JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD.

B. TECH. INFORMATION TECHNOLOGY

I Year

COURSE STRUCTURE

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# Course Structure

## II Year I Semester

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## II Year II Semester

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## B. TECH. INFORMATION TECHNOLOGY

### III YEAR I Semester

#### COURSE STRUCTURE

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### III YEAR II Semester

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### Course Structure

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#### II Semester

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**Note:** All End Examinations (Theory and Practical) are of three hours duration.
1. **INTRODUCTION:**

   In view of the growing importance of English as a tool for global communication and the consequent emphasis on training students to acquire communicative competence, the syllabus has been designed to develop linguistic and communicative competence of Engineering students. The prescribed books and the exercises are meant to serve broadly as students’ handbooks.

   In the English classes, the focus should be on the skills of reading, writing, listening and speaking and for this the teachers should use the text prescribed for detailed study. For example, the students should be encouraged to read the texts/selected paragraphs silently. The teachers can ask comprehension questions to stimulate discussion and based on the discussions students can be made to write short paragraphs/essays etc.

   The text for non-detailed study is for extensive reading/reading for pleasure by the students. Hence, it is suggested that they read it on their own with topics selected for discussion in the class. The time should be utilized for working out the exercises given after each section, as also for supplementing the exercises with authentic materials of a similar kind for example, from newspaper articles, advertisements, promotional material etc.. However, the stress in this syllabus is on skill development and practice of language skills.

2. **OBJECTIVES:**

   a. To improve the language proficiency of the students in English with emphasis on LSRW skills.
   b. To equip the students to study academic subjects with greater facility through the theoretical and practical components of the English syllabus.
   c. To develop the study skills and communication skills in formal and informal situations.

3. **SYLLABUS:**

   **Listening Skills:**
   
   Objectives
   1. To enable students to develop their listening skill so that they may appreciate its role in the LSRW skills approach to language and improve their pronunciation.
   2. To equip students with necessary training in listening so that can comprehend the speech of people of different backgrounds and regions.

   Students should be given practice in listening to the sounds of the language to be able to recognise them, to distinguish between them to mark stress and recognise and use the right intonation in sentences.

   - Listening for general content
   - Listening to fill up information
   - Intensive listening
   - Listening for specific information

   **Speaking Skills:**
   
   Objectives
   1. To make students aware of the role of speaking in English and its contribution to their success.
   2. To enable students to express themselves fluently and appropriately in social and professional contexts.

   - Oral practice
   - Describing objects/situations/people
   - Role play – Individual/Group activities (Using exercises from all the nine units of the prescribed text: *Learning English : A Communicative Approach.*)
   - Just A Minute(JAM) Sessions.

   **Reading Skills:**
   
   Objectives
   1. To develop an awareness in the students about the significance of silent reading and comprehension.
   2. To develop the ability of students to guess the meanings of words from context and grasp the overall message of the text, draw inferences etc.
• Skimming the text
• Understanding the gist of an argument
• Identifying the topic sentence
• Inferring lexical and contextual meaning
• Understanding discourse features
• Recognizing coherence/sequencing of sentences

NOTE: The students will be trained in reading skills using the prescribed text for detailed study. They will be examined in reading and answering questions using ‘unseen’ passages which may be taken from the non-detailed text or other authentic texts, such as magazines/newspaper articles.

Writing Skills:
Objectives
1. To develop an awareness in the students about writing as an exact and formal skill
2. To equip them with the components of different forms of writing, beginning with the lower order ones.

• Writing sentences
• Use of appropriate vocabulary
• Paragraph writing
• Coherence and cohesiveness
• Narration / description
• Note Making
• Formal and informal letter writing
• Editing a passage

4. TEXTBOOKS PRESCRIBED:
In order to improve the proficiency of the student in the acquisition of the four skills mentioned above, the following texts and course content, divided into Eight Units, are prescribed:

For Detailed study

For Non-detailed study

A. STUDY MATERIAL:
Unit –I

Unit –II

Unit –III

Unit –IV

Unit –V
Unit – VI

* Exercises from the lessons not prescribed shall also be used for classroom tasks.

Unit – VII
Exercises on
- Reading and Writing Skills
- Reading Comprehension
- Situational dialogues
- Letter writing
- Essay writing

Unit – VIII
Practice Exercises on Remedial Grammar covering
- Common errors in English, Subject-Verb agreement, Use of Articles and Prepositions, Tense and aspect

Vocabulary development covering
- Synonyms & Antonyms, one-word substitutes, prefixes & suffixes, Idioms & phrases, words often confused.

REFERENCES:
1. Strengthen Your English, Bhaskaran & Horsburgh, Oxford University Press
3. Murphy’s English Grammar with CD, Murphy, Cambridge University Press
4. English Skills for Technical Students by Orient Longman
8. Developing Communication Skills by Krishna Mohan & Meera Benerji (Macmillan)
10. The Oxford Guide to Writing and Speaking, John Seely, Oxford
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HYDERABAD

I Year B.Tech. IT

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UNIT – I

UNIT – II
Non-homogeneous linear differential equations of second and higher order with constant coefficients with RHS term of the type $e^{ax}$, $\sin ax$, $\cos ax$, polynomials in $x$, $e^{ax} V(x)$, $xV(x)$, method of variation of parameters.

UNIT – III
Rolle’s Theorem – Lagrange’s Mean Value Theorem – Cauchy’s mean value Theorem – Generalized Mean Value theorem (all theorems without proof) Functions of several variables – Functional dependence-Jacobian- Maxima and Minima of functions of two variables with constraints and without constraints

UNIT – IV
Radius, Centre and Circle of Curvature – Evolutes and Envelopes Curve tracing – Cartesian, polar and Parametric curves.

UNIT – V
Applications of integration to lengths, volumes and surface areas in Cartesian and polar coordinates multiple integrals - double and triple integrals – change of variables – change of order of integration.

UNIT – VI
Sequences – series – Convergences and divergence – Ratio test – Comparison test – Integral test – Cauchy’s root test – Raabe’s test – Absolute and conditional convergence

UNIT – VII

UNIT – VIII

Text Books:

References:
UNIT – I

UNIT – II

UNIT – III

UNIT – IV


UNIT – V

UNIT – VI

UNIT – VII

UNIT – VIII

Text Books:

References:
UNIT I

BONDING IN SOLIDS: Introduction - Types of bonding in solids - Estimation of cohesive energy – Madelung constant.


UNIT II

PRINCIPLES OF QUANTUM MECHANICS: Waves and particles - Planck’s quantum theory – de Broglie hypothesis – Matter waves - Davison and Germer experiment – G. P. Thomson experiment – Heisenberg uncertainty principle - Schrödinger’s time independent wave equation - Physical significance of the wave function - Particle in one dimensional potential box.

UNIT III

ELECTRON THEORY OF METALS: Classical free electron theory - Mean free path - Relaxation time and drift velocity - Quantum free electron theory - Fermi-Dirac distribution (analytical) and its dependence on temperature – Fermi energy – Electron scattering and resistance.

BAND THEORY OF SOLIDS: Bloch theorem - Kronig-Penney model (qualitative treatment) - Origin of energy band formation in solids – Classification of materials into conductors, semi conductors & insulators - Concept of effective mass of an electron.

UNIT IV


UNIT V


SUPERCONDUCTIVITY: General properties - Meissner effect - Penetration depth - Type I and Type II superconductors - Flux quantization – DC and AC Josephson effect – BCS Theory - Applications of superconductors.

UNIT VI


UNIT VII

FIBER OPTICS AND HOLOGRAPHY: Introduction - Principle of optical fiber - Acceptance angle and acceptance cone - Numerical aperture – Types of optical fibers and refractive index profiles - Attenuation in...
optical fibers - Application of optical fibers – Basic principles of holography – Construction and reconstruction of image on hologram – Applications of holography.

UNIT VIII


TEXTBOOKS:
2. Introduction to Solid State Physics by C. Kittel ; Wiley Eastern Ltd.
3. Nanotechnology by Mark Ratner and Daniel Ratner; Pearson Education.

REFERENCES:
1. Materials Science and Engineering by V. Raghavan; Prentice-Hall India.
2. Materials Science by M. Arumugam; Anuradha Agencies.
UNIT - I
Algorithm / pseudo code, flowchart, program development steps, structure of C program, A Simple C program, identifiers, basic data types and sizes, Constants, variables, arithmetic, relational and logical operators, increment and decrement operators, conditional operator, bit-wise operators, assignment operators, expressions, type conversions, conditional expressions, precedence and order of evaluation.

Input-output statements, statements and blocks, if and switch statements, loops- while, do-while and for statements, break, continue, goto and labels, programming examples.

UNIT - II
Designing structured programs, Functions, basics, parameter passing, storage classes- extern, auto, register, static, scope rules, block structure, user defined functions, standard library functions, recursive functions, header files, C preprocessor, example c programs.

UNIT - III
Arrays- concepts, declaration, definition, accessing elements, storing elements, arrays and functions, two-dimensional and multi-dimensional arrays, applications of arrays, pointers- concepts, initialization of pointer variables, pointers and function arguments, address arithmetic, Character pointers and functions, pointers to pointers, pointers and multidimensional arrays, dynamic memory managements functions, command line arguments, c program examples.

UNIT - IV
Derived types- structures- declaration, definition and initialization of structures, accessing structures, nested structures, arrays of structures, structures and functions, pointers to structures, self referential structures, unions, typedef, bitfields, C program examples.

UNIT - V
Input and output – concept of a file, text files and binary files, streams, standard I/o, Formatted I/o, file I/o operations, error handling, C program examples.

UNIT - VI
Searching – Linear and binary search methods, sorting – Bubble sort, selection sort, Insertion sort, Quick sort, merge sort.

UNIT – VII
Introduction to data structures, singly linked lists, doubly linked lists, circular list, representing stacks and queues in C using arrays and linked lists, infix to post fix conversion, postfix expression evaluation.

UNIT - VIII
Trees- Binary tress, terminology, representation, traversals, graphs- terminology, representation, graph traversals (dfs & bfs)

TEXT BOOKS :

REFERENCES :
2. The C Programming Language, B.W. Kernighan, Dennis M.Ritchie, PHI/Pearson Education
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD

I Year B.Tech. IT

BASIC ELECTRICAL ENGINEERING

UNIT - I
Introduction to Electrical Engineering: Essence of electricity, Conductors, semiconductors and insulators (elementary treatment only); Electric field; electric current, potential and potential difference, electromotive force, electric power, ohm's law, basic circuit components, electromagnetism related laws, Magnetic field due to electric current flow, force on a current carrying conductor placed in a magnetic field, Faradays laws of electromagnetic induction. Types of induced EMF's, Kirchhoff's laws. Simple problems.

UNIT - II
Network Analysis: Basic definitions, types of elements, types of sources, resistive networks, inductive networks, capacitive networks, series parallel circuits, star delta and delta star transformation, Network theorems- Superposition, Thevenin's, Maximum power transfer theorems and simple problems.

UNIT - III
Magnetic Circuits: Basic definitions, analogy between electric and magnetic circuits, magnetization characteristics of Ferro magnetic materials, self inductance and mutual inductance, energy in linear magnetic systems, coils connected in series, attracting force of electromagnets.

UNIT - IV
Alternating Quantities: Principle of ac voltages, waveforms and basic definitions, relationship between frequency, speed and number of poles, root mean square and average values of alternating currents and voltage, form factor and peak factor, phasor representation of alternating quantities, the J operator and phasor algebra, analysis of ac circuits with single basic network element, single phase series circuits, single phase parallel circuits, single phase series parallel circuits, power in ac circuits.

UNIT - V
Transformers: Principles of operation, Constructional Details, Ideal Transformer and Practical Transformer, Losses, Transformer Test, Efficiency and Regulation Calculations (All the above topics are only elementary treatment and simple problems).

UNIT - VI
Direct current machines: Principle of operation of dc machines, armature windings, e.m.f equation in a dc machine, Torque production in a dc machine, Operation of a dc machine as a generator, operation of a dc machine as a motor.

UNIT - VII
A.C Machines: Three phase induction motor, principle of operation, slip and rotor frequency, torque (simple problems). Synchronous Machines: Principle of operation, EMF equation (Simple problems on EMF). Synchronous motor principle and operation (Elementary treatment only)

UNIT - VIII
Basic Instruments: Introduction, classification of instruments, operating principles, essential features of measuring instruments, Moving coil permanent magnet (PMMC) instruments, Moving Iron of Ammeters and Voltmeters (elementary Treatment only)

TEXT BOOKS:
1. Basic Electrical Engineering - By M.S.Naidu and S. Kamakshiah – TMH.

REFERENCES:

EBOOKS FOR JNTU SUBJECTS: www.jntuworld.com
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD

I Year B.Tech. IT

ELECTRONIC DEVICES AND CIRCUITS

UNIT-I
ELECTRON DYNAMICS AND CRO: Motion of charged particles in electric and magnetic fields. Simple problems involving electric and magnetic fields only. Electrostatic and magnetic focusing. Principles of CRT, deflection sensitivity (Electrostatic and magnetic deflection), Parallel Electric and Magnetic fields, Perpendicular Electric and Magnetic fields.

UNIT-II
JUNCTION DIODE CHARACTERISTICS: Review of semiconductor Physics – n and p-type semi conductors, Mass Action Law, Continuity Equation, Hall Effect, Fermi level in intrinsic and extrinsic semiconductors, Open-circuited p-n junction, The p-n junction Energy band diagram of PN diode, PN diode as a a rectifier (forward bias and reverse bias), The current components in p-n diode, Law of junction, Diode equation. Volt-ampere characteristics of p-n diode, Temperature dependence of VI characteristic, Transition and Diffusion capacitances, Step graded junction, Breakdown Mechanisms in Semi Conductor (Avalanche and Zener breakdown) Diodes, Zener diode characteristics, Characteristics of Tunnel Diode with the help of energy band diagrams, Varactor Diode, LED, LCD. And photo diode

UNIT-III
RECTIFIERS, FILTERS AND REGULATORS: Half wave rectifier, ripple factor, full wave rectifier, Harmonic components in a rectifier circuit, Inductor filter, Capacitor filter, L-section filter, T-section filter, Multiple L-section and Multiple T-section filter, and comparison of various filter circuits in terms of ripple factors, Simple circuit of a regulator using zener diode, Series and Shunt voltage regulators

UNIT-IV
TRANSISTOR and FET CHARACTERISTICS: Junction transistor, Transistor current components, Transistor as an amplifier, Transistor construction, Detailed study of currents in a transistor, Transistor alpha, Input and Output characteristics of transistor in Common Base, Common Emitter, and Common collector configurations, Relation between Alpha and Beta, typical transistor junction voltage values, JFET characteristics (Qualitative and Quantitative discussion), Small signal model of JFET, MOSFET characteristics (Enhancement and depletion mode), Symbols of MOSFET, Comparison of Transistors, Introduction to SCR and UJT.

UNIT-V
BIASING AND STABILISATION: BJT biasing, DC equivalent model, criteria for fixing operating point, Fixed bias, Collector to base bias, Self bias techniques for stabilization, Stabilization factors, (S, S', S''), Compensation techniques, (Compensation against variation in V_BE, I_C) Thermal run away, Thermal stability,

UNIT-VI
AMPLIFIERS: Small signal low frequency transistor amplifier circuits: h-parameter representation of a transistor, Analysis of single stage transistor amplifier using h-parameters: voltage gain, current gain, Input impedance and Output impedance. Comparison of transistor configurations in terms of A_v, R_i, A_i, R_o.

UNIT-VII
FEEDBACK AMPLIFIERS: Concept of feedback, Classification of feedback amplifiers, General characteristics of negative feedback amplifiers, Effect of Feedback on input and output characteristics, Voltage series, voltage shunt, current series, and current shunt feedback amplifiers with discrete components and their analysis

UNIT-VIII
OSCILLATORS: Condition for oscillations. RC-phase shift oscillators with Transistor and FET, Hartley and Colpitts oscillators, Wein bridge oscillator, Crystal oscillators, Frequency and amplitude stability of oscillators,
TEXT BOOKS:


REFERENCES:

5. Electronic Devices and Circuits- Prof GS N Raju I K International Publishing House Pvt Ltd 2006
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD

I Year B.Tech. IT

ENGINEERING DRAWING

UNIT – I
Introduction to engineering graphics – construction of ellipse, parabola and hyperbola – cylindrical curves.

UNIT – II
Orthographic projections of points, lines and planes – axis inclined to one planes and inclined to both the planes.

UNIT – III
Orthographic projections of solids:
Cylinder, cone, prism, pyramid and sphere positions and axis inclined to both the planes.

UNIT – IV
Isometric projections of lines, planes and simple solids

UNIT – V
Conversion of orthographic views into isometric views and vice-versa.

TEXT BOOKS:
1. Engineering drawings By N.D.Bhatt
2. Engineering graphics By K.L. Narayana & P.Kannayya

REFERENCES:
1. Engineering drawing and graphics: Venugopal/ New age
2. Engineering drawing : Johle / TMH
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HYDERABAD

I Year B.Tech. IT

COMPUTER PROGRAMMING LAB

T P C
0 3 4

Objectives:
- To make the student learn a programming language.
- To teach the student to write programs in C solve the problems
- To Introduce the student to simple linear and non linear data structures such as lists, stacks, queues, trees and graphs.

Recommended Systems/Software Requirements:
- Intel based desktop PC
- ANSI C Compiler with Supporting Editors

Week 1.

a) Write a C program to find the sum of individual digits of a positive integer.
b) A Fibonacci Sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence. Write a C program to generate the first n terms of the sequence.
c) Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.

Week 2.

a) Write a C program to calculate the following Sum:
   \[ \text{Sum}=1-x^2/2! +x^4/4!-x^6/6!+x^8/8!-x^{10}/10! \]
b) Write a C program to find the roots of a quadratic equation.

Week 3

a) Write C programs that use both recursive and non-recursive functions
   i) To find the factorial of a given integer.
   ii) To find the GCD (greatest common divisor) of two given integers.
   iii) To solve Towers of Hanoi problem.

Week 4

a) The total distance travelled by vehicle in ‘t’ seconds is given by distance \[ d = ut + 1/2at^2 \] where ‘u’ and ‘a’ are the initial velocity (m/sec.) and acceleration (m/sec²). Write C program to find the distance travelled at regular intervals of time given the values of ‘u’ and ‘a’. The program should provide the flexibility to the user to select his own time intervals and repeat the calculations for different values of ‘u’ and ‘a’.
b) Write a C program, which takes two integer operands and one operator form the user, performs the operation and then prints the result. (Consider the operators +,-,*, /, % and use Switch Statement)

Week 5

a) Write a C program to find both the largest and smallest number in a list of integers.
b) Write a C program that uses functions to perform the following:
   i) Addition of Two Matrices
   ii) Multiplication of Two Matrices

Week 6

a) Write a C program that uses functions to perform the following operations:
   i) To insert a sub-string in to given main string from a given position.
   ii) To delete n Characters from a given position in a given string.
b) Write a C program to determine if the given string is a palindrome or not

Week 7

a) Write a C program that displays the position or index in the string S where the string T begins, or – 1 if S doesn’t contain T.
b) Write a C program to count the lines, words and characters in a given text.
Week 8
a) Write a C program to generate Pascal’s triangle.
b) Write a C program to construct a pyramid of numbers.

Week 9
Write a C program to read in two numbers, x and n, and then compute the sum of this geometric progression:
\[ 1 + x + x^2 + x^3 + \ldots + x^n \]
For example: if n is 3 and x is 5, then the program computes 1+5+25+125.
Print x, n, the sum
Perform error checking. For example, the formula does not make sense for negative exponents – if n is less than 0. Have your program print an error message if n<0, then go back and read in the next pair of numbers of without computing the sum. Are any values of x also illegal? If so, test for them too.

Week 10
a) 2’s complement of a number is obtained by scanning it from right to left and complementing all the bits after the first appearance of a 1. Thus 2’s complement of 11100 is 00100. Write a C program to find the 2’s complement of a binary number.
b) Write a C program to convert a Roman numeral to its decimal equivalent.

Week 11
Write a C program that uses functions to perform the following operations:
i) Reading a complex number
ii) Writing a complex number
iii) Addition of two complex numbers
iv) Multiplication of two complex numbers
(Note: represent complex number using a structure.)

Week 12
a) Write a C program which copies one file to another.
b) Write a C program to reverse the first n characters in a file.
(Note: The file name and n are specified on the command line.)

Week 13
Write a C program that uses functions to perform the following operations on singly linked list.:i) Creation  ii) Insertion  iii) Deletion  iv) Traversal

Week 14
Write a C program that uses functions to perform the following operations on doubly linked list.:i) Creation ii) Insertion iii) Deletion iv) Traversal in both ways

Week 15
Write C programs that implement stack (its operations) usingi) Arrays  ii) Pointers

Week 16
Write C programs that implement Queue (its operations) usingi) Arrays  ii) Pointers

Week 17
Write a C program that uses Stack operations to perform the following:i) Converting infix expression into postfix expression
ii) Evaluating the postfix expression

Week 18
Write a C program that uses functions to perform the following:i) Creating a Binary Tree of integers
ii) Traversing the above binary tree in preorder, inorder and postorder.
Week 19
Write C programs that use both recursive and non-recursive functions to perform the following searching operations for a Key value in a given list of integers:
   i) Linear search   ii) Binary search

Week 20
Write C programs that implement the following sorting methods to sort a given list of integers in ascending order:
   i) Bubble sort   ii) Quick sort

Week 21
Write C programs that implement the following sorting methods to sort a given list of integers in ascending order:
   i) Insertion sort   ii) Merge sort

Week 22
Write C programs to implement the Lagrange interpolation and Newton-Gregory forward interpolation.

Week 23
Write C programs to implement the linear regression and polynomial regression algorithms.

Week 24
Write C programs to implement Trapezoidal and Simpson methods.

Text Books
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I Year B.Tech. IT  
ELECTRICAL AND ELECTRONICS LAB  

<table>
<thead>
<tr>
<th>PART - A</th>
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<tbody>
<tr>
<td>1. Serial and Parallel Resonance – Timing, Resonant frequency, Bandwidth and Q-factor determination for RLC network.</td>
</tr>
<tr>
<td>2. Time response of first order RC/RL network for periodic non-sinusoidal inputs – time constant and steady state error determination.</td>
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<tr>
<td>3. Two port network parameters – Z-Y Parameters, chain matrix and analytical verification.</td>
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<tr>
<td>4. Verification of Superposition and Reciprocity theorems.</td>
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<tr>
<td>5. Verification of maximum power transfer theorem. Verification on DC, verification on AC with Resistive and Reactive loads.</td>
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<tr>
<td>6. Experimental determination of Thevenin’s and Norton’s equivalent circuits and verification by direct test.</td>
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<tr>
<td>8. Swinburne’s Test on DC shunt machine (Predetermination of efficiency of a given DC Shunt machine working as motor and generator).</td>
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<tr>
<td>10. OC &amp; SC tests on Single-phase transformer (Predetermination of efficiency and regulation at given power factors and determination of equivalent circuit).</td>
</tr>
<tr>
<td>12. Regulation of alternator by synchronous impedance method</td>
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</tbody>
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<thead>
<tr>
<th>PART - B</th>
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</thead>
<tbody>
<tr>
<td>1. Identification, Specifications and Testing of R, L, C Components (colour codes), Potentiometers, Switches (SPDT, DPDT and DIP), Coils, Gang Condensers, Relays, Bread Boards. Identification and Specifications of active devices, Diodes, BJTs, Lowpower JFETs, MOSFETs, LEDs, LCDs, SCR, UJT, Linear and Digital ICs.</td>
</tr>
<tr>
<td>2. PN Junction Diode Characteristics (Forward bias, Reverse bias)</td>
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<td>3. Zener Diode Characteristics</td>
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<td>4. Transistor CE Characteristics (Input and Output)</td>
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<td>5. Rectifier without Filters (Full wave &amp; Half wave)</td>
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<tr>
<td>6. Rectifier with Filters (Full wave &amp; half wave)</td>
</tr>
<tr>
<td>7. SCR Characteristics</td>
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<tr>
<td>8. FET Characteristics</td>
</tr>
<tr>
<td>9. CE and CC Amplifier</td>
</tr>
<tr>
<td>10. Feedback Amplifier (Voltage Series/Current series)</td>
</tr>
<tr>
<td>11. RC Phase Shift Oscillator</td>
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<tr>
<td>12. Hartely/Colpitts Oscillator</td>
</tr>
</tbody>
</table>
The Language Lab focuses on the production and practice of sounds of language and familiarises the students with the use of English in everyday situations and contexts.

Objectives:

1. To expose the students to a variety of self-instructional, learner-friendly modes of language learning.
2. To help the students cultivate the habit of reading passages from the computer monitor, thus providing them with the required facility to face computer-based competitive exams such as GRE, TOEFL, GMAT etc.
3. To enable them to learn better pronunciation through stress on word accent, intonation, and rhythm.
4. To train them to use language effectively to face interviews, group discussions, public speaking.
5. To initiate them into greater use of the computer in resume preparation, report writing, format-making etc.

SYLLABUS:
The following course content is prescribed for the English Language Laboratory sessions:
1. Introduction to the Sounds of English - Vowels, Diphthongs & Consonants.
2. Introduction to Stress and Intonation.
3. Situational Dialogues / Role Play.
5. ‘Just A Minute’ Sessions (JAM).
6. Describing Objects / Situations / People.
7. Information Transfer
8. Debate
10. Giving Directions.

Minimum Requirement:
The English Language Lab shall have two parts:

i) The Computer aided Language Lab for 60 students with 60 systems, one master console, LAN facility and English language software for self-study by learners.

ii) The Communication Skills Lab with movable chairs and audio-visual aids with a P.A System, a T.V., a digital stereo – audio & video system and camcorder etc.

System Requirement (Hardware component):
Computer network with Lan with minimum 60 multimedia systems with the following specifications:

i) P – IV Processor
   a) Speed – 2.8 GHZ
   b) RAM – 512 MB Minimum
   c) Hard Disk – 80 GB

ii) Headphones of High quality

Suggested Software:
• Cambridge Advanced Learners’ English Dictionary with CD.
• The Rosetta Stone English Library
• Clarity Pronunciation Power – Part I
• Mastering English in Vocabulary, Grammar, Spellings, Composition
• Dorling Kindersley series of Grammar, Punctuation, Composition etc.
• Language in Use, Foundation Books Pvt Ltd with CD.
• Oxford Advanced Learner’s Compass, 7th Edition
• Learning to Speak English - 4 CDs
• Microsoft Encarta with CD
• Murphy’s English Grammar, Cambridge with CD
• English in Mind, Herbert Puchta and Jeff Stranks with Meredith Levy, Cambridge

Books Suggested for English Language Lab Library (to be located within the lab in addition to the CDs of the text book which are loaded on the systems):
1. Spoken English (CIEFL) in 3 volumes with 6 cassettes, OUP.

EBOOKS FOR JNTU SUBJECTS : www.jntuworld.com
2007-2008
4. English Language Communication : A Reader cum Lab Manual, Dr A Ramakrishna Rao, Dr G Natanam & Prof SA Sankaranarayanan, Anuradha Publications, Chennai.
8. English Skills for Technical Students, WBSCTE with British Council, OL.

DISTRIBUTION AND WEIGHTAGE OF MARKS

English Language Laboratory Practical Paper:
1. The practical examinations for the English Language Laboratory shall be conducted as per the University norms prescribed for the core engineering practical sessions.
2. For the Language lab sessions, there shall be a continuous evaluation during the year for 25 sessional marks and 50 year-end Examination marks. Of the 25 marks, 15 marks shall be awarded for day-to-day work and 10 marks to be awarded by conducting Internal Lab Test(s). The year-end Examination shall be conducted by the teacher concerned with the help of another member of the staff of the same department of the same institution.
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
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I Year B.Tech. IT

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IT WORKSHOP

Objectives:
The IT Workshop for engineers is a 6 training lab course spread over 90 hours. The modules include training on PC Hardware, Internet & World Wide Web and Productivity tools including Word, Excel, Power Point and Publisher.

PC Hardware: introduces the students to a personal computer and its basic peripherals, the process of assembling a personal computer, installation of system software like MS Windows, Linux and the required device drivers. In addition, hardware and software level troubleshooting process, tips and tricks would be covered.

Internet & World Wide Web: module introduces the different ways of hooking the PC on to the internet from home and workplace and effectively usage of the internet. Usage of web browsers, email, newsgroups and discussion forums would be covered. In addition, awareness of cyber hygiene, i.e., protecting the personal computer from getting infected with the viruses, worms and other cyber attacks would be introduced.

Productivity tools: module would enable the students in crafting professional word documents, excel spreadsheets, power point presentations and personal web sites using the Microsoft suite of office tools and LaTeX.

PC Hardware:
Week 1 – Task 1: Identify the peripherals of a computer, components in a CPU and its functions. Draw the block diagram of the CPU along with the configuration of each peripheral and submit to your instructor.

Week 2 – Task 2: Every student should disassemble and assemble the PC back to working condition. Lab instructors should verify the work and follow it up with a Viva. Also students need to go through the video which shows the process of assembling a PC. A video would be given as part of the course content.

Week 3 – Task 3: Every student should individually install MS windows on the personal computer. Lab instructor should verify the installation and follow it up with a Viva.

Week 4 – Task 4: Every student should install Linux on the computer. This computer should have windows installed. The system should be configured as dual boot with both windows and Linux. Lab instructors should verify the installation and follow it up with a Viva.

Week 5 – Task 5: Several mini tasks would be that covers Basic commands in Linux and Basic system administration in Linux which includes: Basic Linux commands in bash, Create hard and symbolic links, Text processing, Using wildcards.

Week 6 – Task 6: Hardware Troubleshooting: Students have to be given a PC which does not boot due to improper assembly or defective peripherals. They should identify the problem and fix it to get the computer back to working condition. The work done should be verified by the instructor and followed up with a Viva.

Week 7 – Task 7: Software Troubleshooting: Students have to be given a malfunctioning CPU due to system software problems. They should identify the problem and fix it to get the computer back to working condition. The work done should be verified by the instructor and followed up with a Viva.

Week 8 – Task 8: The test consists of various systems with Hardware / Software related troubles, Formatted disks without operating systems.

Internet & World Wide Web:
Week 9 - Task 1: Orientation & Connectivity Boot Camp: Students should get connected to their Local Area Network and access the Internet. In the process they configure the TCP/IP setting. Finally students should demonstrate, to the instructor, how to access the websites and email. If there is no internet connectivity preparations need to be made by the instructors to simulate the WWW on the LAN.
Week 10 - Task 2 : Web Browsers, Surfing the Web : Students customize their web browsers with the LAN proxy settings, bookmarks, search toolbars and pop up blockers. Also, plug-ins like Macromedia Flash and JRE for applets should be configured.

Week 11 - Task 3 : Search Engines & Netiquette : Students should know what search engines are and how to use the search engines. A few topics would be given to the students for which they need to search on Google. This should be demonstrated to the instructors.

Week 12 - Task 4 : Cyber Hygiene : Students would be exposed to the various threats on the internet and would be asked to configure their computer to be safe on the internet. They need to first install an anti virus software, configure their personal firewall and windows update on their computer. Then they need to customize their browsers to block pop ups, block active x downloads to avoid viruses and/or worms.

Week 13 Module Test : A test which simulates all of the above tasks would be crafted and given to the students.

LaTeX and Word
Week 14 – Word Orientation : The mentor needs to give an overview of LaTeX and Microsoft/ equivalent (FOSS) tool Word. Importance of LaTeX and MS/ equivalent (FOSS) tool Word as word Processors, Details of the four tasks and features that would be covered in each, Using LaTeX and word – Accessing, overview of toolbars, saving files, Using help and resources, rulers, format painter in word.

Task 1 : Using LaTeX and word to create project certificate. Features to be covered:- Formatting Fonts in word, Drop Cap in word, Applying Text effects, Using Character Spacing, Borders and Colors, Inserting Header and Footer, Using Date and Time option in both LaTeX and Word.

Week 15 - Task 2 : Creating project abstract Features to be covered:- Formatting Styles, Inserting table, Bullets and Numbering, Changing Text Direction, Cell alignment, Footnote, Hyperlink, Symbols, Spell Check, Track Changes.

Week 16 - Task 3 : Creating a Newsletter : Features to be covered:- Table of Content, Newspaper columns, Images from files and clipart, Drawing toolbar and Word Art, Formatting Images, Textboxes and Paragraphs

Week 17 - Task 4 : Creating a Feedback form - Features to be covered- Forms, Text Fields, Inserting objects, Mail Merge in Word.

Week 18 - LaTeX and Word Module Test - Replicate the given document inclusive of all features

Excel
Week 19 - Excel Orientation : The mentor needs to tell the importance of MS/ equivalent (FOSS) tool Excel as a Spreadsheet tool, give the details of the four tasks and features that would be covered in each. Using Excel – Accessing, overview of toolbars, saving excel files, Using help and resources

Task 1 : Creating a Scheduler - Features to be covered:- Gridlines, Format Cells, Summation, auto fill, Formatting Text

Week 20 - Task 2 : Calculating GPA - Features to be covered:- Cell Referencing, Formulae in excel – average, std.deviation, Charts, Renaming and Inserting worksheets, Hyper linking, Count function, LOOKUP/VLOOKUP

Week 21 - Task 3 : Performance Analysis - Features to be covered:- Split cells, freeze panes, group and outline, Sorting, Boolean and logical operators, Conditional formatting

Week 22 - Task 4 : Cricket Score Card - Features to be covered:- Pivot Tables, Interactive Buttons, Importing Data, Data Protection, Data Validation

Week 23 – Excel Module Test - Replicate the given document inclusive of all features

LaTeX and MS/equivalent (FOSS) tool Power Point
Week 24 - Task 1 : Students will be working on basic power point utilities and tools which help them create basic power point presentation. Topic covered during this week includes :- PPT Orientation, Slide Layouts,
Inserting Text, Word Art, Formatting Text, Bullets and Numbering, Auto Shapes, Lines and Arrows in both LaTeX and Powerpoint.

**Week 25 - Task 2** : Second week helps students in making their presentations interactive. Topic covered during this week includes: Hyperlinks, Inserting – Images, Clip Art, Audio, Video, Objects, Tables and Charts.

**Week 26 - Task 3** : Concentrating on the in and out of Microsoft power point and presentations in LaTeX. Helps them learn best practices in designing and preparing power point presentation. Topic covered during this week includes: Master Layouts (slide, template, and notes), Types of views (basic, presentation, slide slotter, notes etc), Inserting – Background, textures, Design Templates, Hidden slides.

**Week 27 - Task 4** : Entire week concentrates on presentation part of LaTeX and power point. Topic covered during this week includes: Using Auto content wizard, Slide Transition, Custom Animation, Auto Rehearsing.

**Week 28 - Task 5** : Power point test would be conducted. Students will be given model power point presentation which needs to be replicated (exactly how it’s asked).

**Publisher**

**Week 29** : Help students in preparing their personal website using Microsoft/ equivalent (FOSS) tool publisher. Topic covered during this week includes: Publisher Orientation, Using Templates, Layouts, Inserting text objects, Editing text objects, Inserting Tables, Working with menu objects, Inserting pages, Hyper linking, Renaming, deleting, modifying pages, Hosting website.

**REFERENCES :**

1. Comdex Information Technology course tool kit Vikas Gupta, WILEY Dreamtech
3. Introduction to Information Technology, ITL Education Solutions limited, Pearson Education.
4. PC Hardware and A+Handbook – Kate J. Chase PHI (Microsoft)
5. LaTeX Companion – Leslie Lamport, PHI/Pearson.
6. All LaTeX and others related material is available at
   (a) www.sssolutions.in and
   (b) www.sontisoftsolutions.org
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HYDERABAD

II Year B.Tech. IT I-Sem

PROBABILITY AND STATISTICS

UNIT-I
Probability: Sample space and events – Probability – The axioms of probability – Some
Elementary theorems - Conditional probability – Baye’s theorem.

UNIT-II

UNIT-III
Binomial and poison distributions Normal distribution – related properties.

UNIT-IV
Sampling distribution: Populations and samples - Sampling distributions of mean (known and unknown)
proportions, sums and differences.

UNIT-V
Estimation: Point estimation – interval estimation - Bayesian estimation.

UNIT-VI
Test of Hypothesis – Means– Hypothesis concerning one and two means– Type I and Type II errors. One
tail, two-tail tests.

UNIT-VII

UNIT-VIII
Queuing Theory: Pure Birth and Death Process M/M/1 Model and Simple Problems.

Text Books:

References:
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD

II Year B.Tech. IT I-Sem

MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE

UNIT-I

UNIT-II

UNIT-III

UNIT-IV
Algebraic structures: Algebraic systems Examples and general properties, Semi groups and monads, groups sub groups’ homomorphism, Isomorphism.

UNIT-V
Elementary Combinatorics: Basis of counting, Combinations & Permutations, with repetitions, Constrained repetitions, Binomial Coefficients, Binomial Multinomial theorems, the principles of Inclusion – Exclusion.

UNIT-VI
Recurrence Relation: Generating Functions, Function of Sequences Calculating Coefficient of generating function, Recurrence relations, Solving recurrence relation by substitution and Generating funds. Characteristics roots solution of In homogeneous Recurrence Relation.

UNIT-VII
Graph Theory: Representation of Graph, DFS, BFS, Spanning Trees, planar Graphs

UNIT-VIII
Graph Theory and Applications, Basic Concepts Isomorphism and Sub graphs, Multi graphs and Euler circuits, Hamiltonian graphs, Chromatic Numbers

TEXT BOOKS:
2. Discrete Mathematical Structures with applications to computer science Tremby J.P. & Manohar .P, TMH

REFERENCES:
1. Discrete Mathematics with Applications, Thomas Koshy, Elsevier
2. Discrete Mathematical Structures, Bernard Kolman, Robert C. Busby, Sharn Cutter Ross, Pearson Education/PHI.
3. Discrete Mathematical structures Theory and application-Malik & Sen
6. Logic and Discrete Mathematics, Grass Man & Trembley, Person Education.
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HYDERABAD.

II Year B.Tech. IT I-Sem

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ADVANCED DATA STRUCTURES AND ALGORITHMS

Unit I:-
C++ Class Overview- Class Definition, Objects, Class Members, Access Control, Class Scope, Constructors and destructors, parameter passing methods, Inline functions, static class members, this pointer, friend functions, dynamic memory allocation and deallocation (new and delete), exception handling.

Unit II:-
Function Overloading, Operator Overloading, Generic Programming- Function and class templates, Inheritance basics, base and derived classes, inheritance types, base class access control, runtime polymorphism using virtual functions, abstract classes, streams I/O.

Unit III:-
Algorithms, performance analysis-time complexity and space complexity, O-notation, Omega notation and Theta notation, Review of basic data structures - the list ADT, stack ADT, queue ADT, implementation using template classes in C++, sparse matrix representation.

Unit IV:-
Dictionaries, linear list representation, skip list representation, operations - insertion, deletion and searching, hash table representation, hash functions, collision resolution-separate chaining, open addressing-linear probing, quadratic probing, double hashing, rehashing,extendible hashing, comparison of hashing and skip lists.

Unit V:-
Priority Queues – Definition, ADT, Realizing a Priority Queue using Heaps, Definition, insertion, Deletion, Application-Heap Sort, External Sorting- Model for external sorting, Multiway merge, Polyphase merge.

Unit VI:-
Search trees (part I) : Binary search trees, definition, ADT, implementation, operations-searching, insertion and deletion, Balanced search trees- AVL trees, definition, height of an AVL tree, representation, operations-insertion, deletion and searching.

Search trees (part II) : Introduction to Red –Black trees and Splay Trees, B-Trees-B-Tree of order m, height of a B-Tree, insertion, deletion and searching, Comparison of Search Trees.

Unit VII:-
Divide and Conquer- General method, applications – Binary search, merge sort, quick sort, Strassen's matrix multiplication
Efficient non recursive tree traversal algorithms, Biconnected components. Disjoint set operations, union and find algorithms.

Unit VIII:-
Greedy method and Dynamic programming : General method (Greedy), Minimum cost spanning trees, Job sequencing with deadlines, General method (Dynamic Programming), Optimal binary search trees, 0/1 knapsack problem, Ordering Matrix Multiplications

TEXT BOOKS :

REFERENCE :
5. Data structures using C and C++, Langsam, Augenstein and Tanenbaum, PHI/Pearson Education.
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD
II Year B.Tech. IT I-Sem

DIGITAL LOGIC DESIGN

UNIT - I
BINARY SYSTEMS : Digital Systems, Binary Numbers, Number base conversions, Octal and Hexadecimal Numbers, complements, Signed binary numbers, Binary codes, Binary Storage and Registers, Binary logic.

UNIT - II
BOOLEAN ALGEBRA AND LOGIC GATES : Basic Definitions, Axiomatic definition of Boolean Algebra, Basic theorems and properties of Boolean algebra, Boolean functions canonical and standard forms, other logic operations, Digital logic gages, integrated circuits.

UNIT - III
GATE – LEVEL MINIMIZATION : The map method, Four-variable map, Five-Variable map, product of sums simplification Don't-care conditions, NAND and NOR implementation other Two-level implementations, Exclusive – Or function, Hardware Description language (HDL).

UNIT - IV
COMBINATIONAL LOGIC : Combinational Circuits, Analysis procedure Design procedure, Binary Adder-Subtractor Decimal Adder, Binary multiplier, magnitude comparator, Decoders, Encoders, Multiplexers, HDL for combinational circuits.

UNIT - V
SYNCHRONOUS SEQUENTIAL LOGIC : Sequential circuits, latches, Flip-Flops Analysis of clocked sequential circuits, HDL for sequential circuits, State Reduction and Assignment, Design Procedure.

UNIT - VI
Registers, shift Registers, Ripple counters synchronous counters, other counters, HDL for Registers and counters.

UNIT - VII
Introduction, Random-Access Memory, Memory Decoding, Error Detection and correction Read-only memory, Programmable logic Array programmable Array logic, Sequential Programmable Devices.

UNIT - VIII

TEXT BOOKS :

REFERENCES :
2. Switching and Logic Design, C.V.S. Rao, Pearson Education
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD

II Year B.Tech. IT I-Sem

UNIX AND SHELL PROGRAMMING

Unit I:
Introduction to Unix:- Architecture of Unix, Features of Unix, Unix Commands – PATH, man, echo, printf, script, passwd, uname, who, date, stty, pwd, cd, mkdir, rmdir, ls, cp, mv, rm, cat, more, wc, lp, od, tar, gzip.

Unit II:
Unix Utilities:- Introduction to unix file system, vi editor, file handling utilities, security by file permissions, process utilities, disk utilities, networking commands,mlink, du, df, mount, umount, find, unmask, ulimit, ps, w, finger, arp, ftp, telnet, rlogin. Text processing utilities and backup utilities, detailed commands to be covered are tail, head, sort, nl, uniq, grep, egrep, fgrep, cut, paste, join, tee, pg, comm, cmp, diff, tr, awk, cpio.

Unit III:
Introduction to Shells:
Filters:
Filters and Pipes, Concatenating files, Display Beginning and End of files, Cut and Paste, Sorting, Translating Characters, Files with Duplicate Lines, Count characters, Words or Lines, Comparing Files.

Unit IV:
Grep:
Operation, grep Family, Searching for File Content.
Sed:
Scripts, Operation, Addresses, commands, Applications, grep and sed.

Unit V:
awk:

Unit VI:
Interactive Korn Shell:
Korn Shell Programming:
Basic Script concepts, Expressions, Decisions: Making Selections, Repetition, special Parameters and Variables, changing Positional Parameters, Argument Validation, Debugging Scripts, Script Examples.

Unit VII:
Interactive C Shell:
C Shell Programming:
Basic Script concepts, Expressions, Decisions: Making Selections, Repetition, special Parameters and Variables, changing Positional Parameters, Argument Validation, Debugging Scripts, Script Examples.

Unit VIII:
File Management:
File Structures, System Calls for File Management – create, open, close, read, write, lseek, link, symlink, unlink, stat, fstat, lstat, chmod, chown, Directory API – opendir, readdir, readdir, closedir, mkdir, rmdir, umask.
TEXT BOOKS:

REFERENCES:
1. Unix for programmers and users, 3rd edition, Graham Glass, King Ables, Pearson Education.
2. Unix programming environment, Kernighan and Pike, PHI. / Pearson Education
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD

II Year B.Tech. IT I-Sem

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MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS

Unit I Introduction to Managerial Economics:

Unit II Elasticity of Demand:
Definition, Types, Measurement and Significance of Elasticity of Demand. Demand Forecasting, Factors governing demand forecasting, methods of demand forecasting (survey methods, statistical methods, expert opinion method, test marketing, controlled experiments, judgmental approach to demand forecasting)

Unit III Theory of Production and Cost Analysis:
Production Function – Isoquants and Isocosts, MRTS, Least Cost Combination of Inputs, Cobb-Douglas Production function, Laws of Returns, Internal and External Economies of Scale.
Cost Analysis: Cost concepts, Opportunity cost, Fixed vs. Variable costs, Explicit costs Vs. Implicit costs, Out of pocket costs vs. Imputed costs. Break-even Analysis (BEA)- Determination of Break-Even Point (simple problems)- Managerial Significance and limitations of BEA.

Unit IV Introduction to Markets & Pricing Policies:
Market structures: Types of competition, Features of Perfect competition, Monopoly and Monopolistic Competition. Price-Output Determination in case of Perfect Competition and Monopoly.

Unit V Business & New Economic Environment:

Unit VI Capital and Capital Budgeting:
Capital and its significance, Types of Capital, Estimation of Fixed and Working capital requirements, Methods and sources of raising finance. Nature and scope of capital budgeting, features of capital budgeting proposals, Methods of Capital Budgeting: Payback Method, Accounting Rate of Return (ARR) and Net Present Value Method (simple problems)

Unit VII Introduction to Financial Accounting:

Unit VIII Financial Analysis through ratios:
Computation, Analysis and Interpretation of Liquidity Ratios (Current Ratio and quick ratio), Activity Ratios (Inventory turnover ratio and Debtor Turnover ratio), Capital structure Ratios (Debt- Equity ratio, Interest Coverage ratio), and Profitability ratios (Gross Profit Ratio, Net Profit ratio, Operating Ratio, P/E Ratio and EPS).

TEXT BOOKS:

REFERENCES:
3. Suma Damodaran, Managerial Economics, Oxford University Press.

EBOOKS FOR JNTU SUBJECTS : www.jntuworld.com
2007-2008

Prerequisites: Nil

Objective: To explain the basic principles of managerial economics, accounting and current business environment underlying business decision making.

Codes/Tables: Present Value Tables need to be permitted into the examinations Hall.

Question Paper Pattern: 5 Questions to be answered out of 8 questions.
Each question should not have more than 3 bits.
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD

II Year B.Tech. IT I-Sem

ADVANCED DATA STRUCTURES AND ALGORITHMS LAB

Objectives:
- To make the student learn a object oriented way of solving problems.
- To make the student write ADTS for all data structures.
- To make the student learn different algorithm design techniques.

Recommended Systems/Software Requirements:
- Intel based desktop PC with minimum of 166 MHZ or faster processor with atleast 64 MB RAM and 100 MB free disk space
- C++ compiler and STL Recommended

Week1- C++ programs to implement the following using an array.
  a) Stack ADT
  b) Queue ADT

Week2- Write C++ programs to implement the following using a singly linked list.
  a) Stack ADT
  b) Queue ADT

Week3- Write C++ programs to implement the deque (double ended queue) ADT using
  a doubly linked list and an array.

Week 4- Write a C++ program to perform the following operations:
  a) Insert an element into a binary search tree.
  b) Delete an element from a binary search tree.
  c) Search for a key element in a binary search tree.

Week5- Write C++ programs that use non-recursive functions to traverse the given
  binary tree in
  a) Preorder
  b) inorder
  c) postorder.

Week6- Write C++ programs for the implementation of bfs and dfs for a given graph.

Week7- Write C++ programs for implementing the following sorting methods:
  a) Merge sort
  b) Heap sort

Week8- Write a C++ program to perform the following operations
  a) Insertion into a B-tree
  b) Deletion from a B-tree

Week9- Write a C++ program to perform the following operations
  a) Insertion into an AVL-tree
  b) Deletion from an AVL-tree

Week10- Write a C++ program to implement Kruskal’s algorithm to generate a minimum cost spanning tree.

Week11- Write a C++ program to implement Prim’s algorithm to generate a minimum cost spanning tree.

Week12- Write a C++ program to implement all the functions of a dictionary (ADT)
  using hashing.

(Note: Use Class Templates In the above Programs)

TEXT BOOKS :
2. Data Structures using C++, D.S. Malik, Thomson
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD

II Year B.Tech. IT I-Sem

UNIX AND SHELL PROGRAMMING LAB

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Objectives:
- To teach students various unix utilities and shell scripting

Recommended Systems/Software Requirements:
- Intel based desktop PC with minimum of 166 MHZ or faster processor with atleast 64 MB RAM and 100 MB free disk space LAN Connected
- Any flavour of Unix / Linux

Week1

Session-1
a) Log into the system
b) Use vi editor to create a file called myfile.txt which contains some text.
c) Correct typing errors during creation.
d) Save the file
e) Logout of the system

Session-2
a) Log into the system
b) Open the file created in session 1
c) Add some text
d) Change some text
e) delete some text
f) Save the changes
g) Logout of the system

Week2

a) Log into the system
b) Use the cat command to create a file containing the following data. Call it mytable use tabs to separate the fields.

1425 Ravi 15.65
4320 Ramu 26.27
6830 Sita 36.15
1450 Raju 21.86

c) Use the cat command to display the file, mytable.
d) Use the vi command to correct any errors in the file, mytable.
e) Use the sort command to sort the file mytable according to the first field. Call the sorted file mytable (same name)
f) Print the file mytable
g) Use the cut and paste commands to swap fields 2 and 3 of mytable. Call it mytable (same name)
h) Print the new file, mytable
i) Logout of the system.

Week3

1) a) Login to the system
b) Use the appropriate command to determine your login shell
c) Use the /etc/passwd file to verify the result of step b.
d) Use the who command and redirect the result to a file called myfile1. Use the more command to see the contents of myfile1.
e) Use the date and who commands in sequence (in one line) such that the output of date will display on the screen and the output of who will be redirected to a file called myfile2. Use the more command to check the contents of myfile2.

2) a) Write a sed command that deletes the first character in each line in a
file.
   b) Write a sed command that deletes the character before the last character in each line in a file.
   c) Write a sed command that swaps the first and second words in each line in a file.

Week 4
a) Pipe your /etc/passwd file to awk, and print out the home directory of each user.
b) Develop an interactive grep script that asks for a word and a file name and then tells how many lines contain that word.
c) Repeat

d) Part using awk

Week 5
a) Write a shell script that takes a command – line argument and reports on whether it is directory, a file, or something else.
b) Write a shell script that accepts one or more file name as arguments and converts all of them to uppercase, provided they exist in the current directory.
c) Write a shell script that determines the period for which a specified user is working on the system.

Week 6
a) Write a shell script that accepts a file name starting and ending line numbers as arguments and displays all the lines between the given line numbers.
b) Write a shell script that deletes all lines containing a specified word in one or more files supplied as arguments to it.

Week 7
a) Write a shell script that computes the gross salary of a employee according to the following rules:
i) If basic salary is < 1500 then HRA = 10% of the basic and DA = 90% of the basic.
ii) If basic salary is >=1500 then HRA = Rs500 and DA = 98% of the basic

The basic salary is entered interactively through the key board.
b) Write a shell script that accepts two integers as its arguments and computes the value of first number raised to the power of the second number.

Week 8
a) Write an interactive file-handling shell program. Let it offer the user the choice of copying, removing, renaming, or linking files. Once the user has made a choice, have the program ask the user for the necessary information, such as the file name, new name and so on.
b) Write a shell script that takes a login name as command – line argument and reports when that person logs in

c) Write a shell script which receives two file names as arguments. It should check whether the two file contents are same or not. If they are same then second file should be deleted.

Week 9
a) Write a shell script that displays a list of all the files in the current directory to which the user has read, write and execute permissions.
b) Develop an interactive script that ask for a word and a file name and then tells how many times that word occurred in the file.
c) Write a shell script to perform the following string operations:
   i) To extract a sub-string from a given string.
   ii) To find the length of a given string.

Week 10
Write a C program that takes one or more file or directory names as command line input and reports the following information on the file:
   i) File type
   ii) Number of links
   iii) Read, write and execute permissions
   iv) Time of last access

(Note: Use stat/fstat system calls)
Week 11
Write C programs that simulate the following unix commands:
a) mv
b) cp
(Use system calls)

Week 12
Write a C program that simulates ls Command
(Use system calls / directory API)

TEXT BOOKS

1) Introduction to UNIX & SHELL programming, M.G. Venkatesh Murthy, Pearson Education.
2) Unix concepts and applications, Fourth Edition, Sumitabha Das, TMH.
3) Unix for programmers and users, 3rd edition, Gaham Glass & K. Ables, pearson education.
5) Beginning shell scripting, E. Foster – Johnson & other, Wile Y- India.
II Year B.Tech. IT II-Sem

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OBJECT ORIENTED PROGRAMMING

UNIT I:
Object oriented thinking: Need for oop paradigm, A way of viewing world – Agents, responsibility, messages, methods, classes and instances, class hierarchies (Inheritance), method binding, overriding and exceptions, summary of oop concepts, coping with complexity, abstraction mechanisms.

UNIT II:
Java Basics History of Java, Java buzzwords, datatypes, variables, scope and life time of variables, arrays, operators, expressions, control statements, type conversion and costing, simple java program, classes and objects – concepts of classes, objects, constructors, methods, access control, this keyword, garbage collection, overloading methods and constructors, parameter passing, recursion, string handling.

UNIT III:
Inheritance – Hierarchical abstractions, Base class object, subclass, subtype, substitutability, forms of inheritance- specialization, specification, construction, extension, limitation, combination, benefits of inheritance, costs of inheritance. Member access rules, super uses, using final with inheritance, polymorphism- method overriding, abstract classes.

UNIT IV:
Packages and Interfaces: Defining, Creating and Accessing a Package, Understanding CLASSPATH, importing packages, differences between classes and interfaces, defining an interface, implementing interface, applying interfaces, variables in interface and extending interfaces. Exploring packages – Java.io, java.util.

UNIT V:
Exception handling and multithreading: Concepts of exception handling, benefits of exception handling, Termination or resumptive models, exception hierarchy, usage of try, catch, throw, throws and finally, built in exceptions, creating own exception sub classes. Differences between multi threading and multitasking, thread life cycle, creating threads, synchronizing threads, daemon threads, thread groups.

UNIT VI:
Event Handling: Events, Event sources, Event classes, Event Listeners, Delegation event model, handling mouse and keyboard events, Adapter classes, inner classes. The AWT class hierarchy, user interface components- labels, button, canvas, scrollbars, text components, check box, check box groups, choices, lists panels – scrollpane, dialogs, menubar, graphics, layout manager – layout manager types – boarder, grid, flow, card and grib bag.

UNIT VII:
Applets – Concepts of Applets, differences between applets and applications, life cycle of an applet, types of applets, creating applets, passing parameters to applets.


UNIT VIII:
Networking – Basics of network programming, addresses, ports, sockets, simple client server program, multiple clients, Java .net package

TEXT BOOKS:
1. Java; the complete reference, 7th edition, Herbert schildt, TMH.
2. Understanding OOP with Java, updated edition, T. Budd, pearson eduction.
REFERENCES:

2. An Introduction to OOP, second edition, T. Budd, pearson education.
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
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II Year B.Tech. IT II-Sem

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COMPUTER ORGANIZATION

UNIT I:

UNIT II:

UNIT III:
MICRO PROGRAMMED CONTROL: Control memory, Address sequencing, microprogram example, design of control unit Hard wired control. Microprogrammed control

UNIT IV:

UNIT V:
THE MEMORY SYSTEM: Basic concepts semiconductor RAM memories. Read-only memories Cache memories performance considerations, Virtual memories secondary storage. Introduction to RAID.

UNIT VI

UNIT VII:
Pipeline AND VECTOR PROCESSING: Parallel Processing, Pipelining, Arithmetic Pipeline, Instruction Pipeline, RISC Pipeline Vector Processing, Array Processors.

UNIT VIII:

TEXT BOOKS:

REFERENCES:
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD
II Year B.Tech. IT II-Sem

UNIT I:

UNIT II:
History of Data base Systems. Data base design and ER diagrams – Beyond ER Design Entities, Attributes and Entity sets – Relationships and Relationship sets – Additional features of ER Model – Concept Design with the ER Model – Conceptual Design for Large enterprises.

UNIT III:

UNIT IV:
Form of Basic SQL Query – Examples of Basic SQL Queries – Introduction to Nested Queries – Correlated Nested Queries Set – Comparison Operators – Aggregative Operators – NULL values – Comparison using Null values – Logical connectivity’s – AND, OR and NOT – Impact on SQL Constructs – Outer Joins – Disallowing NULL values – Complex Integrity Constraints in SQL Triggers and Active Data bases.

UNIT V:

UNIT VI:

UNIT VII:

UNIT VIII:

TEXT BOOKS:

REFERENCES:
2. Fundamentals of Database Systems, Elmasri Navraste Pearson Education

EBOOKS FOR JNTU SUBJECTS : www.jntuworld.com
2007-2008
3. Introduction to Database Systems, C.J. Date Pearson Education
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD

II Year B.Tech. IT II-Sem

OPERATING SYSTEMS

UNIT I:
Computer System and Operating System Overview: Overview of computer operating systems operating systems functions protection and security distributed systems special purpose systems operating systems structures and systems calls operating systems generation

UNIT II:
Process Management – Process concepts threads, scheduling-criteria algorithms, their evaluation, Thread scheduling, case studies UNIX, Linux, Windows

UNIT III:
Concurrency: Process synchronization, the critical-section problem, Peterson’s Solution, synchronization Hardware, semaphores, classic problems of synchronization, monitors, Synchronization examples, atomic transactions. Case studies UNIX, Linux, Windows

UNIT IV:
Memory Management: Swapping, contiguous memory allocation, paging, structure of the page table, segmentation, virtual memory, demand paging, page- Replacement, algorithms, case studies UNIX, Linux, Windows

UNIT V:

UNIT VI:
File system Interface- the concept of a file, Access Methods, Directory structure, File system mounting, file sharing, protection.
File System implementation- File system structure, file system implementation, directory implementation, directory implementation, allocation methods, free-space management, efficiency and performance, case studies UNIX, Linux, Windows

UNIT VII:
Mass-storage structure overview of Mass-storage structure, Disk structure, disk attachment disk scheduling, swap-space management, RAID structure, stable-storage implementation, Tertiary storage structure.

UNIT VIII:
Security: The Security problem, program threats, system and network threats cryptography as a security tool, user authentication, implementing security defenses, firewalling to protect systems and networks, computer –security classifications, case studies UNIX, Linux, Windows

TEXT BOOKS:

REFERENCES:
2. Operating System A Design Approach-Crowley, TMH.
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD
II Year B.Tech. IT II-Sem

UNIT I:
Multidisciplinary nature of Environmental Studies: Definition, Scope and Importance – Need for Public Awareness.

UNIT II:
Natural Resources: Renewable and non-renewable resources – Natural resources and associated problems – Forest resources – Use and over – exploitation, deforestation, case studies – Timber extraction – Mining, dams and other effects on forest and tribal people – Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems - Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies. - Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. – Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources. Case studies. Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

UNIT III:
Ecosystems: Concept of an ecosystem. - Structure and function of an ecosystem. - Producers, consumers and decomposers. - Energy flow in the ecosystem - Ecological succession. - Food chains, food webs and ecological pyramids. - Introduction, types, characteristic features, structure and function of the following ecosystem:
  a. Forest ecosystem
  b. Grassland ecosystem
  c. Desert ecosystem
  d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

UNIT IV:

UNIT V:
Environmental Pollution: Definition, Cause, effects and control measures of a. Air pollution
  b. Water pollution
  c. Soil pollution
  d. Marine pollution
  e. Noise pollution
  f. Thermal pollution
  g. Nuclear hazards
Solid waste Management: Causes, effects and control measures of urban and industrial wastes. – Role of an individual in prevention of pollution. - Pollution case studies. - Disaster management: floods, earthquake, cyclone and landslides.

UNIT VI:
UNIT VII:

UNIT VIII:
**Field work**: Visit to a local area to document environmental assets River /forest grassland/hill/mountain - Visit to a local polluted site - Urban/Rural/industrial/ Agricultural Study of common plants, insects, birds. - Study of simple ecosystems-pond, river, hill slopes, etc.

**TEXT BOOK**:
1. Textbook of Environmental Studies for Undergraduate Courses by Erach Bharucha for University Grants Commission.
2. Environmental Studies by R. Rajagopalan, Oxford University Press.

**REFERENCE**:
1. Textbook of Environmental Sciences and Technology by M. Anji Reddy, BS Publication.
UNIT I:

UNIT II:
Process models: The waterfall model, Incremental process models, Evolutionary process models, The Unified process.
Software Requirements: Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document.

UNIT III:
Requirements engineering process: Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management.
System models: Context Models, Behavioral models, Data models, Object models, structured methods.

UNIT IV:
Design Engineering: Design process and Design quality, Design concepts, the design model.
Creating an architectural design: Software architecture, Data design, Architectural styles and patterns, Architectural Design.

UNIT V:
Object-Oriented Design: Objects and object classes, An Object-Oriented design process, Design evolution.
Performing User interface design: Golden rules, User interface analysis and design, interface analysis, interface design steps, Design evaluation.

UNIT VI:
Testing Strategies: A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging.
Product metrics: Software Quality, Metrics for Analysis Model, Metrics for Design Model, Metrics for source code, Metrics for testing, Metrics for maintenance.

UNIT VII:

UNIT VIII:

TEXT BOOKS:

REFERENCES:
OBJECT ORIENTED PROGRAMMING LAB

Objectives:
- To make the student learn a object oriented way of solving problems.
- To teach the student to write programs in Java to solve the problems

Recommended Systems/Software Requirements:
- Intel based desktop PC with minimum of 166 MHZ or faster processor with atleast 64 MB RAM and 100 MB free disk space
- JDK Kit. Recommended

Week1:
a) Write a Java program that prints all real solutions to the quadratic equation ax^2 + bx + c = 0. Read in a, b, c and use the quadratic formula. If the discriminant b^2 - 4ac is negative, display a message stating that there are no real solutions.
b) The Fibonacci sequence is defined by the following rule:
   The fist two values in the sequence are 1 and 1. Every subsequent value is the sum of the two values preceding it. Write a Java program that uses both recursive and non recursive functions to print the nth value in the Fibonacci sequence.

Week 2:
a) Write a Java program that prompts the user for an integer and then prints out all prime numbers up to that integer.
b) Write a Java program to multiply two given matrices.
c) Write a Java Program that reads a line of integers, and then displays each integer, and the sum of all the integers (Use StringTokenizer class of java.util)

Week 3:
a) Write a Java program that checks whether a given string is a palindrome or not. Ex: MADAM is a palindrome.
b) Write a Java program for sorting a given list of names in ascending order.
c) Write a Java program to make frequency count of words in a given text.

Week 4:
a) Write a Java program that reads a file name from the user, then displays information about whether the file exists, whether the file is readable, whether the file is writable, the type of file and the length of the file in bytes.
b) Write a Java program that reads a file and displays the file on the screen, with a line number before each line.
c) Write a Java program that displays the number of characters, lines and words in a text file.

Week 5:
a) Write a Java program that:
   i) Implements stack ADT.
   ii) Converts infix expression into Postfix form
   iii) Evaluates the postfix expression

Week 6:
a) Develop an applet that displays a simple message.
b) Develop an applet that receives an integer in one text field, and computes its factorial Value and returns it in another text field, when the button named “Compute” is clicked.

Week 7:
Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the +, -, *, % operations. Add a text field to display the result.

Week 8:
a) Write a Java program for handling mouse events.
Week 9:

a) Write a Java program that creates three threads. First thread displays “Good Morning” every one second, the second thread displays “Hello” every two seconds and the third thread displays “Welcome” every three seconds.

b) Write a Java program that correctly implements producer consumer problem using the concept of inter thread communication.

Week 10:

Write a program that creates a user interface to perform integer divisions. The user enters two numbers in the textfields, Num1 and Num2. The division of Num1 and Num2 is displayed in the Result field when the Divide button is clicked. If Num1 or Num2 were not an integer, the program would throw a NumberFormatException. If Num2 were Zero, the program would throw an ArithmeticException Display the exception in a message dialog box.

Week 11:

Write a Java program that implements a simple client/server application. The client sends data to a server. The server receives the data, uses it to produce a result, and then sends the result back to the client. The client displays the result on the console. For ex: The data sent from the client is the radius of a circle, and the result produced by the server is the area of the circle. (Use java.net)

Week 12:

a) Write a java program that simulates a traffic light. The program lets the user select one of three lights: red, yellow, or green. When a radio button is selected, the light is turned on, and only one light can be on at a time No light is on when the program starts.

b) Write a Java program that allows the user to draw lines, rectangles and ovals.

Week 13:

a) Write a java program to create an abstract class named Shape that contains an empty method named numberOfSides ().Provide three classes named Trapezoid, Triangle and Hexagon such that each one of the classes extends the class Shape. Each one of the classes contains only the method numberOfSides () that shows the number of sides in the given geometrical figures.

b) Suppose that a table named Table.txt is stored in a text file. The first line in the file is the header, and the remaining lines correspond to rows in the table. The elements are seperated by commas. Write a java program to display the table using JTable component.

TEXT BOOKS:

2. Introduction to Java programming, Sixth edition, Y.Daniel Liang, Pearson Education
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD

II Year B.Tech. IT II-Sem

DATABASE MANAGEMENT SYSTEMS LAB

Objectives:
- To teach the student database design and query and PL/SQL.

Recommended Systems/Software Requirements:
- Intel based desktop PC
- Mysql /Oracle latest version Recommended

1) Creation, altering and dropping of tables and inserting rows into a table (use constraints while creating tables) examples using SELECT command.
2) Queries (along with sub Queries) using ANY, ALL, IN, EXISTS, NOT EXISTS, UNION, INTERSECT, Constraints.
   Example:- Select the roll number and name of the student who secured fourth rank in the class.
3) Queries using Aggregate functions (COUNT, SUM, AVG, MAX and MIN), GROUP BY, HAVING and Creation and dropping of Views.
4) Queries using Conversion functions (to_char, to_number and to_date), string functions (Concatenation, lpad, rpad, ltrim, rtrim, lower, upper, initcap, length, substr and instr), date functions (Sysdate, next_day, add_months, last_day, months_between, least, greatest, trunc, round, to_char, to_date)
5) i)Creation of simple PL/SQL program which includes declaration section, executable section and exception –Handling section (Ex. Student marks can be selected from the table and printed for those who secured first class and an exception can be raised if no records were found)
   ii)Insert data into student table and use COMMIT, ROLLBACK and SAVEPOINT in PL/SQL block.
6) Develop a program that includes the features NESTED IF, CASE and CASE expression. The program can be extended using the NULLIF and COALESCE functions.
7) Program development using WHILE LOOPS, numeric FOR LOOPS, nested loops using ERROR Handling, BUILT –IN Exceptions, USE defined Exceptions, RAISE- APPLICATION ERROR.
8) Programs development using creation of procedures, passing parameters IN and OUT of PROCEDURES.
9) Program development using creation of stored functions, invoke functions in SQL Statements and write complex functions.
10) Program development using creation of package specification, package bodies, private objects, package variables and cursors and calling stored packages.
11) Develop programs using features parameters in a CURSOR, FOR UPDATE CURSOR, WHERE CURRENT of clause and CURSOR variables.
12) Develop Programs using BEFORE and AFTER Triggers, Row and Statement Triggers and INSTEAD OF Triggers.

TEXT BOOKS :

1) ORACLE PL/SQL by example. Benjamin Rosenzweig, Elena Silvestrova, Pearson Education 3rd Edition
2) ORACLE DATA BASE LOG PL/SQL Programming SCOTT URMAN, Tata Mc-Graw Hill.
   3) SQL & PL/SQL for Oracle 10g, Black Book, Dr.P.S. Deshpande.
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD

III Year B.Tech. IT I-Sem

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AUTOMATA AND COMPILER DESIGN

UNIT-I
Formal Language and Regular Expressions: Languages, Definition Languages regular expressions, Finite Automata – DFA, NFA. Conversion of regular expression to NFA, NFA to DFA. Applications of Finite Automata to lexical analysis, lex tools.

UNIT-II
Context Free grammars and parsing: Context free grammars, derivation, parse trees, ambiguity LL(K) grammars and LL(1) parsing

UNIT-III
Bottom up parsing handle pruning LR Grammar Parsing, LALR parsing, parsing ambiguous grammars, YACC programming specification.

UNIT-IV

UNIT-V
Context Sensitive features – Chomsky hierarchy of languages and recognizers. Type checking, type conversions, equivalence of type expressions, overloading of functions and operations.

UNIT-VI
Run time storage: Storage organization, storage allocation strategies scope access to now local names, parameters, language facilities for dynamics storage allocation.

UNIT-VII
Code optimization: Principal sources of optimization, optimization of basic blocks, peephole optimization, flow graphs, Data flow analysis of flow graphs.

UNIT-VIII

TEXT BOOKS:

REFERENCES:
2. Compiler Construction, LOUDEN, Thomson.
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD

III Year B.Tech. IT I-Sem

DATA COMMUNICATION SYSTEMS

Unit I:
INTRODUCTION TO DATA COMMUNICATIONS AND NETWORKING: Standards Organizations for Data Communications, Layered Network Architecture, Open Systems Interconnection, Data Communications Circuits, Serial and parallel Data Transmission, Data communications Circuit Arrangements, Data communications Networks, Alternate Protocol Suites.

SIGNALS, NOISE, MODULATION, AND DEMODULATION:

Unit II:
METALLIC CABLE TRANSMISSION MEDIA:

OPTICAL FIBER TRANSMISSION MEDIA:

Unit III:
DIGITAL TRANSMISSION:
Pulse Modulation, Pulse code Modulation, Dynamic Range, Signal Voltage –to-Quantization Noise Voltage Ration, Linear Versus Nonlinear PCM Codes, Companding, PCM Line Speed, Delta Modulation PCM and Differential PCM.

MULTIPLEXING AND T CARRIERS:
Time- Division Multiplexing, T1 Digital Carrier System, North American Digital Multiplexing Hierarchy, Digital Line Encoding, T Carrier systems, European Time- Division Multiplexing, Statistical Time – Division Multiplexing, Frame Synchronization, Frequency- Division Multiplexing, Wavelength- Division Multiplexing, Synchronous Optical Network

Unit IV:
WIRELESS COMMUNICATIONS SYSTEMS:

Unit V:
TELEPHONE INSTRUMENTS AND SIGNALS:
The Subscriber Loop, Standard Telephone Set, Basic Telephone Call Procedures, Call Progress Tones and Signals, Cordless Telephones, Caller ID, Electronic Telephones, Paging systems.

THE TELEPHONE CIRCUIT:

Unit VI:
CELLULAR TELEPHONE SYSTEMS:
Unit VII:
DATA COMMUNICATIONS CODES, ERROR CONTROL, AND DATA FORMATS:
Data Communications Character Codes, Bar Codes, Error Control, Error Detection, Error Correction, Character Synchronization.
DATA COMMUNICATIONS EQUIPMENT:

Unit VIII:
DATA –LINK PROTOCOLS:

TEXT BOOKS:
1. Introduction to Data Communications and Networking, Wayne Tomasi, Pearson Education.

Reference Books
1. Data Communications and Networking, Behrouz A Forouzan, Fourth Edition.TMH.
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD

III Year B.Tech. IT I-Sem

MICROPROCESSORS AND INTERFACING

UNIT-I

UNIT-II
Assembly language programs involving logical, Branch & Call instructions, sorting, evaluation of arithmetic expressions, string manipulation.

UNIT-III

UNIT-IV

UNIT-V

UNIT-VI
Serial data transfer schemes. Asynchronous and Synchronous data transfer schemes. 8251 USART architecture and interfacing. TTL to RS 232C and RS232C to TTL conversion. Sample program of serial data transfer. Introduction to High-speed serial communications standards, USB.

UNIT-VII
Advanced Micro Processors - Introduction to 80286, Salient Features of 80386, Real and Protected Mode Segmentation & Paging, Salient Features of Pentium, Branch Prediction, Overview of RISC Processors.

UNIT-VIII
8051 Microcontroller Architecture, Register set of 8051, Modes of timer operation, Serial port operation, Interrupt structure of 8051, Memory and I/O interfacing of 8051.

TEXT BOOKS:

REFERENCES:
UNIT I:

UNIT II:

UNIT III:
2-D geometrical transforms: Translation, scaling, rotation, reflection and shear transformations, matrix representations and homogeneous coordinates, composite transforms, transformations between coordinate systems. (p.nos 204-227 of text book-1).

UNIT IV:

UNIT V:

UNIT VI:
3-D Geometric transformations: Translation, rotation, scaling, reflection and shear transformations, composite transformations.
3-D viewing: Viewing pipeline, viewing coordinates, view volume and general projection transforms and clipping (p.nos 427-443, 452-481 of text book-1).

UNIT VII:
Visible surface detection methods: Classification, back-face detection, depth-buffer, scan-line, depth sorting, BSP-tree methods, area sub-division and octree methods (p.nos 489-505 of text book -1, Chapter 15 of of text book-2).

UNIT VIII:

TEXT BOOKS:

REFERENCES:
6. Computer Graphics, Steven Harrington, TMH
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY  
HYDERABAD

III Year B.Tech. IT I-Sem  

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DISTRIBUTED DATABASES

UNIT - I
Features of Distributed versus Centralized Databases, Principles Of Distributed Databases, Levels Of Distribution Transparency, Reference Architecture for Distributed Databases, Types of Data Fragmentation, Integrity Constraints in Distributed Databases.

UNIT – II
Translation of Global Queries to Fragment Queries, Equivalence Transformations for Queries, Transforming Global Queries into Fragment Queries, Distributed Grouping and Aggregate Function Evaluation, Parametric Queries.

UNIT – III

UNIT – IV

UNIT - V
Concurrency Control, Foundation of Distributed Concurrency Control, Distributed Deadlocks, Concurrency Control based on Timestamps, Optimistic Methods for Distributed Concurrency Control.

UNIT – VI
Reliability, Basic Concepts, Nonblocking Commitment Protocols, Reliability and concurrency Control, Determining a Consistent View of the Network, Detection and Resolution of Inconsistency, Checkpoints and Cold Restart, Distributed Database Administration, Catalog Management in Distributed Databases, Authorization and Protection.

UNIT - VII

UNIT - VIII
Database Integration, Scheme Translation, Scheme Integration, Query Processing Query Processing Layers in Distributed Multi-DBMSs, Query Optimization Issues. Transaction Management Transaction and Computation Model Multidatabase Concurrency Control, Multidatabase Recovery, Object Orientation And Interoperability Object Management Architecture CORBA and Database Interoperability Distributed Component Model COM/OLE and Database Interoperability, PUSH-Based Technologies.

TEXT BOOKS:

REFERENCES:
   – Pearson Education.
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY  
HYDERABAD

III Year B.Tech. IT I-Sem

SOFTWARE TESTING METHODOLOGIES

UNIT - I
Introduction : Purpose of testing, Dichotomies, model for testing, consequences of bugs, taxonomy of bugs

UNIT - II
Flow graphs and Path testing : Basics concepts of path testing, predicates, path predicates and achievable paths, path sensitizing, path instrumentation, application of path testing.

UNIT - III
Transaction Flow Testing : Transaction flows, transaction flow testing techniques. Dataflow testing:-Basics of dataflow testing, strategies in dataflow testing, application of dataflow testing.

UNIT - IV
Domain Testing :domains and paths, Nice & ugly domains, domain testing, domains and interfaces testing, domain and interface testing, domains and testability.

UNIT - V
Paths, Path products and Regular expressions : Path products & path expression, reduction procedure, applications, regular expressions & flow anomaly detection.

UNIT - VI
Logic Based Testing : Overview, decision tables, path expressions, kv charts, specifications.

UNIT - VII
State, State Graphs and Transition testing : State graphs, good & bad state graphs, state testing, Testability tips.

UNIT VIII :
Graph Matrices and Application : Motivational overview, matrix of graph, relations, power of a matrix, node reduction algorithm, building tools.
Usage of JMeter and Winrunner tools for functional / Regression testing, creation of test script for unattended testing, synchronization of test case, Rapid testing, Performance testing of a data base application and HTTP connection for website access.

TEXT BOOKS :

REFERENCES :
1. The craft of software testing - Brian Marick, Pearson Education.
2. Software Testing Techniques – SPD(Oreille)
1. Introduction
The introduction of the English Language Lab is considered essential at 3rd year level. At this stage the students need to prepare themselves for their careers which may require them to listen to, read, speak and write in English both for their professional and interpersonal communication in the globalised context.

The proposed course should be an integrated theory and lab course to enable students to use ‘good’ English and perform the following:
- Gather ideas and information, to organise ideas relevantly and coherently.
- Engage in debates.
- Participate in group discussions.
- Face interviews.
- Write project/research reports/technical reports.
- Make oral presentations.
- Write formal letters.
- Transfer information from non-verbal to verbal texts and vice versa.
- To take part in social and professional communication.

2. Objectives:
This Lab focuses on using computer-aided multimedia instruction for language development to meet the following targets:
- To improve the students’ fluency in English, through a well-developed vocabulary and enable them to listen to English spoken at normal conversational speed by educated English speakers and respond appropriately in different socio-cultural and professional contexts.
- Further, they would be required to communicate their ideas relevantly and coherently in writing.

3. Syllabus:
The following course content is prescribed for the Advanced Communication Skills Lab:
- Functional English - starting a conversation – responding appropriately and relevantly – using the right body language – role play in different situations.
- Vocabulary building – synonyms and antonyms, word roots, one-word substitutes, prefixes and suffixes, study of word origin, analogy, idioms and phrases.
- Group Discussion – dynamics of group discussion, intervention, summarizing, modulation of voice, body language, relevance, fluency and coherence.
- Interview Skills – concept and process, pre-interview planning, opening strategies, answering strategies, interview through tele and video-conferencing.
- Resume’ writing – structure and presentation, planning, defining the career objective, projecting one’s strengths and skill-sets, summary, formats and styles, letter-writing.
- Reading comprehension – reading for facts, guessing meanings from context, scanning, skimming, inferring meaning, critical reading.

4. Minimum Requirement:
The English Language Lab shall have two parts:
- The Computer aided Language Lab for 60 students with 60 systems, one master console, LAN facility and English language software for self-study by learners.
- The Communication Skills Lab with movable chairs and audio-visual aids with a P.A System, a T.V., a digital stereo –audio & video system and camcorder etc.

System Requirement (Hardware component):
Computer network with Lan with minimum 60 multimedia systems with the following specifications:
- P – IV Processor
  a) Speed – 2.8 GHZ
  b) RAM – 512 MB Minimum
  c) Hard Disk – 80 GB
- Headphones of High quality
5. Suggested Software:
The software consisting of the prescribed topics elaborated above should be procured and used.

Suggested Software:
- Clarity Pronunciation Power – part II
- Oxford Advanced Learner’s Compass, 7th Edition
- DELTA’s key to the Next Generation TOEFL Test: Advanced Skill Practice.
- Lingua TOEFL CBT Insider, by Dreamtech
- TOEFL & GRE (KAPLAN, AARCO & BARRONS, USA, Cracking GRE by CLIFFS)
- The following software from ‘train2success.com’
  - Preparing for being Interviewed,
  - Positive Thinking,
  - Interviewing Skills,
  - Telephone Skills,
  - Time Management
  - Team Building,
  - Decision making
- English in Mind, Herbert Puchta and Jeff Stranks with Meredith Levy, Cambridge

6. Books Recommended:
5. English Language Communication : A Reader cum Lab Manual Dr A Ramakrishna Rao, Dr G Natanam & Prof SA Sankaranarayanan, Anuradha Publications, Chennai
8. Books on TOEFL/GRE/GMAT/CAT by Barron’s/cup
9. IELTS series with CDs by Cambridge University Press.
15. Technical Communication by Meenakshi Raman & Sangeeta Sharma, Oxford University Press.

DISTRIBUTION AND WEIGHTAGE OF MARKS:

Advanced Communication Skills Lab Practicals:
1. The practical examinations for the English Language Laboratory practice shall be conducted as per the University norms prescribed for the core engineering practical sessions.
2. For the English Language lab sessions, there shall be a continuous evaluation during the year for 25 sessional marks and 50 End Examination marks. Of the 25 marks, 15 marks shall be awarded for day-to-day work and 10 marks to be awarded by conducting Internal Lab Test(s). The End Examination shall be conducted by the teacher concerned with the help of another member of the staff of the same department of the same institution.
III Year B.Tech. IT I-Sem

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MICROPROCESSORS AND INTERFACING LAB

I. Microprocessor 8086:
1. Introduction to MASM/TASM.
2. Arithmetic operation – Multi byte Addition and Subtraction, Multiplication and Division – Signed and unsigned Arithmetic operation, ASCII – arithmetic operation.
3. Logic operations – Shift and rotate – Converting packed BCD to unpacked BCD, BCD to ASCII conversion.
4. By using string operation and Instruction prefix: Move Block, Reverse string, Sorting, Inserting, Deleting, Length of the string, String comparison.
5. DOS/BIOS programming: Reading keyboard (Buffered with and without echo) – Display characters, Strings.

II. Interfacing:
1. 8259 – Interrupt Controller: Generate an interrupt using 8259 timer.
2. 8279 – Keyboard Display: Write a small program to display a string of characters.
3. 8255 – PPI: Write ALP to generate sinusoidal wave using PPI.
4. 8251 – USART: Write a program in ALP to establish Communication between two processors.

III. Microcontroller 8051
1. Reading and Writing on a parallel port.
2. Timer in different modes.
3. Serial communication implementation.

Equipment required for Laboratories:
1. 8086 µP Kits
2. 8051 Micro Controller kits
3. Interfaces/peripheral subsystems
   i) 8259 PIC
   ii) 8279-KB/Display
   iii) 8255 PPI
   iv) 8251 USART
4. ADC Interface
5. DAC Interface
6. Traffic Controller Interface
7. Elevator Interface
Objectives:

This course demonstrate an in-depth understanding of the tools and Web technologies necessary for business application design and development. The course covers client side scripting like HTML, JavaScript and server side scripting like servlets, JSPs. And also XML and web servers and database interfacing.

UNIT-I:

HTML Common tags- List, Tables, images, forms, Frames; Cascading Style sheets;

UNIT-II:

Introduction to Java Scripts, Objects in Java Script, Dynamic HTML with Java Script

UNIT-III:


UNIT-IV:

Java Beans: Introduction to Java Beans, Advantages of Java Beans, BDK Introspection, Using Bound properties, Bean Info Interface, Constrained properties Persistence, Customizes, Java Beans API, Introduction to EJB's

UNIT-V:


UNIT-VI:


UNIT-VII:

JSP Application Development: Generating Dynamic Content, Using Scripting Elements Implicit JSP Objects, Conditional Processing – Displaying Values Using an Expression to Set an Attribute, Declaring Variables and Methods Error Handling and Debugging Sharing Data Between JSP pages, Requests, and Users Passing Control and Date between Pages – Sharing Session and Application Data – Memory Usage Considerations

UNIT VIII:


TEXT BOOKS:
1. Web Programming, building internet applications, Chris Bates 2nd edition, WILEY Dreamtech (UNIT s 1,2,3)
2. The complete Reference Java 2 Fifth Edition by Patrick Naughton and Herbert Schildt. TMH (Chapters: 25) (UNIT 4)
3. Java Server Pages – Hans Bergsten, SPD O’Reilly (UNITs 5,6,7,8)

REFERENCE BOOKS:

1. Programming world wide web-Sebesta, Pearson
2. Core SERVLETS AND JAVASERVER PAGES VOLUME 1: CORE TECHNOLOGIES By Marty Hall and Larry Brown Pearson
3. Internet and World Wide Web – How to program by Dietel and Nieto PHI/Pearson Education Asia.
5. Murach’s beginning JAVA JDK 5, Murach, SPD
6. An Introduction to web Design and Programming – Wang-Thomson
8. Programming world wide web-Sebesta, Pearson
10. Beginning Web Programming-Jon Duckett WROX.
UNIT –I
Introduction : OSI, TCP/IP and other networks models, Examples of Networks: Novell Networks, Arpanet, Internet, Network Topologies WAN, LAN, MAN.

UNIT-II
Physical Layer: Transmission media copper, twisted pair wireless, switching and encoding asynchronous communications; Narrow band, broad band ISDN and ATM.

UNIT-III
Data link layer: Design issues, framing, error detection and correction, CRC, Elementary Protocol-stop and wait, Sliding Window, Slip, Data link layer in HDLC, Internet, ATM.

UNIT-IV
Medium Access sub layer: A LOHA, MAC addresses, Carrier sense multiple access. IEEE 802.X Standard Ethernet, wireless LANS. Bridges,

UNIT-V
Network Layer: Virtual circuit and Datagram subnets-Routing algorithm shortest path routing, Flooding, Hierarchical routing, Broadcast, Multi cast, distance vector routing.

UNIT –VI

UNIT –VII

UNIT –VIII
Application Layer – Network Security, Domain name system, SNMP, Electronic Mail; the World WEB, Multi Media.

TEXT BOOKS :
2. Data Communications and Networking – Behrouz A. Forouzan, Third Edition TMH.

REFERENCES:
2. Understanding communications and Networks, 3rd Edition, W.A. Shay, Thomson
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD

III Year B.Tech. IT II-Sem

E – COMMERCE

UNIT - I
Electronic Commerce-Frame work, anatomy of E-Commerce applications, E-Commerce Consumer applications, E-Commerce organization applications.

UNIT - II
Consumer Oriented Electronic commerce - Mercantile Process models.

UNIT - III
Electronic payment systems - Digital Token-Based, Smart Cards, Credit Cards, Risks in Electronic Payment systems.

UNIT - IV
Inter Organizational Commerce - EDI, EDI Implementation, Value added networks.

UNIT - V
Intra Organizational Commerce - work Flow, Automation Customization and internal Commerce, Supply chain Management.

UNIT - VI

UNIT - VII
Consumer Search and Resource Discovery - Information search and Retrieval, Commerce Catalogues, Information Filtering.

UNIT - VIII
Multimedia - key multimedia concepts, Digital Video and electronic Commerce, Desktop video processings, Desktop video conferencing.

TEXT BOOK :

REFERENCES :
1. E-Commerce fundamentals and applications Hendry Chan, Raymond Lee, Tharam Dillon, Ellizabeth Chang, John Wiley.
III Year B.Tech. IT II-Sem

MIDDLEWARE TECHNOLOGIES

UNIT-I

UNIT-II
CORBA with Java: Review of Java concept like RMI, RMI API, JDBC. Client/Server CORBA-style, The object web: CORBA with Java.

UNIT III
Introducing C# and the .NET Platform; Understanding .NET Assemblies; Object –Oriented Programming with C#: Callback Interfaces, Delegates, and Events.

UNIT IV
Building c# applications: Type Reflection, Late Binding, and Attribute-Based Programming; Object Serialization and the .NET Remoting Layer; Data Access with ADO.NET; XML Web Services.

UNIT-V
Core CORBA / Java: Two types of Client/ Server invocations-static, dynamic. The static CORBA, first CORBA program, ORBlets with Applets, Dynamic CORBA-The portable count, the dynamic count multi count.

UNIT-VI
Existential CORBA : CORBA initialization protocol, CORBa activation services, CORBAIDL mapping CORBA java- to- IDL mapping, The introspective CORBA/Java object.

UNIT-VII
Java Bean Component Model : Events, properties, persistency, Intrespection of beans, CORBA Beans.

UNIT-VIII
EJBs and CORBA: Object transaction monitors CORBA OTM’s, EJB and CORBA OTM’s, EJB container frame work, Session and Entity Beans, The EJB client/server development Process The EJB container protocol, support for transaction EJB packaging EJB design Guidelines.

TEXT BOOKS :

REFERENCES :
1. Distributed Computing, Principles and applications, M.L.Liu, Pearson Education
3. Client/Server Computing D T Dewire, TMH.
4. IBM Websphere Starter Kit Ron Ben Natan Ori Sasson, TMh, New Delhi
5. Programming C#, Jesse Liberty, SPD-O'Reilly.
6. C# Preciesely Peter Sestoft and Henrik I. Hansen, Prentice Hall of India
7. Introduction to C# Using .NET Pearson Education
8. C# How to program, Pearson Education
9. C# and the .NET Platform Andrew Troelsen, Apress Wiley-dreamtech, India Pvt Ltd
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD

III Year B.Tech. IT II-Sem

DATA WAREHOUSING AND DATA MINING

UNIT - I
Introduction : Fundamentals of data mining, Data Mining Functionalities, Classification of Data Mining systems, Major issues in Data Mining.

Data Preprocessing : Needs Preprocessing the Data, Data Cleaning, Data Integration and Transformation, Data Reduction, Discretization and Concept Hierarchy Generation.

UNIT – II
Data Warehouse and OLAP Technology for Data Mining Data Warehouse, Multidimensional Data Model, Data Warehouse Architecture, Data Warehouse Implementation,Further Development of Data Cube Technology, From Data Warehousing to Data Mining.

UNIT - III
Data Mining Primitives, Languages, and System Architectures : Data Mining Primitives, Data Mining Query Languages, Designing Graphical User Interfaces Based on a Data Mining Query Language Architectures of Data Mining Systems.

UNIT - IV
Concepts Description : Characterization and Comparison : Data Generalization and Summarization-Based Characterization, Analytical Characterization: Analysis of Attribute Relevance, Mining Class Comparisons: Discriminating between Different Classes, Mining Descriptive Statistical Measures in Large Databases.

UNIT - V
Mining Association Rules in Large Databases : Association Rule Mining, Mining Single-Dimensional Boolean Association Rules from Transactional Databases, Mining Multilevel Association Rules from Transaction Databases, Mining Multidimensional Association Rules from Relational Databases and Data Warehouses, From Association Mining to Correlation Analysis, Constraint-Based Association Mining.

UNIT - VI
Classification and Prediction : Issues Regarding Classification and Prediction, Classification by Decision Tree Induction, Bayesian Classification, Classification by Backpropagation, Classification Based on Concepts from Association Rule Mining, Other Classification Methods, Prediction, Classifier Accuracy.

UNIT - VII
Cluster Analysis Introduction : Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods, Density-Based Methods, Grid-Based Methods, Model-Based Clustering Methods, Outlier Analysis.

UNIT - VIII
Mining Complex Types of Data : Multimdimensional Analysis and Descriptive Mining of Complex, Data Objects, Mining Spatial Databases, Mining Multimedia Databases, Mining Time-Series and Sequence Data, Mining Text Databases, Mining the World Wide Web.

TEXT BOOKS :
1. Data Mining – Concepts and Techniques - JIAWEI HAN & MICHELINE KAMBER Harcourt India.

REFERENCES :
1. Data Mining Introductory and advanced topics –MARGARET H DUNHAM, PEARSON EDUCATION
2. Data Mining Techniques – ARUN K PUJARI, University Press.
4 Data Warehousing Fundamentals – PAULRAJ PONNAIAH WILEY STUDENT EDITION.
5. The Data Warehouse Life cycle Tool kit – RALPH KIMBALL WILEY STUDENT EDITION.
OBJECT ORIENTED ANALYSIS AND DESIGN

UNIT - I
Introduction to UML: Importance of modeling, principles of modeling, object oriented modeling, conceptual model of the UML, Architecture, Software Development Life Cycle.

UNIT - II
Basic Structural Modeling: Classes, Relationships, common Mechanisms, and diagrams.
Advanced Structural Modeling: Advanced classes, advanced relationships, Interfaces, Types and Roles, Packages.

UNIT - III
Class & Object Diagrams: Terms, concepts, modeling techniques for Class & Object Diagrams.

UNIT - IV

UNIT-V
Basic Behavioral Modeling-II: Use cases, Use case Diagrams, Activity Diagrams.

UNIT - VI
Advanced Behavioral Modeling: Events and signals, state machines, processes and Threads, time and space, state chart diagrams.

UNIT - VII
Architectural Modeling: Component, Deployment, Component diagrams and Deployment diagrams.

UNIT - VIII
Case Study: The Unified Library application

TEXT BOOKS:

REFERENCES:
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD

III Year B.Tech. IT II-Sem

Objectives:
- To understand the functionalities of various layers of OSI model
- To inculcate object oriented software design

System/Software Requirement
- Intel based desktop PCs LAN CONNECTED with minimum of 166 MHZ or faster processor with at least 64 MB RAM and 100 MB free disk space
- Tools such as Rational Rose

Part - A
1. Implement the data link layer framing methods such as character, character stuffing and bit stuffing.
2. Implement on a data set of characters the three CRC polynomials – CRC 12, CRC 16 and CRC CCIP.
3. Implement Dijkstra 's algorithm to compute the Shortest path thru a graph.
4. Take an example subnet graph with weights indicating delay between nodes. Now obtain Routing table art each node using distance vector routing algorithm.
5. Take an example subnet of hosts. Obtain broadcast tree for it.
6. Take a 64 bit playing text and encrypt the same using DES algorithm.
7. Write a program to break the above DES coding.
8. Using RSA algorithm Encrypt a text data and Decrypt the same.

Part - B
1. The student should take up the case study of Unified Library application which is mentioned in the theory, and Model it in different views i.e Use case view, logical view, component view, Deployment view, Database design, forward and Reverse Engineering, and Generation of documentation of the project.
2. Student has to take up another case study of his/her own interest and do the same what ever mentioned in first problem. Some of the ideas regarding case studies are given in reference books which were mentioned in theory syllabus can be referred for some idea.

Note: The analysis, design, coding, documentation, database design of mini project which will be carried out in 4th year should be done in object-oriented approach using UML and by using appropriate software which supports UML, otherwise the mini project will not be evaluated.
Objective:
To create a fully functional website with mvc architecture. To Develop an online Book store using we can sell books (Ex: amazon.com).

Hardware and Software required:
1. A working computer system with either Windows or Linux
2. A web browser either IE or firefox
3. Tomcat web server and Apache web server
4. XML editor like Altova Xml-spy [www.Altova.com/XMLSpy – free ], Stylusstudio, etc.,
5. A database either Mysql or Oracle
6. JVM(Java virtual machine) must be installed on your system
7. BDK(Bean development kit) must be also be installed

Week-1:
Design the following static web pages required for an online book store web site.
1) HOME PAGE:
The static home page must contain three frames.

Top frame: Logo and the college name and links to Home page, Login page, Registration page, Catalogue page and Cart page (the description of these pages will be given below).

Left frame: At least four links for navigation, which will display the catalogue of respective links.
For e.g.: When you click the link “CSE” the catalogue for CSE Books should be displayed in the Right frame.

Right frame: The pages to the links in the left frame must be loaded here. Initially this page contains description of the web site.

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<tr>
<th>Logo</th>
<th>Web Site Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>Login</td>
</tr>
<tr>
<td></td>
<td>Registration</td>
</tr>
<tr>
<td></td>
<td>Catalogue</td>
</tr>
<tr>
<td></td>
<td>Cart</td>
</tr>
<tr>
<td>CSE</td>
<td>Description of the Web Site</td>
</tr>
<tr>
<td>ECE</td>
<td></td>
</tr>
<tr>
<td>EEE</td>
<td></td>
</tr>
<tr>
<td>CIVIL</td>
<td></td>
</tr>
</tbody>
</table>

2) LOGIN PAGE:
3) CATALOGUE PAGE:
The catalogue page should contain the details of all the books available in the web site in a table. The details should contain the following:

2. Author Name.
3. Publisher.
5. Add to cart button.

<table>
<thead>
<tr>
<th>Logo</th>
<th>Web Site Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>Login</td>
</tr>
<tr>
<td>CSE</td>
<td></td>
</tr>
<tr>
<td>ECE</td>
<td></td>
</tr>
<tr>
<td>EEE</td>
<td></td>
</tr>
<tr>
<td>CIVIL</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Book</th>
<th>Author</th>
<th>Publisher</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>XML Bible</td>
<td>Winston</td>
<td>Wiely</td>
<td>$40.5</td>
</tr>
<tr>
<td>AI</td>
<td>S.Russel</td>
<td>Princeton hall</td>
<td>$63</td>
</tr>
<tr>
<td>Java 2</td>
<td>Watson</td>
<td>BPB publications</td>
<td>$35.5</td>
</tr>
<tr>
<td>HTML in 24 hours</td>
<td>Sam Peter</td>
<td>Sam publication</td>
<td>$50</td>
</tr>
</tbody>
</table>
Note: Week 2 contains the remaining pages and their description.

**Week-2:**

4) **CART PAGE:**

The cart page contains the details about the books which are added to the cart. The cart page should look like this:

```
<table>
<thead>
<tr>
<th>Logo</th>
<th>Web Site Name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Home Login Registration Catalogue Cart</td>
</tr>
<tr>
<td>CSE</td>
<td>Book name Price Quantity Amount</td>
</tr>
<tr>
<td>ECE</td>
<td>Java 2 $35.5 2 $70</td>
</tr>
<tr>
<td>EEE</td>
<td>XML bible $40.5 1 $40.5</td>
</tr>
<tr>
<td>CIVIL</td>
<td>Total amount - $130.5</td>
</tr>
</tbody>
</table>
```

5) **REGISTRATION PAGE:**

Create a "registration form" with the following fields:

1) Name (Text field)
2) Password (password field)
3) E-mail id (text field)
4) Phone number (text field)
5) Sex (radio button)
6) Date of birth (3 select boxes)
7) Languages known (check boxes – English, Telugu, Hindi, Tamil)
8) Address (text area)

**WEEK 3:**

**VALIDATION:**

Write *JavaScript* to validate the following fields of the above registration page.

1. Name (Name should contains alphabets and the length should not be less than 6 characters).
2. Password (Password should not be less than 6 characters length).
3. E-mail id (should not contain any invalid and must follow the standard pattern name@domain.com)
4. Phone number (Phone number should contain 10 digits only).

Note: You can also validate the login page with these parameters.

**Week-4:**

Design a web page using **CSS (Cascading Style Sheets)** which includes the following:

1) Use different font, styles:
   In the style definition you define how each selector should work (font, color etc.).
   Then, in the body of your pages, you refer to these selectors to activate the styles.

---

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2007-2008
For example:

```html
<HTML>
<HEAD>
<style type="text/css">
.B.headline {color:red; font-size:22px; font-family:arial; text-decoration:underline}
</style>
</HEAD>

<BODY>
<b>This is normal bold</b><br>
Selector (cursor:value)

For example:

<html>
<head>
<style type="text/css">
.xlink {cursor:crosshair}
</style>
</head>

<body>
<b>
<a href="mypage.htm" class="xlink">CROSS LINK</a>
<br>
<a href="mypage.htm" class="hlink">HELP LINK</a>
</b>
</body>
</html>

<b class="headline">This is headline style bold</b>
</BODY>

</HTML>
```

2) Set a background image for both the page and single elements on the page.
You can define the background image for the page like this:

```css
BODY {background-image:url(myimage.gif);}
```

3) Control the repetition of the image with the background-repeat property.
As background-repeat: repeat
Tiles the image until the entire page is filled, just like an ordinary background image in
plain HTML.

4) Define styles for links as
A:link
A:visited
A:active
A:hover
Example:
```
<style type="text/css">
A:link {text-decoration: none}
```

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5) Work with layers:
   For example:
   LAYER 1 ON TOP:
   <div style="position:relative; font-size:50px; z-index:2;">LAYER 1</div>
   <div style="position:relative; top:-50; left:5; color:red; font-size:80px; z-index:1">LAYER 2</div>
   LAYER 2 ON TOP:
   <div style="position:relative; font-size:50px; z-index:3;">LAYER 1</div>
   <div style="position:relative; top:-50; left:5; color:red; font-size:80px; z-index:4">LAYER 2</div>

6) Add a customized cursor:
   Selector {cursor:value}
   For example:
   <html>
   <head>
   <style type="text/css">
   .xlink {cursor:crosshair}
   .hlink{cursor:help}
   </style>
   </head>
   <body>
   <b>
   <a href="mypage.htm" class="xlink">CROSS LINK</a>
   <br>
   <a href="mypage.htm" class="hlink">HELP LINK</a>
   </b>
   </body>
   </html>

Week-5:

Write an XML file which will display the Book information which includes the following:
1) Title of the book
2) Author Name
3) ISBN number
4) Publisher name
5) Edition
6) Price

Write a Document Type Definition (DTD) to validate the above XML file.
Display the XML file as follows.
The contents should be displayed in a table. The header of the table should be in color GREY. And the Author names column should be displayed in one color and should be capitalized and in bold. Use your own colors for remaining columns.
Use XML schemas XSL and CSS for the above purpose.
Note: Give at least for 4 books. It should be valid syntactically.
Hint: You can use some xml editors like XML-spy

Week-6:

VISUAL BEANS:
Create a simple visual bean with a area filled with a color.
The shape of the area depends on the property shape. If it is set to true then the shape of the area is Square and it is Circle, if it is false.

The color of the area should be changed dynamically for every mouse click. The color should also be changed if we change the color in the "property window".

Week-7:

1) Install TOMCAT web server and APACHE.
   While installation assign port number 4040 to TOMCAT and 8080 to APACHE. Make sure that these ports are available i.e., no other process is using this port.

2) Access the above developed static web pages for books web site, using these servers by putting the web pages developed in week-1 and week-2 in the document root.
   Access the pages by using the urls : http://localhost:4040/rama/books.html (for tomcat)
   http://localhost:8080/books.html (for Apache)

Week-8:

User Authentication :
Assume four users user1, user2, user3 and user4 having the passwords pwd1, pwd2, pwd3 and pwd4 respectively. Write a servlet for doing the following.
1. Create a Cookie and add these four user id's and passwords to this Cookie.
2. Read the user id and passwords entered in the Login form (week1) and authenticate with the values (user id and passwords) available in the cookies.
   If he is a valid user (i.e., user-name and password match) you should welcome him by name(user-name) else you should display "You are not an authenticated user".
   Use init-parameters to do this. Store the user-names and passwords in the webinf.xml and access them in the servlet by using the getInitParameters() method.

Week-9:

Install a database(Mysql or Oracle).
Create a table which should contain at least the following fields: name, password, email-id, phone number(these should hold the data from the registration form).
Practice 'JDBC' connectivity.
   Write a java program/servlet/JSP to connect to that database and extract data from the tables and display them. Experiment with various SQL queries.
   Insert the details of the users who register with the web site, whenever a new user clicks the submit button in the registration page (week2).

Week-10:

Write a JSP which does the following job:
   Insert the details of the 3 or 4 users who register with the web site (week9) by using registration form. Authenticate the user when he submits the login form using the user name and password from the database (similar to week8 instead of cookies).

Week-11:

Create tables in the database which contain the details of items (books in our case like Book name, Price, Quantity, Amount) of each category. Modify your catalogue page (week 2) in such a way that you should connect to the database and extract data from the tables and display them in the catalogue page using JDBC.

Week-12:

HTTP is a stateless protocol. Session is required to maintain the state.
The user may add some items to cart from the catalog page. He can check the cart page for the selected items. He may visit the catalogue again and select some more items. Here our interest is the selected items should be added to the old cart rather than a new cart. Multiple users can do the same thing at a time (i.e., from different systems in the LAN using the ip-address instead of localhost). This can be achieved through the use of sessions. Every user will have his own session.
which will be created after his successful login to the website. When the user logs out his session should get invalidated (by using the method session.invalidate()).

Modify your catalogue and cart JSP pages to achieve the above mentioned functionality using sessions.
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MULTIMEDIA AND APPLICATION DEVELOPMENT

UNIT-I

UNIT-II
Fundamental concepts in video and digital audio: Types of video signals, analog video, digital video, digitization of sound, MIDI, quantization and transmission of audio.

UNIT-III
Action Script I: ActionScript Features, Object-Oriented ActionScript, Datatypes and Type Checking, Classes, Authoring an ActionScript Class

UNIT-IV
Action Script II: Inheritance, Authoring an ActionScript 2.0 Subclass, Interfaces, Packages, Exceptions.

UNIT-V
Application Development: An OOP Application Frame work, Using Components with ActionScript MovieClip Subclasses.

UNIT VI

UNIT VII
Basic Video Compression Techniques: Introduction to video compression, video compression based on motion compensation, search for motion vectors, MPEG, Basic Audio Compression Techniques.

UNIT-VIII

TEXT BOOKS:
1. Fundamentals of Multimedia by Ze-Nian Li and Mark S. Drew PHI/Pearson Education.
2. Essentials ActionScript 2.0, Colin Moock, SPD O,REILLY.

REFERENCE BOOKS:
1. Digital Multimedia, Nigel chapman and jenny chapman, Wiley-Dreamtech
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EMBEDDED SYSTEMS

Unit - I

Unit - II

Unit - III

Unit - IV
Arithmetic Operations, Decimal Arithmetic, Jump and Call Instructions, Further Details on Interrupts. (Chapter 7 and 8 from Text Book 2, Ayala).

Unit - V
Applications: Interfacing with Keyboards, Displays, D/A and A/D Conversions, Multiple Interrupts, Serial Data Communication. (Chapter 10 and 11 from Text Book 2, Ayala).

Unit - VI
Introduction to Real – Time Operating Systems: Tasks and Task States, Tasks and Data, Semaphores, and Shared Data; Message Queues, Mailboxes and Pipes, Timer Functions, Events, Memory Management, Interrupt Routines in an RTOS Environment. (Chapter 6 and 7 from Text Book 3, Simon).

Unit - VII

Unit - VIII
Introduction to advanced architectures: ARM and SHARC, Processor and memory organization and Instruction level parallelism; Networked embedded systems: Bus protocols, I2C bus and CAN bus; Internet-Enabled Systems, Design Example-Elevator Controller. (Chapter 8 from Text Book 1, Wolf).

TEXT BOOKS:

REFERENCES:
1. Embedding system building blocks, Labrosse, via CMP publishers.
2. Embedded Systems, Raj Kamal, TMH.
3. Micro Controllers, Ajay V Deshmukhi, TMH.
5. Microcontrollers, Raj kamal, Pearson Education.
6. An Embedded Software Primer, David E. Simon, Pearson Education.
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NETWORK PROGRAMMING

UNIT-I
Introduction to Network Programming: OSI model, Unix standards, TCP and UDP & TCP connection establishment and Format, Buffer sizes and limitation, standard internet services, Protocol usage by common internet application.

UNIT-II
Sockets: Address structures, value – result arguments, Byte ordering and manipulation function and related functions Elementary TCP sockets – Socket, connect, bind, listen, accept, fork and exec function, concurrent servers. Close function and related function.

UNIT-III
TCP client server: Introduction, TCP Echo server functions, Normal startup, terminate and signal handling server process termination, Crashing and Rebooting of server host shutdown of server host.

UNIT-IV
I/O Multiplexing and socket options: I/O Models, select function, Batch input, shutdown function, poll function, TCP Echo server, getsockopt and setsockopt functions. Socket states, Generic socket option IPv6 socket option ICMPv6 socket option IPV6 socket option and TCP socket options.

UNIT-V
Elementary UDP sockets: Introduction UDP Echo server function, lost datagram, summary of UDP example, Lack of flow control with UDP, determining outgoing interface with UDP.

UNIT-VI
Elementary name and Address conversions: DNS, gethost by Name function, Resolver option, Function and IPV6 support, uname function, other networking information.

UNIT-VII
IPC: Introduction, File and record locking, Pipes, FIFOs streams and messages, Name spaces, system IPC, Message queues, Semaphores.

UNIT-VIII
Remote Login: Terminal line disciplines, Pseudo-Terminals, Terminal modes, Control Terminals, rlogin Overview, RPC Transparency Issues.

Text Book:

REFERENCES:
1. UNIX SYSTEMS PROGRAMMING USING C++ T CHAN, PHI.
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MOBILE COMPUTING

UNIT - I

GSM: Mobile services, System architecture, Radio interface, Protocols, Localization and calling, Handover, Security, and New data services.

UNIT - II
(Wireless) Medium Access Control: Motivation for a specialized MAC (Hidden and exposed terminals, Near and far terminals), SDMA, FDMA, TDMA, CDMA.

UNIT - III
Mobile Network Layer: Mobile IP (Goals, assumptions, entities and terminology, IP packet delivery, agent advertisement and discovery, registration, tunneling and encapsulation, optimizations), Dynamic Host Configuration Protocol (DHCP).

UNIT - IV
Mobile Transport Layer: Traditional TCP, Indirect TCP, Snooping TCP, Mobile TCP, Fast retransmit/fast recovery, Transmission /time-out freezing, Selective retransmission, Transaction oriented TCP.

UNIT - V
Database Issues: Hoarding techniques, caching invalidation mechanisms, client server computing with adaptation, power-aware and context-aware computing, transactional models, query processing, recovery, and quality of service issues.

UNIT - VI
Data Dissemination: Communications asymmetry, classification of new data delivery mechanisms, push-based mechanisms, pull-based mechanisms, hybrid mechanisms, selective tuning (indexing) techniques.

UNIT - VII
Mobile Ad hoc Networks (MANETs): Overview, Properties of a MANET, spectrum of MANET applications, routing and various routing algorithms, security in MANETs.

UNIT - VIII
Protocols and Tools: Wireless Application Protocol-WAP. (Introduction, protocol architecture, and treatment of protocols of all layers), Bluetooth (User scenarios, physical layer, MAC layer, networking, security, link management) and J2ME.

TEXT BOOKS:
   ISBN 0471419028. (Chapters 11, 15, 17, 26 and 27)

REFERENCES:
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INFORMATION RETRIEVAL SYSTEMS
(ELECTIVE - I)

UNIT-I
Introduction: Definition, Objectives, Functional Overview, Relationship to DBMS, Digital libraries and Data Warehouses.

UNIT-II
Information Retrieval System Capabilities: Search, Browse, Miscellaneous

UNIT-III

UNIT-IV

UNIT-V
Automatic Indexing: Classes of automatic indexing, Statistical indexing, Natural language, Concept indexing, Hypertext linkages

UNIT-VI
Document and Term Clustering: Introduction, Thesaurus generation, Item clustering, Hierarchy of clusters.

UNIT-VII
User Search Techniques: Search statements and binding, Similarity measures and ranking, Relevance feedback, Selective dissemination of information search, Weighted searches of Boolean systems, Searching the Internet and hypertext. Information Visualization: Introduction, Cognition and perception, Information visualization technologies.

UNIT-VIII

TEXTBOOK:

REFERENCES:
2. Modern Information Retrieval By Yates Pearson Education.
UNIT - 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.

UNIT - 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.

UNIT - III
Public key cryptography principles, public key cryptography algorithms, digital signatures, digital Certificates, Certificate Authority and key management Kerberos, X.509 Directory Authentication Service.

UNIT - IV
Email privacy: Pretty Good Privacy (PGP) and S/MIME.

UNIT - V

UNIT - VI
Web Security Requirements, Secure Socket Layer (SSL) and Transport Layer Security (TLS), Secure Electronic Transaction (SET).

UNIT - VII
Basic concepts of SNMP, SNMPv1 Community facility and SNMPv3. Intruders, Viruses and related threats.

UNIT - VIII

TEXT BOOKS :

REFERENCES :
1. Fundamentals of Network Security by Eric Maiwald (Dreamtech press)
VIRTUAL REALITY
(ELECTIVE - I)

UNIT - I
Introduction: The three I's of virtual reality, commercial VR technology and the five classic components of a VR system. (1.1, 1.3 and 1.5 of Text Book (1))

UNIT - II
Input Devices: (Trackers, Navigation, and Gesture Interfaces): Three-dimensional position trackers, navigation and manipulation, interfaces and gesture interfaces. (2.1, 2.2 and 2.3 of Text Book (1)).

UNIT - III
Output Devices: Graphics displays, sound displays & haptic feedback. (3.1,3.2 & 3.3 of Text Book (1))

UNIT - IV
Modeling: Geometric modeling, kinematics modeling, physical modeling, behaviour modeling, model management. (5.1, 5.2 and 5.3, 5.4 and 5.5 of Text Book (1)).

UNIT - V
Human Factors: Methodology and terminology, user performance studies, VR health and safety issues. (7.1, 7.2 and 7.3 of Text Book (1)).

UNIT - VI
Applications: Medical applications, military applications, robotics applications. (8.1, 8.3 and 9.2 of Text Book (1)).

UNIT - VII
VR Programming-I: Introducing Java 3D, loading and manipulating external models, using a lathe to make shapes. (Chapters 14, 16 and 17 of Text Book (2))

UNIT - VIII
VR Programming-II: 3D Sprites, animated 3D sprites, particle systems. (Chapters 18, 19 and 21 of Text Book (2))

TEXT BOOKS:

REFERENCES:
2. 3D Modeling and surfacing, Bill Fleming, Elsevier(Morgan Kauffman).
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HUMAN COMPUTER INTERACTION
(ELECTIVE - I)

UNIT - I

UNIT - II
The graphical user interface – popularity of graphics, the concept of direct manipulation, graphical system, Characteristics, Web user – Interface popularity, characteristics - Principles of user interface.

UNIT - III
Design process – Human interaction with computers, importance of human characteristics human consideration, Human interaction speeds, understanding business junctions.

UNIT - IV

UNIT - V

UNIT - VI
Components – text and messages, Icons and increases – Multimedia, colors, uses problems, choosing colors.

UNIT - VII

UNIT - VIII

TEXT BOOKS:
1. The essential guide to user interface design, Wilbert O Galitz, Wiley DreamaTech.
2. Designing the user interface. 3rd Edition Ben Shneidermann, Pearson Education Asia.

REFERENCES:
1. Human – Computer Interaction. ALAN DIX, JANET FINCAY, GRE GORYD, ABOWD, RUSSELL BEALG, PEARSON.
2. Interaction Design PRECE, ROGERS, SHARPS. Wiley Dreamtech,
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SOFTWARE PROJECT MANAGEMENT
(ELECTIVE II)

UNIT - I
Conventional Software Management : The waterfall model, conventional software Management performance.

UNIT - II
The old way and the new : The principles of conventional software Engineering, principles of modern software management, transitioning to an iterative process.

UNIT - III
Life cycle phases : Engineering and production stages, inception, Elaboration, construction, transition phases.
Artifacts of the process : The artifact sets, Management artifacts, Engineering artifacts, programmatic artifacts.

UNIT - IV
Model based software architectures : A Management perspective and technical perspective.
Work Flows of the process : Software process workflows, Iteration workflows,

UNIT - V
Checkpoints of the process : Major mile stones, Minor Milestones, Periodic status assessments.
Iterative Process Planning : Work breakdown structures, planning guidelines, cost and schedule estimating, Iteration planning process, Pragmatic planning.

UNIT - VI

UNIT - VII
Project Control and Process instrumentation : The seven core Metrics, Management indicators, quality indicators, life cycle expectations, pragmatic Software Metrics, Metrics automation.
Tailoring the Process : Process discriminants.

UNIT - VIII
Future Software Project Management : Modern Project Profiles, Next generation Software economics, modern process transitions.
Case Study: The command Center Processing and Display system- Replacement (CCPDS-R)

TEXT BOOK :

REFERENCES :
2. Software Project Management, Joel Henry, Pearson Education.
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ADVANCED COMPUTING CONCEPTS
(ELECTIVE - II)

UNIT I
Grid Computing : Data & Computational Grids, Grid Architectures and its relations to various Distributed Technologies

UNIT II
Autonomic Computing, Examples of the Grid Computing Efforts (IBM).

UNIT III
Cluster setup & its Advantages, Performance Models & Simulations; Networking Protocols & I/O, Messaging systems.

UNIT IV
Process scheduling, Load sharing and Balancing; Distributed shared memory, parallel I/O.

UNIT V
Example cluster System - Beowulf; Cluster Operating systems: COMPaS and NanOS

UNIT VI
Pervasive Computing concepts & Scenarios; Hardware & Software; Human - machine interface.

UNIT VII
Device connectivity; Java for Pervasive devices; Application examples

UNIT VIII
Classical Vs Quantum logic gates ;One ,two & three QUbit Quantum gates; Fredkin & Toffoli gates; Quantum circuits; Quantum algorithms.

TEXT BOOK :
2. J.Burkhardt et .al :‘Pervasive computing’ Pearson Education

REFERENCES :
1. Raj Kumar Buyya:‘High performance cluster computing’, Pearson Education.
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IMAGE PROCESSING
(ELECTIVE - II)

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

UNIT - II
Image enhancement in the spatial domain : Basic gray-level transformation, histogram processing, enhancement using arithmetic and logic operators, basic spatial filtering, smoothing and sharpening spatial filters, combining the spatial enhancement methods (p.nos 76-141).

UNIT - III
Image restoration : A model of the image degradation/restoration process, noise models, restoration in the presence of noise–only spatial filtering, Weiner filtering, constrained least squares filtering, geometric transforms; Introduction to the Fourier transform and the frequency domain, estimating the degradation function (p.nos 147-167, 220-243, 256-276).

UNIT - IV
Color Image Processing : Color fundamentals, color models, pseudo color image processing, basics of full–color image processing, color transforms, smoothing and sharpening, color segmentation (p.nos: 282-339).

UNIT - V

UNIT - VI
Morphological Image Processing : Preliminaries, dilation, erosion, open and closing, hit or miss transformation, basic morphologic algorithms (p.nos:519-550).

UNIT - VII

UNIT - VIII

TEXT BOOK :

REFERENCES :
2. Introduction to Digital Image Processing with Matlab, Alasdair McAndrew, Thomson Course Technology

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NETWORK PROGRAMMING LAB

Objectives:
- To teach students various forms of IPC through Unix and socket Programming

Recommended Systems/Software Requirements:
- Intel based desktop PC with minimum of 166 MHZ or faster processor with atleast 64 MB RAM and 100 MB free disk space LAN Connected
- Any flavour of Unix / Linux

Week1.
Implement the following forms of IPC.
   a) Pipes
   b) FIFO

Week2.
Implement file transfer using Message Queue form of IPC

Week3.
Write a programme to create an integer variable using shared memory concept and increment the variable simultaneously by two processes. Use senphores to avoid race conditions

Week4.
Design TCP iterative Client and server application to reverse the given input sentence

Week5.
Design TCP iterative Client and server application to reverse the given input sentence

Week6.
Design TCP client and server application to transfer file

Week7.
Design a TCP concurrent server to convert a given text into upper case using multiplexing system call “select”

Week8.
Design a TCP concurrent server to echo given set of sentences using poll functions

Week9.
Design UDP Client and server application to reverse the given input sentence

Week10
Design UDP Client server to transfer a file

Week11
Design using poll client server application to multiplex TCP and UDP requests for converting a given text into upper case.

Week12
Design a RPC application to add and subtract a given pair of integers

Reference Book:
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MULTIMEDIA AND APPLICATION DEVELOPMENT LAB

1. Assigning Actions to an Object, and a Button
2. Creating Loops
3. Generation Random Numbers
4. Creating a Function, Calling a Function
5. Detecting the Player Version
6. Detecting the Operating System
7. Checking the System language
8. Detecting Display Settings
9. Tinting a Movie Clip’s Color
10. Controlling a Movie Clip’s Color with Sliders
11. Drawing a Circle
12. Drawing a Rectangle
13. Filling a Shape with a Gradient
14. Scripting Masks
15. Converting Angle Measurements
16. Calculating the Distance Between the Two Points
17. Formatting Currency Amount
18. Converting Between Units of Measurement
19. Determining Points Along a Circle
20. Sorting or Reversing an Array
21. Implementing a Custom Sort
22. Creating a Text Field
23. Making a Password Inputfield

All the above programs are to be done in Flash MX 2004.

REFERENCES:
1. Action Script Cookbook, Joey Lott, SPD-Oreilly.
2. Flash MX Action Script for designers, Doug Sahlin, Dreamtech Wiley.
3. Flash MX Professional 2004 Unleashed, David Vogeleer and Matthew Pizzi, Pearson Education.
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
HYDERABAD

IV Year B.Tech. IT II-Sem

MANAGEMENT SCIENCE

Unit - I

Unit - II
Designing Organisational Structures: Basic concepts related to Organisation - Departmentation and Decentralisation, Types of mechanistic and organic structures of organisation (Line organization, Line and staff organization, functional organization, Committee organization, matrix organization, Virtual Organisation, Cellular Organisation, team structure, boundaryless organization, inverted pyramid structure, lean and flat organization structure) and their merits, demerits and suitability.

Unit - III
Operations Management: Principles and Types of Plant Layout-Methods of production (Job, batch and Mass Production), Work Study - Basic procedure involved in Method Study and Work Measurement-Statistical Quality Control: chart, R chart, c chart, p chart, (simple Problems), Acceptance Sampling, Deming’s contribution to quality.

Unit - IV
a) Materials Management: Objectives, Need for Inventory control, EOQ, ABC Analysis, Purchase Procedure, Stores Management and Stores Records.
b) Marketing: Functions of Marketing, Marketing Mix, Marketing Strategies based on Product Life Cycle, Channels of distribution

Unit - V

Unit - VI
Project Management (PERT/CPM): Network Analysis, Programme Evaluation and Review Technique (PERT), Critical Path Method (CPM), Identifying critical path, Probability of Completing the project within given time, Project Cost Analysis, Project Crashing. (simple problems)

Unit - VII

Unit - VIII

TEXT BOOKS:
REFERENCES:
1. Kotler Philip & Keller Kevin Lane: Marketing Management 12/e, PHI, 2005
2. Koontz & Weihrich: Essentials of Management, 6/e, TMH, 2005
5. Memoria & S.V.Gauker, Personnel Management, Himalaya, 25/e, 2005
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MULTIMEDIA DATABASES
(ELECTIVE - III)

UNIT-I
Introduction: An introduction to Object-oriented Databases; Multidimensional Data Structures: k-d Trees, Point Quadtrees, The MX-Quadtree, R-Trees, comparison of Different Data Structures

UNIT-II

UNIT-III
Text/Document Databases: Precision and Recall, Stop Lists, Word Stems, and Frequency Tables, Latent Semantic Indexing, TV-Trees, Other Retrieval Techniques

UNIT-IV
Video Databases: Organizing Content of a Single Video, Querying Content of Video Libraries, Video Segmentation, video Standards
Audio Databases: A General Model of Audio Data, Capturing Audio Content through Discrete Transformation, Indexing Audio Data

UNIT-V
Multimedia Databases: Design and Architecture of a Multimedia Database, Organizing Multimedia Data Based on The Principle of Uniformity, Media Abstractions, Query Languages for Retrieving Multimedia Data, Indexing SMDSs with Enhanced Inverted Indices, Query Relaxation/Expansion

Unit-VI

Unit-VII
Spatial Concepts and Data Models: Models of spatial information, Design extending the ER model with spatial concepts, Extending the ER model pictograms, Object oriented data model with UML.

Unit-VIII
Spatial Query Languages: Extending the SQL for spatial data, Examples of queries that emphasis spatial data, Object relational schema examples queries.

TEXT BOOKS:
2. Spatial Databases, Shashi Shekhar, Sanjiv Chawla, Pearson Education.

REFERENCES:
UNIT-I

UNIT-II
SNMPv1 Network Management: Organization and Information and Information Models.

UNIT-III
SNMPv1 Network Management: Communication and Functional Models.
The SNMP Communication Model, Functional model

UNIT-IV
SNMP Management: SNMPv2: Major Changes in SNMPv2, SNMPv2 System Architecture, SNMPv2 Structure of Management Information, The SNMPv2 Management Information Base, SNMPv2 Protocol, Compatibility With SNMPv1

UNIT-V
SNMP Management: RMON: What is Remote Monitoring?, RMON SMI and MIB, RMON1, RMON2, ATM Remote Monitoring, A Case Study of Internet Traffic Using RMON

UNIT-VI

UNIT-VII

UNIT-VIII
Web-Based Management: NMS with Web Interface and Web-Based Management, Web Interface to SNMP Management, Embedded Web-Based Management, Desktop management Interface, Web-Based Enterprise Management, WBEM: Windows Management Instrumentation, Java management Extensions, Management of a Storage Area Network; Future Directions

TEXT BOOK:
1. Network Management, Principles and Practice, Mani Subrahmanian, Pearson Education.

REFERENCES:
1. Network management, Morris, Pearson Education.
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IV Year B.Tech. IT II-Sem

BIOMETRICS
(ELECTIVE - III)

UNIT I

UNIT II
Finger scan – Features – Components – Operation (Steps) – Competing finger Scan technologies – Strength and weakness. Types of algorithms used for interpretation.

UNIT III
Facial Scan - Features – Components – Operation (Steps) – Competing facial Scan technologies – Strength and weakness.

UNIT IV
Iris Scan - Features – Components – Operation (Steps) – Competing iris Scan technologies – Strength and weakness.

UNIT V
Voice Scan - Features – Components – Operation (Steps) – Competing voice Scan (facial) technologies – Strength and weakness.

UNIT VI

UNIT VII
Biometrics Application – Biometric Solution Matrix – Bio privacy – Comparison of privacy factor in different biometrics technologies – Designing privacy sympathetic biometric systems. Biometric standards – (BioAPI , BAPI) – Biometric middleware

UNIT VIII

TEXT BOOKS :

REFERENCE:
UNIT-I
Introduction to Bioinformatics: Scope of Bioinformatics, Elementary commands and protocols, ftp, telnet, http. Primer on information theory.

UNIT-II

UNIT-III
Special Topics In Bioinformatics: DNA mapping and sequencing, Map alignment, Large scale sequencing methods Shotgun and Sanger method.

UNIT-IV

UNIT-V
Primary Database and their Use: Introduction to Biological databases, Organization and management of databases. Searching and retrieval of information from the World Wide Web. Structure databases-PDB (Protein Data Bank), Molecular Modeling Databases (MMDB). Primary Databases NCBL,EMBL, DDBJ.

UNIT-VI
Secondary Databases: Introduction to Secondary Databases Organization and management of databases Swissprot, PIR,KEGG

UNIT-VII
Bio Chemical Data Bases: Introduction to BioChemical databases-organization and Management of databases. KEGG, EXGESCY, BRENDA, WIT.

UNIT-VIII
Evolutionary Trees and Phylogeny: Multiple sequence alignment and phylogenetic analysis.

TEXT BOOKS:

REFERENCES:
3. Developing Bioinformatics Skills. Cynthia Gibbas & Per Jamberk
7. Bioinformatics – A Practical guide to the Analysis of Genes and Proteins – ANDREAS D.BAXEVANIS, B.F. FRANCIS OUELLETTE.
UNIT –I
Introduction : What Is a Design Pattern?, Design Patterns in Smalltalk MVC, Describing Design Patterns, The Catalog of Design Patterns, Organizing the Catalog, How Design Patterns Solve Design Problems, How to Select a Design Pattern, How to Use a Design Pattern.

UNIT-II

UNIT-III
Creational Patterns : Abstract Factory, Builder, Factory Method, Prototype, Singleton, Discussion of Creational Patterns.

UNIT-IV
Structural Pattern Part-I : Adapter, Bridge, Composite.

UNIT-V
Structural Pattern Part-II : Decorator, açade, Flyweight, Proxy.

UNIT-VI
Behavioral Patterns Part-I : Chain of Responsibility, Command, Interpreter, Iterator.

UNIT-VII
Behavioral Patterns Part-II : Mediator, Memento, Observer, State, Strategy, Template Method,Visitor, Discussion of Behavioral Patterns.

UNIT-VIII
What to Expect from Design Patterns, A Brief History, The Pattern Community An Invitation, A Parting Thought.

TEXT BOOK :
1. Design Patterns By Erich Gamma, Pearson Education

REFERENCES :
4. Head First Design Patterns By Eric Freeman-Oreilly-spd
5. Design Patterns Explained By Alan Shalloway, Pearson Education.
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IV Year B.Tech. IT II-Sem

PATTERN RECOGNITION
(ELECTIVE - IV)

UNIT - I
Introduction : Machine perception, pattern recognition example, pattern recognition systems, the design cycle, learning and adaptation (Text book-1, p.nos: 1-17).

UNIT - II

UNIT-III

UNIT-IV

UNIT-V

UNIT-VI

UNIT-VII

UNIT-VIII
Continuous hidden Markov models : Observation densities, training and testing with continuous HMMs, types of HMMs. (Text book-2, p.nos: 348 – 352)

TEXT BOOKS :
2. Fundamentals of speech Recognition, Lawerence Rabiner, Bling – Hwang

REFERENCE :
1. Pattern Recognition and Image Analysis – Earl Gose, Richard John baugh, Steve Jost PHI 2004
TP-OA (TP-Originator-Address). TP-PID (TP-Protocol-Identifier). TP-DCS (TP-Data-Coding-Scheme). TP-SCTS (TP-Service-Center-Time-Stamp). TP-UDL (TP-User-Data-Length). TP-UD (TP-User-Data). The above fields describes the addresses, the type of the message, the features of the messages, the SMC’s sending time stamp and the message’s content. Those fields are very technical and pretty easy to understand. The following figure describes the structure: Figure 1. SMS-DELIVER PDU structure. As you may noticed, the number of octets building a single SMS-DELIVER TPDU is 14-175 octets. However, much long