explanation based learning, discovery, analogy, formal learning theory. Connectionist model- Introduction to neural networks, hopfield networks, learning in Neural Network application of neural network, recurrent network.
V	Expert system- Introduction, representing using domain knowledge, expert system shell, explanation and knowledge acquisition. Fuzzy Logic System- Introduction, Crisp Sets, Fuzzy Sets, Fuzzy Terminology, Fuzzy Logic Control, Fuzzy Inference Processing. Genetic algorithms- Introduction, significance of genetic operators, termination parameters, niching & speciation, evolving neural networks, ANT algorithms.

Text Books & References:

1. Artificial Intelligence: Elaine Rich, Kevin Knight, Mc-Graw Hill.
2. Introduction to AI & Expert System: Dan W. Patterson, PHI.
3. Artificial Intelligence by Luger (Pearson Education)
4. Russel & Norvig, Artificial Intelligence: A Modern Approach, Prentice-Hall

7IT 6.3 SPEECH PROCESSING (Info. Tech)

Class: VII Sem. B.Tech.	Evaluation
Branch: Info. Tech Schedule per Week Lectures: 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Mid-term (20) & End-term (80)]

Units	Contents of the subject
I	The speech chain: current capabilities in synthesis and recognition. Acoustic phonetics. Vocal tract physiology: voiced excitation, unvoiced excitation (bursts, frication). Acoustics of uniform tubes, of two- and three-tube models. Comparison to speech data.
II	Synthesis: Formant synthesis (series, parallel), Articulatory synthesis, Concatenative Synthesis, Text-to-Speech (normalisation, linguistic units, rules). Articulatory parameters, shape-to-sound transformation, vocal tract imaging, revising the acoustic model.
III	Letter-sound relations, phonology; prosody, intelligibility, quality assessment. Ear physiology. Auditory perception. Speech perception.
IV	Recognition: Template matching. (Training, distance measures, dynamic time warping), Stochastic models. (Hidden Markov models, Baum-Welch and Forward-Backward algorithms). Large-Vocabulary Recognition. (Phonemic baseforms, language models), Artificial Neural Networks. (Overview, hybrid systems).
V	Assessing recognition performance; improving recognition performance; Knowledge-based approaches, auditory models.

References:

1. J N Holmes and W. Holmes, Speech Synthesis and Recognition, 2nd ed., Taylor and Francis, 2001.
2. B. Gold and N. Morgan, Speech and Audio Signal Processing, Wiley and Sons, 2000.
3. G. Childers, Speech Processing and Synthesis Toolboxes, Wiley and Sons, 2000.
4. J. R. Deller, J. R. Proakis, J. H. L. Hansen, Discrete-Time Processing of Speech Signals, Prentice-Hall 1993.
5. P. B. Denes and E. N. Pinson, The Speech Chain, W. H. Freeman & Co 1993.
6. S Furui, Digital Speech Processing, Synthesis and Recognition, Marcel Dekker Inc 1989.
7. D O'Shaughnessy, Speech Communications: Human & Machine, IEEE Press 1999.
8. L R Rabiner and R W Schafer, Digital Processing of Speech Signals, Prentice-Hall 1978.
9. K. N. Stevens, Acoustic Phonetics, MIT

7IT7 COMPUTER GRAPHICS & MULTIMEDIA LAB (Common to Comp. Engg. & Info. Tech)

Class: VII Sem. B.Tech.	Evaluation
Branch: Info. Tech. Schedule per Week Practical Hrs.: 2	Examination Time = Four (4) Hours Maximum Marks = 50 [Sessional /Mid-term (30) & End-term (20)]

Objectives:

At the end of the semester, the students should have clearly understood and implemented the following:

1. To produce a single pixel and pre specified pattern on screen:
2. To implement features like changing background color, foreground color, resizing of window, repositioning of window:
3. To implement mid point algorithm to draw circle and ellipse:
4. Use the line drawing & circle drawing programs to draw composite objects containing only circle & lines. You can take shapes like a cart, car etc.
5. To Implement Clipping (various algorithms).
6. Simple fonts, graphical fonts, scalable fonts.
7. Input a polygon by drawing lines, use appropriate methods for filling and filling convex & concave polygons.

Suggested Platform/Tools:

1. For this lab, the students can choose any platform either Microsoft Windows or Linux.
2. Compilers & Libraries: Microsoft Platform- Visual Studio.Net, Linux – Xlib.
3. No turbo C/C++. No library function except the one required to put a single pixel on the screen.

Indicative List of Experiments:

1. Programs to produce a single pixel produce a pre specified pattern with features like changing background color, foreground color, resizing of window, repositioning of window must be demonstrated.
2. Use Mid Point algorithm to draw line between two points. The program must be independent of the slope i.e. lines of all slopes must be drawn.
3. Use Mid Point algorithm to draw ellipse. Implement circle drawing as a special case of ellipse. Extend this to draw arcs between points.
4. Programs to draw composite objects containing circles & lines, drawing lines thicker than one pixel, you can take shapes like a cart, car etc.
5. Programs to demonstrate text generation e.g. simple fonts, graphical fonts, and scalable fonts.
6. Programs to demonstrate filling algorithms eg. filling convex & concave polynomials. The program must be able to (i) input a polynomial by drawing lines (ii) determine whether convex or concave (iii) use appropriate methods for filling.
7. Programs to demonstrate clipping algorithms eg. program to clip a (i) line and (ii) polygon using Cohen-Sutherland Clipping algorithm(s), clipping lines, circles against a rectangular clip area.
8. Programs to demonstrate presentation of geometrical objects e.g. circle and rectangle with audio description i.e. size, color of boundary and interior etc. played synchronously one after another.

7 IT 8 UML Lab (Info. Tech)

Class: VII Sem. B.Tech.	Evaluation
Branch: Info.Tech. Schedule per Week Practical Hrs : 3	Examination Time = Four (4) Hours Maximum Marks = 100 [Sessional/Mid-term (60) & End-term (40)]

Objectives:

1. The students shall be able to use following modules of UML for system description, implementation and finally for product development.
 - Capture a business process model.
 - The User Interaction or Use Case Model - describes the boundary and interaction between the system and users. Corresponds in some respects to a requirements model.
 - The Interaction or Communication Model - describes how objects in the system will interact with each other to get work done.
 - The State or Dynamic Model - State charts describe the states or conditions that classes assume over time. Activity graphs describe the workflows the system will implement.
 - The Logical or Class Model - describes the classes and objects that will make up the system.
 - The Physical Component Model - describes the software (and sometimes hardware components) that make up the system.
 - The Physical Deployment Model - describes the physical architecture and the deployment of components on that hardware architecture.

The students are expected to use the UML models, prepare necessary documents using UML and implement a system. Some hardware products like digital clock, digital camera, washing machine controller, air conditioner controller, an electronic fan regulator, an elementary mobile phone etc. may also be chosen.

The students shall be assigned one problem on software based systems and another involving software as well as hardware.

7 IT 9 INTERNET PROGRAMMING LAB (Info. Tech)

Class: VII Sem. B.Tech.	Evaluation
Branch: Info. Tech. Schedule per Week Practical Hrs : 2	Examination Time = Four (4) Hours Maximum Marks = 50 [Sessional/Mid-term (30) & End-term (20)]

Objectives: At the end of the semester, the students should have clearly understood and implemented the following:

1. Develop basic understanding of HTML script: overview of HTML, basic HTML tags, title, head and body.
2. Write web pages in HTML: formatting text in HTML, inserting photographs on the page, drawing tables, creating hyperlinks-internal and external, creating hyperlinks of external web sites.
3. Develop understanding of creating standard view of web site: displaying multiple pages over a single page, displaying it as standard view like header and footer, creating standard text formatting over the web site.
4. Develop understanding common formation over a web site: creating and using css, understanding importance of common text formatting over a website.
5. Develop understanding of server side scripting language: basic concepts of scripting language, client side and server side scripting, introduction to php, variable, control statements, loops .
6. Develop applications using php and MySQL: using php to access database, mysql database selection, create, update and delete script in php.

It is expected that each laboratory assignments to given to the students with an aim to In order to achieve the above objectives

Indicative List of Experiments:

1. Develop a static html page using style sheet to show your own profile. Add pages one by one to show 5 photos, to show your academics in tabular format, a page containing 5 links to your favorite website, navigational links to all above pages (menu), header, footer, left-sidebar, right sidebar etc.
2. Use Cascading Style Sheets to format your all pages in a common format.
3. Write a simple "hello word" program using php.
4. Write a program to accept two strings (name and age) from user. Print welcome statement e.g. "Hi Ram, your age is 24."
5. Write a program to create a calculator, which can support addition, subtraction, multiply and division operations.
6. Write a program to take input parameters for a table (no. of rows and no. of columns) and create the desired table.
7. Create a "Contact Me" page -Ask user to enter his name, email ID, Use Java-Script to verify entered email address. Store submitted value in a MySql database. Display latest 5 submitted records in contact me page. Display above record with navigation support. e.g. (next, previous, first, last)

8 IT 1 SOFTWARE TESTING & VALIDATION (Info. Tech)

Class: VIII Sem. B.Tech.	Evaluation
Branch: Info. Tech Schedule per Week Lectures: 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Mid-term (20) & End-term (80)]

Units	Contents of the subject
I	Software Verification and Validation - Introduction, Verification, Method of Verification, Validation, Level of Validation, Principle of testing, context of testing in producing software, White Box testing- Definition, Static testing, Structural testing, , Black box testing,
II	Integration Testing - Scenario Testing, Defect bash, System and acceptance testing- functional, non-functional testing, Performance testing- methodology, tools & Process
III	Regression Testing, Internationalization Testing -Introduction, Test Phases of Internationalization testing, Enabling testing, Locale Testing, Language testing, Localization testing, Ad-hoc testing- Overview, Buddy testing, Pair Testing, Exploratory Testing, Iterative testing Agile and Extreme Testing
IV	Testing Of Object-oriented systems: Introduction, Primer on object –oriented software, Differences in OO testing. Usability And Accessibility Testing - what is usability testing, approach to usability, when to do usability testing, how to achieve usability, quality factors for usability, accessibility testing, tools for usability,
V	Test planning, Test Management, Test Process and reporting, Software Test Automation- Scope of Automation, Design and Architecture of automation, Process Model for Automation, Test matrices and measurement- Type of Metrics, Project Metrics, Productivity Metrics, Progress Metrics, Release Metrics

Text Books & References:

1. Software testing, Srinivasan D., Gopalswami R. Pearson Education
2. Software Testing M G Limaye TMH
- 3 .Software Engineering Sommerville Pearson Education

8 IT 2 INFORMATION SYSTEM SECURITY (Common to Comp. Engg. & Info. Tech)

Class: VIII Sem. B.Tech.		Evaluation
Branch: Info. Tech. Schedule per Week Lectures: 3		Examination Time = Three (3) Hours Maximum Marks = 100 [Mid-term (20) & End-term (80)]
Units	Contents of the subject	
I	<p>Elements of Number Theory: Divisibility and Euclid Algorithm, Primes and the Sieve of Eratosthenes, testing for primes, Prime Number Theorem, Euler's, Fermat's Little theorems, Congruences, Computing Inverse in Congruences, Legendre and Jacobi Symbols, Chinese Remainder Theorem,</p> <p>Algebraic Structures in Computing (Definitions, properties and Elementary Operations Only): Groups, subgroup, order of group, cyclic group, ring, field, division algorithm, polynomial over a field. Galois Field</p> <p>Elements of Information Theory: Entropy, redundancy of language, Key Equivocation & Unicity Distance, equivocation of a simple cryptographic system</p>	
II	<p>Security Attacks: Active V/S Passive, Security Services, Security Mechanisms. Symmetric Cipher Model, Types of attacks on Encrypted messages.</p> <p>Classical Cipher Techniques: Caesar, Affine, Mono-alphabetic, Transposition, Poly-alphabetic Ciphers</p> <p>Private Key Cryptosystems: Block Cipher Principles, Fiestel Cipher, Concept of 'Confusion' and "Diffusion" in block ciphers, Product Ciphers, Lucifer Algorithm. DES Algorithm, DES modes of operations, IDEA.</p> <p>Differential & Linear Cryptanalysis (Introduction Only).</p> <p>S-box theory: Boolean Function, S-box design criteria, Bent functions, Propagation and nonlinearity, construction of balanced functions, S-box design.</p> <p>Link Vis End-to-End Encryption, Key Distribution in Symmetric Encryption</p>	
III	<p>Public Key Cryptosystems: Principles of Public Key Cryptosystems, Factorization, RSA Algorithm, security analysis of RSA, Exponentiation in Modular Arithmetic.</p> <p>Key Management in Public Key Cryptosystems: Distribution of Public Keys, Distribution of Secret keys using Public Key Cryptosystems. Discrete Logarithms, Diffie-Hellman Key Exchange.</p>	
IV	<p>Message Authentication & Hashing: Birthday Paradox and General case of Duplications, Basic functions of Message Authentication and Hashing, Introduction to Hash & MAC algorithms.</p> <p>Digital Signatures: RSA Based, ElGamal Signatures, Undeniable Signatures.</p> <p>Authentication: Model of Authentication Systems, Impersonation, Substitution and spoofing games, Authentication schemes for mutual authentication based on shared secret, two-way public key, one-way public key, Mediated Authentication, One way Authentication.</p>	
V	<p>X.509 Authentication Service: Certificates, Authentication Procedure, X.509 Version 3.</p> <p>E-Mail Security: PGP including management of keys in PGP, S/MIME.</p> <p>Network Security: IPSec, AH & ESP in Transport and Tunnel mode with multiple security associations (Key Management not Included). SSL (Protocols Only)</p> <p>Intrusion Detection: Audit Reports, Statistical Anomaly Detection, Rule based detection, honeypots, intrusion detection exchange formats.</p> <p>Password Protection: Lamport Hash, EKE Protocol.</p>	

Text/References:

1. Stallng Williams: Cryptography and Network Security: Principles and Practices, 4th Edition, Pearson Education, 2006.
2. Kaufman Charlie et.al; Network Security: Private Communication in a Public World, 2nd Ed., PHI/Pearson.
3. Pieprzyk Josef and et.al; Fundamentals of Computer Security, Springer-Verlag, 2008.
4. Trappe & Washington, Introduction to Cryptography, 2nd Ed. Pearson.

8 IT 3 Data Compression Techniques (Info. Tech)

Class: VIII Sem. B.Tech.	Evaluation
Branch: Info. Tech Schedule per Week Lectures: 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Mid-term (20) & End-term (80)]

Units	Contents of the subject
I	<p>Compression Techniques: Lossless, lossy, measure of performance, modeling & coding.</p> <p>Lossless compression: Derivation of average information, data models, uniquely decodable codes with tests, prefix codes, Kraft-Mc Millan inequality.</p> <p>Huffman coding: Algorithms, minimum variance Huffman codes, optimality, length extended codes, adaptive coding, Rice codes, using Huffman codes for lossless image compression.</p>
II	<p>Arithmetic coding with application to lossless compression.</p> <p>Dictionary Techniques: LZ77, LZ78, LZW</p> <p>Predictive coding: Burrows-Wheeler Transform and move-to-front coding, JPEG-LS</p> <p>Facsimile Encoding: Run length, T.4 and T.6</p>
III	<p>Lossy coding- Mathematical preliminaries: Distortion criteria, conditional entropy, average mutual information, differential entropy, rate distortion theory, probability and linear system models.</p> <p>Scalar quantization: The quantization problem, uniform quantizer, Forward adaptive quantization, non-uniform quantization-Formal adopting quantization, companded Quantization</p> <p>Vector quantization: Introduction, advantages, The Linde-Ruzo-Grey algorithm, lattice vector quantization.</p>
IV	<p>Differential encoding – Introduction, Basic algorithm, Adaptive DPCM, Delta modulation, speech and image coding using delta modulation.</p> <p>Sampling in frequency and time domain, z-transform, DCT, DST, DWHT, quantization and coding of transform coefficient.</p>
V	<p>Sub band coding: Introduction, Filters, Basic algorithm, Design of Filter banks, G.722, MPEG. Wavelet based compression: Introduction, wavelets multi-resolution analysis and the scaling function implementation using filters.</p>

References:

1. Sayood K: Introduction to Data Compression: ELSEVIER 2005.

8 IT 4.1 MOBILE COMPUTING (Info. Tech)

Class: VIII Sem. B.Tech.	Evaluation
Branch: Info. Tech Schedule per Week Lectures: 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Mid-term (20) & End-term (80)]

Units	Contents of the subject
I	<p>Mobile computing: Definitions, adaptability issues (transparency, Environmental Constraints, application aware adaptation), mechanisms for adaptation and incorporating adaptations.</p> <p>Mobility management: mobility management, location management principle and techniques, Energy efficient network protocols, PCS location management Scheme, Energy efficient indexing on air and algorithm.</p>
II	<p>Data dissemination and management: challenges, Data dissemination, bandwidth allocation for publishing, broadcast disk scheduling, mobile cache maintenance schemes, Mobile Web Caching.</p> <p>Introduction to mobile middleware, Middleware for application development: adaptation. Mobile Agents- introduction, mobile agent computing, model, technologies, application to DBMS, Mobile Agent Security and Fault Tolerance using Distributed Transactions, Reliable Agent Transfer, Architecture of a Secure Agent System, Network Security Testing Using Mobile Agents, Network Security Testing Using Mobile Agents.</p>
III	<p>Service Discovery Middleware: Service Discovery & standardization Methods (Universally Unique Identifiers, Textual Description & using interfaces), unicast Discovery, Multicast Discovery & advertisement, service catalogs, Garbage Collection, Eventing, security. Universal Plug and Play, Jini, Salutation.</p>
IV	<p>Pervasive computing: Introduction, Principles–Decentralization, Diversification, Connectivity, Simplicity, Pervasive Information Technology, Mobile Devices – Classification, Characteristics, Limitations, Smart Identification – Smart Card, Smart Label, Smart Tokens, Smart Sensors and Actuators, Smart Home.</p>
V	<p>Web Services, Web Service Architecture, WSDL, UDDI, SOAP, Web Service Security, Web Services for Remote Portals. Internet Portals – Functional Overview, Type – B2E Portals, Portal Infrastructure.</p> <p>Standards: DECT, TETRA, UMTS, IMT-2000, IrDA-Architecture & protocol stacks.</p>

References:

1. Frank Adelstein, Sandeep Gupta, Golden Richard III, Loren Schwiebert, Fundamentals of Mobile and Pervasive Computing, TMH.
2. Principles of mobile computing Hansmann & Merk., Springer
3. Mobile communications Jochen Schiller , Pearson
4. 802.11 wireless networks Matthew S.Gast, O'REILLY.
5. Wireless LANs: Davis & McGuffin, McGraw Hill

8 IT 4.2 Network Management (Info. Tech)

Class: VIII Sem. B.Tech.	Evaluation
Branch: Info. Tech Schedule per Week Lectures: 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Mid-term (20) & End-term (80)]

Units	Contents of the subject
I	Foundation of policy management: introduction, definition of policy management, motivation for policy management, need for a new shared information model, benefits of PBNM. Policy Management Fundamentals : The need for object-oriented analysis, design, and modeling in PBNM systems, Conceptual policy model, Definition of PBNM system, Policy terminology, Essential terminology for PBM system, new terminology not covered in RFC198, Definition of policy-based management & network management.
II	Policy Management and the Sharing of Data : introduction- The need to express information in a common way, How to solve current in sharing and reusing data, Existing approaches to sharing information, How to express information in a common way, The new DEN-ng approach,
III	Policy Operation in a PBNM System : Policy communication, General management issues, Policy operation, Musings on implementation
IV	Representing High-Level Policies : Introduction- High-level policy specification, Basic policies for specifying business-driven behavior, DEN-ng additions to the ponder framework of basic, Composite policies, Use of high-level policies example
V	Components of PBNM: Requirements of Different Policies, Life of a Policy, Building Blocks of PBNM, Architecture of PBNM.

References:

Strassner, Policy Based Network Management: Solutions for the Next Generation, ELSEVIER

8 IT 4.3 DIGITAL IMAGE PROCESSING (Common to Comp. Engg. & Info. Tech)

Class: VIII Sem. B.Tech.	Evaluation
Branch: Info. Tech Schedule per Week Lectures: 3	Examination Time = Three (3) Hours Maximum Marks = 100 [Mid-term (20) & End-term (80)]

Units	Contents of the subject
I	Image Representation, Two-Dimensional Systems, Two-Dimensional Fourier Transform, Image Stochastic Characterization, Psychophysical Vision Properties, Light Perception, Eye Physiology, Visual Phenomena, Monochrome Vision Model, Color Vision Model, photometry.
II	Image Sampling and Reconstruction Concepts, Image Sampling Systems, Image Reconstruction Systems, Discrete Image Mathematical Representation, Vector-Space Image Representation, Generalized Two-Dimensional Linear Operator, Image Statistical Characterization, Image Probability Density Models, Linear Operator Statistical Representation, Image Quantization, Scalar Quantization, Processing Quantized Variables, Monochrome Image Quantization.
III	Superposition and Convolution: Finite-Area Superposition and Convolution, Sampled Image Superposition and Convolution, Superposition and Convolution Operator Relationships, 8 Unitary Transforms, General Unitary Transforms, Fourier Transform, Cosine, Sine, and Hartley Transforms, Hadamard, Haar, Linear Processing Techniques, Transform Domain Processing, Transform Domain Superposition.
IV	IMAGE IMPROVEMENT: Image Enhancement, Contrast Manipulation, Histogram Modification, Noise Cleaning, Edge Crispening, Image Restoration Models, General Image Restoration Models, Optical Systems Models, Photographic Process Models, Discrete Image Restoration Models, Point and Spatial Image Restoration Techniques, Sensor and Display Point Nonlinearity Correction, Continuous Image Spatial Filtering Restoration, Statistical Estimation Spatial Image Restoration, Geometrical Image Modification, Translation, Minification, Magnification, and Rotation, Perspective Transformation, Camera Imaging Model,
V	Morphological Image Processing, Binary Image Connectivity, 6 Gray Scale Image Morphological Operations, Edge Detection, Edge, Line, and Spot Models, First-Order Derivative Edge Detection, Second-Order Derivative Edge Detection, Image Feature Extraction: Image Feature Evaluation, Amplitude Features, Transform Coefficient Features, Texture Definition, Image Segmentation, Amplitude Segmentation Methods, Clustering Segmentation Methods, Region Segmentation Methods, Boundary Detection,

References

1. DIGITAL IMAGE PROCESSING: PIKS Inside, Third Edition, WILLIAM K. PRATT, PixelSoft, Inc., Los Altos, California, ISBN: 9780471374077
2. Anil Jain: Digital Image Processing,
3. Gonzalez Woods: Image Processing

8 IT 5 Software Testing Lab. (Info. Tech)

Class: VIII Sem. B.Tech.	Evaluation
Branch: Info.Tech. Schedule per Week Practical Hrs.: 3	Examination Time = Four (4) Hours Maximum Marks = 100 [Sessional/Mid-term (60) & End-term (40)]

S. No.	List of Experiments
1	Hands on Software Engineering principles Infrastructure.
2.	usage of Front-end and Back-end technologies and packages Prepare the following documents for three of the experiments listed below using software engineering methodology. 1. Program Analysis and Project Planning. 2. Thorough study of the problem – Identify project scope, Objectives, 3. Software requirement Analysis
3	Describe the individual Phases / Modules of the project, Identify deliverables
4	Software Design a. Use work products – Data dictionary, Use case diagrams and activity diagrams, build and test class diagrams, b. Sequence diagrams and add interface to class diagrams, DFD, ER diagrams c. Software Development and Debugging using any Front end and Back end tool d. Software Verification and Validation procedures

8IT6 DATA COMPRESSION LAB (Info. Tech)

Class: VIII Sem. B.Tech.	Evaluation
Branch: Info.Tech. Schedule per Week Practical Hrs : 3	Examination Time = Four (4) Hours Maximum Marks = 100 [Sessional/Mid-term (60) & End-term (40)]

S. No.	List of Experiments
1	Compress a file (bitmap format) having some diagram in it. Transfer the file to another system & decompress to display the original file.
2	Compress an audio file. Transfer the file to another system & decompress to display the original file.
3	Compress a video file. Transfer the file to another system & decompress to display the original file.
4	Implement Huffman coding with minimum variance, optimal, non-binary, extended, adaptive.
5	Implement Applications and limitations of Huffman codes (Run length encoding, Arithmetic coding, Predictive coding)
6	Implement Lossy Compression Techniques – JPEG and its application Error detection and correction: Parity, 1,2,n dimensions, Hamming codes, p-out-of-q codes
7	Implement Dictionary based compression - Lempel-Ziv-Welch, LZ77 and LZ-78 Quantization – Scalar and Vector Quantization.
8	Implement Shannon Fano Algorithm

8IT7 Seminar on Information Technology Acts (Common to Comp. Engg. & Info. Tech)

Class: VIII Sem. B.Tech.	Evaluation
Branch: Info. Tech. Schedule per Week Practical Hrs : 2	Examination Time = Four (2) Hours Maximum Marks = 50 [Sessional/Mid-term (30) & End-term (20)]

Course Objectives:

1. Study the acts dealing with the cyber crimes in different countries viz., India, USA, European Union.
2. Study the Intellectual Property Rights and the acts dealing with these rights.
3. Study the Copyright acts with reference to publishing the material on the web.

Students are expected to prepare reports on:

- Various acts dealing with cyber crimes in the countries.
- What constitutes a cyber crime in the country?
- Definitions of electronic documents, evidences, the approved algorithms etc.
- Investigation methods.
- Intellectual Property, rights of the creator of the property and legal framework dealing with these rights.
- Similarly on Copyright acts.

Further, every student is required to deliver a seminar on a case study involving cyber crimes/ Intellectual Property, Copyright acts. The seminar shall focus on the “methodology and tools used in the investigation, and enforcement of the applicable acts.”. The seminar may also be presented on new ways of committing cyber crimes particularly Phishing, botnet etc.

The corresponding acts are the reference material.