

**COURSE STRUCTURE
AND
DETAILED SYLLABUS**

for

B.Tech – I - IV Year

in

**COMPUTER SCIENCE AND ENGINEERING
(CSE)**

(Applicable from the Academic Year 2010-2011)



SREENIDHI INSTITUTE OF SCIENCE AND TECHNOLOGY

(An Autonomous Institution approved by UGC and affiliated to JNTUH)

Yamnampet, Ghatkesar, R.R.District-501 301.

SREENIDHI INSTITUTE OF SCIENCE & TECHNOLOGY
(AUTONOMOUS)
B. Tech Computer Science & Engineering

I YEAR I SEMESTER COURSE STRUCTURE

Sl. No	Code	Subject	L	T	P/D	C	Max. Marks	
							Int.	Ext.
1.	101EN01	English – I	3	-	-	3	30	70
2.	101MA01	Engineering Mathematics – I	3	1	-	3	30	70
3.	101PH01	Engineering Physics – I	3	1	-	3	30	70
4.	101CH01	Engineering Chemistry	2	1	-	2	30	70
5.	101IT01	Computer Programming	3	1	-	3	30	70
6.	101ME01	Engineering Drawing - I	2	-	4	4	30	70
7.	101EN71	English Language Lab – I	-	-	2	1	25	50
8.	101PH71	Engineering Physics Lab-I	-	-	3/2	1	25	50
9.	101CH71	Engineering Chemistry Lab	-	-	3/2	1	25	50
10.	101IT71	Computer Programming Lab	-	-	3	2	25	50
11.	101ME71	Engineering workshop-I	-	-	3/2	1	25	50
12.	101IT72	IT workshop – I	-	-	3/2	1	25	50
Total :			16	4	15	25	330	720

I YEAR II SEMESTER COURSE STRUCTURE

Sl. No.	Code	Subject	L	T	P/D	C	Max. Marks	
							Int.	Ext.
1.	101EN02	English-II	2	-	-	2	30	70
2.	101MA03	Engineering Mathematics – II	3	1	-	3	30	70
3.	101PH02	Engineering Physics – II	3	1	-	3	30	70
4.	101CS01	Data Structures and C++	3	1	-	3	30	70
5.	101ME02	Engineering Drawing – II	1	-	2	2	30	70
6.	101EE41	Basic Electrical Engineering	3	1	-	3	30	70
7.	101ME04	Basic Mechanical Engineering	4	-	-	4	30	70
8.	101EN72	English Language Lab – II	-	-	2	1	25	50
9.	101CS71	Data structures and C++ Lab	-	-	3	2	25	50
10.	101PH72	Engineering Physics Lab – II	-	-	3/2	1	25	50
11.	101IT73	IT workshop – II	-	-	3/2	1	25	50
Total :			19	4	10	25	310	790

II YEAR I SEMESTER COURSE STRUCTURE

Sl. No	Code	Subject	L	T	P/D	C	Max. Marks	
							Int.	Ext.
1.	101MA07	Numerical Methods & Partial Differential Equations	3	1	-	3	30	70
2.	101EC06	Switching Theory and Logic Design	3	1	-	3	30	70
3.	101EC02	Basic Electronics	3	1	-	3	30	70
4.	101CS02	Advanced Data Structures	4	1	-	4	30	70
5.	101IT02	Mathematical Foundations of Computer Science	3	1	-	3	30	70
6.	101MA10	Probability and Statistics for IT	3	1	-	3	30	70
7.	101EN73	Functional and Communicative Written English	-	-	2	2	25	50
8.	101EE91	Basic Electrical Lab	-	-	3/2	1	25	50
9.	101EC84	Basic Electronics Lab	-	-	3/2	1	25	50
10.	101CS72	Advanced Data Structures Lab	-	-	3	2	25	50

II YEAR II SEMESTER COURSE STRUCTURE

Sl. No	Code	Subject	L	T	P/D	C	Max. Marks	
							Int.	Ext.
1.	101CH07	Environmental Studies	3	1	-	3	30	70
2.	101MB01	Managerial Economics & Financial Analysis	3	1	-	3	30	70
3.	101CS03	OOP through Java	3	1	-	3	30	70
4.	101EC32	Data Communications	3	1	-	3	30	70
5.	101EM08	Computer Organization & Microprocessor and Interfacing	3	1	-	3	30	70
6.	101CS04	Software Engineering	3	1	-	3	30	70
7.	101EN74	Effective English Communication and Soft Skills	-	-	2	2	25	50
8.	101CS73	Comprehensive Viva I	-	-	-	1	-	50
9.	101CS74	OOP through Java Lab	-	-	3	2	25	50
10.	101EM74	Microprocessor and Interfacing Lab	-	-	3	2	25	50

III YEAR I SEMESTER COURSE STRUCTURE

Sl. No	Code	Subject	L	T	P/D	C	Max. Marks	
							Int.	Ext.
1.	101BT37	Human values, Ethics and IPR	2	-	-	2	30	70
2.	101IT03	Data Base Management Systems	3	1	-	3	30	70
3.	101IT04	Design and Analysis of Algorithms	3	1	-	3	30	70
4.	101CS05	Computer Networks	3	1	-	3	30	70
5.	101MB02	Management Science	3	1	-	3	30	70
6.	101CS06	Object Oriented Analysis & Design	3	1	-	3	30	70
7.	101MA71	Logical Reasoning – 1	-	-	2	2	25	50
8.	101CS75	Group Project	-	-	3	1	25	50
9.	101IT75	Data Base Management Systems Lab	-	-	3	2	25	50
10.	101CS76	Object Oriented Analysis & Design Lab	-	-	3	2	25	50
Total :			17	5	11	24	280	620

III YEAR II SEMESTER COURSE STRUCTURE

Sl. No	Code	Subject	L	T	P/D	C	Max. Marks	
							Int.	Ext.
1.		Open Elective - I (Foreign Language)	2	1	-	2	30	70
2.	101CS07	Operating Systems	4	1	-	4	30	70
3.	101CS08	Automata Theory and Compiler Design	3	1	-	3	30	70
4.	101IT06	Computer Graphics	3	1	-	3	30	70
5.	101CS09	Software Quality Assurance and Testing	4	1	-	4	30	70
6.		Professional Elective – I	3	1	-	3	30	70
7.	101MA72	Quantitative Aptitude	-	-	2	2	25	50
8.	101CS77	Comprehensive Viva II	-	-	-	1	-	50
9.	101CS78	Operating Systems and Compiler Design Lab	-	-	3	2	25	50
10.	101CS79	Software Testing Lab	-	-	3	2	25	50
Total :			19	6	8	26	255	620

OPEN ELECTIVE - I (Foreign Language)		PROFESSIONAL ELECTIVE - I	
Code	Subject	Code	Subject
101FL01	Spanish	101CS10	Advanced Algorithms
101FL02	French	101CS11	Artificial Intelligence
101FL03	German	101CS12	Software Project Management

IV YEAR I SEMESTER COURSE STRUCTURE

Sl. No	Code	Subject	L	T	P/D	C	Max. Marks	
							Int.	Ext.
1.	101IT05	Data Warehousing and Data Mining	3	1	-	3	30	70
2.		Professional Elective - II	3	1	-	3	30	70
3.	101CS15	Network Programming	3	1	-	3	30	70
4.	101CS22	Multimedia and Web Technologies	3	1	-	3	30	70
5.		Professional Elective – III	3	1	-	3	30	70
6.		Open Elective - II	3	-	-	3	30	70
7.	101MA73	Logical Reasoning- II	-	-	2	2	25	50
8.	101CS80	Pre Project Seminar	-	-	-	2	50	-
9.	101CS81	Industry Oriented Mini Project	-	-	-	2	25	50
10.	101CS82	Network Programming Lab	-	-	3	2	25	50
11.	101CS83	MultiMedia and Web Technologies Lab.	-	-	3	2	25	50
Total :			18	5	8	28	330	620

PROFESSIONAL ELECTIVE - II		PROFESSIONAL ELECTIVE - III	
Code	Subject	Code	Subject
101IT10	Neural Networks and Fuzzy Logic	101IT12	Image Processing
101CS13	Software Architecture and Design Pattern	101CS16	Mobile computing
101CS14	Information Retrieval System	101CS17	Human Computer Interaction

OPEN ELECTIVE - II	
Code	Subject
101MB04	Banking Operations
101MB05	Insurance Operations
	One or Two electives shall be offered based on skills in demand in the industry.

IV YEAR II SEMESTER COURSE STRUCTURE

Sl. No	Code	Subject	L	T	P/D	C	Max. Marks	
							Int.	Ext.
1.		Professional Elective - IV	4	-	-	4	30	70
2.		Professional Elective – V	4	-	-	4	30	70
3.	101CS84	PROJECT	-	-	-	10	50	150
4.	101CS85	Comprehensive Viva III	-	-	-	2	-	50
5.	101CS86	Technical Seminar	-	-	-	2	25	-
		Total :	8	-	-	22	135	340

PROFESSIONAL ELECTIVE - IV		PROFESSIONAL ELECTIVE - V	
Code	Subject	Code	Subject
101CS18	Advanced Computer Architecture	101CS20	Network Management Systems
101CS19	Fault Tolerant Systems	101IT11	Information Security
101IT61	Scripting Languages	101CS21	Decision Support System

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

T – Tutorial

L- Theory

P/D – Practical/Drawing

C- Credits

Int. - Internal Exam

Ext. - External Exam

Syllabus for B. Tech. I Year I semester
Computer Science and Engineering
ENGLISH – I
(A Communicative Approach)

Code: 101EN01

(Common to all branches)

L	T	P/D	C
3	-	-	3

UNIT I: NOBLE THOUGHT

- | | | | |
|----|------------|---|---------------------------------------------------------|
| 1. | Reading | : | The Last Leaf – O. Henry |
| 2. | Writing | : | Paragraph writing |
| 3. | Listening | : | Listening for sounds |
| 4. | Speaking | : | Greeting, taking leave and introducing |
| 5. | Grammar | : | Naming words |
| 6. | Vocabulary | : | Homonyms, homophones, homographs, synonyms and antonyms |

UNIT II: BIOGRAPHY

- | | | | |
|----|------------|---|------------------------------------|
| 1. | Reading | : | Sri C.V. Raman- Shubashree Desikan |
| 2. | Writing | : | Work-related correspondence |
| 3. | Listening | : | Listening for words |
| 4. | Speaking | : | Making requests |
| 5. | Grammar | : | Naming words specific (Part I) |
| 6. | Vocabulary | : | Word Formation |

UNIT III: HUMAN INTEREST

- | | | | |
|----|------------|---|---------------------------------------|
| 1. | Reading | : | The Connoisseur- Nergis Dalal |
| 2. | Writing | : | Summarizing |
| 3. | Listening | : | Listening for word stress |
| 4. | Speaking | : | Apologizing and inviting |
| 5. | Grammar | : | Making naming words specific (part 2) |
| 6. | Vocabulary | : | Collocations |

UNIT IV: DISASTER MANAGEMENT

- | | | | |
|----|------------|---|----------------------------------------------------------------------|
| 1. | Reading | : | The Cuddalore Experience-Anu George |
| 2. | Writing | : | Basics of Essay Writing |
| 3. | Listening | : | Listening for theme |
| 4. | Speaking | : | Congratulating, offering sympathy, condolences and making complaints |
| 5. | Grammar | : | Tenses |
| 6. | Vocabulary | : | Phrasal verbs |

UNIT V: HUMOUR

- | | | | |
|----|------------|---|----------------------------------------|
| 1. | Reading | : | The Luncheon – Somerset Maugham |
| 2. | Writing | : | Note making |
| 3. | Listening | : | Listening for details and taking notes |
| 4. | Speaking | : | Interview skills |
| 5. | Grammar | : | Adverbials and modal verbs |
| 6. | Vocabulary | : | Idioms |

UNIT VI: Outlook

- | | | | |
|----|------------|---|-------------------------------------------|
| 1. | Reading | : | Indian Crowds – Nirad C. Choudhary |
| 2. | Writing | : | Information transfer |
| 3. | Listening | : | Listening to announcements and directions |
| 4. | Speaking | : | Making presentations |
| 5. | Grammar | : | Conjunctions and prepositions |
| 6. | Vocabulary | : | Business vocabulary |

TEXT BOOK:

1. Enjoying Everyday English : A Rama Krishna Rao, Sangam Books, HYD.

REFERENCES:

1. Business Vocabulary In Use -Bill Mascull, Cambridge University Press.
2. How to build a better vocabulary –Nurnberg Maxwell & Morris Rosenblum: Grand Central Publishers
3. Six weeks to words of power –Funk Wilfred: W.R.Goyal Publishers & Distributors
4. Word power made easy – Norman Lewis, W.R.Goyal Publishers.
5. How to read better and faster: Norman Lewis, W.R.Goyal Publishers, New Delhi

Syllabus for B. Tech. I Year I semester
Computer Science and Engineering
Code: 101MA01 ENGINEERING MATHEMATICS – I
(Common to all branches)

L	T	P/D	C
3	1	-	3

UNIT-I

Matrix Theory-I: Elementary row and column operations on a matrix, rank of a matrix, normal form, Inverse of a matrix using elementary operations, consistency and solutions of systems of linear equations using elementary operations.. Linear dependence and independence of vectors,

UNIT-II

Matrix Theory-II Characteristic roots and vectors of a matrix, properties of Eigen values and Eigen Vectors, Caley-Hamilton theorem and its applications, reduction to diagonal form, quadratic and canonical forms.

UNIT-III**Sequences and series & Mean value theorems**

Sequences and series- Convergence and divergence – Comparison test – integral test – Cauchy root test – Ratio test – Raabe’s test – Log test – Absolute and conditional convergence. Rolle’s Theorem, Mean value theorems (Without Proof) – Taylor’s and Maclaurin’s theorems with out remainders, expansions.

UNIT-IV**Functions of several variables & partial differentiation**

Functions of several variables, partial differentiation, total differentiation, Euler’s theorem and generalization, Jacobians and its properties, Maxima and Minima of functions of several variables (two and three variables), Lagrange’s method of multipliers ,

UNIT-V

Radius of curvature Cartesian, Parametric and polar forms .Radius of curvature at origin., center of curvature, evolutes, envelopes.

UNIT-VI

Curve Tracing & Multiple integrals :curve tracing- Cartesian ,parametric and polar forms. Length of curves, Double and triple integrals, change of variables in double integrals.

TEXT BOOKS

1. Higher Engineering Mathematics, B.S. Grewal , Khanna Publications, New Delhi.
2. Engineering Mathematics, B.V.Ramana, Tata McGraw Hill Publishing Company Ltd.

REFERENCES

1. A text Book of KREYSZIG’s Engineering Mathematics, Dr. A. Ramakrishna Prasad, Wiley Publications
2. A Text book of Engineering Mathematics,M.Venkata Krishna, Jaico Publishing House,2010.
3. Jain, S.R.K, Advanced Engineering Mathematics, Narosa Publishing House, London , 2002.

**Syllabus for B. Tech. I Year I semester
Computer Science and Engineering**

Code: 101PH01

Engineering Physics – 1

(Common to all branches)

L	T	P/D	C
3	1	-	3

UNIT - I

Crystallography and Crystal Structures: Space Lattice, Unit Cell, Lattice Parameters, Crystal Systems, Bravais Lattices, Miller Indices, Crystal Planes and Directions, Inter Planar Spacing of Orthogonal Crystal Systems, Atomic Radius, Co-ordination Number and Packing Factor of SC, BCC, FCC, Diamond and hcp Structures, Structures of NaCl, ZnS, CsCl.

UNIT-II

X-ray Diffraction: Basic Principles, Bragg's Law, Laue Method, Powder Method, Applications of X-ray Diffraction.

Defects in Crystals: Point Defects: Vacancies, Substitutional, Interstitial, Frenkel and Schottky Defects; Qualitative treatment of line (Edge and Screw Dislocations) Defects, Burger's Vector, Surface Defects and Volume Defects.

UNIT- III

Elements of Statistical Mechanics: Phase space, Ensemble, Difference between micro, canonical & grand canonical ensemble, Maxwell - Boltzman Statistics, Bose – Einstein Statistics, Fermi – Dirac Statistics with derivations.

UNIT-IV

Free electron theory of Metals: Classical free electron theory (Drunde and Lorentz), Electrical conductivity of a metals, Relaxation time, Collision time and mean free path, Success of classical free electron theory, Breakdown of free electron theory, Fermi – Dirac distribution function- variation with temperature, The quantum free electron theory.

UNIT-V

Principles of Quantum Mechanics: Waves and Particles, de Broglie Hypothesis , Matter Waves, Davisson and Germer's Experiment, G. P. Thomson Experiment, Heisenberg's Uncertainty Principle, Schrödinger's Time Independent Wave Equation -Physical Significance of the Wave Function -Particle in One Dimensional Potential Box.

UNIT-VI

Band Theory of Solids: Bloch Theorem, Kronig-Penny Model (Qualitative Treatment), Origin of Energy Band Formation in Solids, Classification of Materials into Conductors, Semi Conductors & Insulators.

TEXT BOOKS

1. Introduction to Solid State Physics, by Charles Kittel
2. Engineering Physics P K Palanisamy

REFERENCES

1. Solid State Physics [Neil by W. Ashcroft](#) , [N. David Mermin](#)
2. [Statistical Mechanics](#) by Donald Allan McQuarrie
3. Statistical Mechanics by Sathya Prakash
4. Quantum Mechanics by John L Powel
5. Principles of quantum Mechanics by Ramamurti Shanker
6. Applied Physics by M Chandrashekar and P Appla Naidu
7. Modern Engineering Physics by K. Vijaya Kumar, S Chandralingam

Syllabus for B. Tech. I Year I semester
Computer Science and Engineering
ENGINEERING CHEMISTRY
 (Common to all Branches)

Code: 101CH01

L	T	P/D	C
2	1	-	2

UNIT-I: Water Technology

Hardness-temporary and permanent hardness. Units and inter conversions of Units. Estimation of Hardness; EDTA method Analysis of water – Alkalinity. Water Treatment: Internal treatment, External treatment – Lime – Soda Process, Zeolite Process, Ion-Exchange Process – Numerical Problems Lime – Soda Process.

UNIT II: Electrochemistry

Conductance-types, Electrolytic conductance-specific, equivalent and molar conductance, ionic conductance, ionic mobilities, Kohlrausch's law and its applications. EMF: Galvanic Cells, types of Electrodes, Reference Electrode (SCE), Redox electrode (Quinhydrone electrode), Ion Selective Electrodes (Glass Electrode) Nernst equation and its applications, Potentiometric titrations, Numerical problems.

Batteries: Primary and secondary cells, (Ni-Cd cell, Lithium ion cells, lead-Acid cell,). Applications of batteries, Fuel cells – Hydrogen – Oxygen fuel cell, Advantages of fuel cells.

UNIT III: Corrosion and its Control

Definition of corrosion, oxidation corrosion, mechanism of oxidation corrosion, electrochemical corrosion, mechanism of electrochemical corrosion, formation of anodic and cathodic areas, galvanic corrosion, waterline corrosion, soil corrosion, Factors affecting rate of corrosion control. Cathodic protection: Sacrificial anodic protection method, impressed current protection method, Protective coatings-metallic coatings, electroplating, Organic surface coatings – paints constituents and functions.

UNIT-IV: Phase Rule and Adsorption

Phase rule- Definition and terminology, Application of phase rule to Water system and Ag-Pb system. Adsorption: Definition, types, Adsorption of gases on solids, Langmuir adsorption isotherm, BET adsorption equilibrium.

UNIT – V: Polymer Technology

Polymers, terminology, Polymerization- Types of Polymerization – Addition and Condensation and Co-Polymerization. Plastics – Thermosetting and Thermoplastics – Preparation, Properties and applications of the following: PVC, Teflon, Bakelite, Nylon 6:6, Polyester and Dacron.

Rubber-natural and artificial rubber, Vulcanization of natural rubber, Buna S, Buna N, Thiokol.

Conducting Polymers: Poly acetylene, polyaniline and their applications.

UNIT-VI: Fuels and Lubricants

Fuels: Classification- Characteristics of a good fuel, **Calorific value:** gross calorific value, net calorific value, determination of calorific values by bomb calorimeter.

Solid fuels: Coal, analysis of coal - proximate analysis and ultimate analysis

Liquid fuels: Petroleum –Refining, fractional distillation of crude oil, octane number, cetane number.

Gaseous fuels: Advantages of gaseous fuels, analysis of flue gases – Orsat's apparatus

Lubricants: Functions of Lubricants – Types of Lubrication and Mechanism – Thick Film or Hydrodynamic Lubrication. Thin Film or Boundary Lubrication. Extreme pressure lubrication, Classification and Properties of Lubricants.

TEXT BOOKS

1. Engineering Chemistry: P.K. Jain and M.K. Jain, Dhanpathrai Publications – 14th Edition.
2. Text Book of Engg Chemistry – Shasi Chawla, Dhantpat Rai publishing Company, New Delhi (2008).

REFERENCES

1. Essentials of Physical chemistry; Baul & Tuli; S. Chand Publications.
2. Text of Engineering Chemistry by S.S. Dara & Mukkati S. Chand & Co, New Delhi (2006)
3. Chemistry of Engineering Materials by CV Agarwal, C.P. Murthy, A. Naidu, BS Publications.
4. Engg Chemistry by R. P. Mani, K. N. Krishna B. Rama Devi Cengage Learning New Delhi (2010).
5. Engineering Chemistry by Shiva Shnakar Tata McGraw Hill (2010).

Syllabus for B. Tech. I Year I semester
Computer Science and Engineering
COMPUTER PROGRAMMING
 (Common to all Branches)

Code:101IT01

L	T	P/D	C
3	1	-	3

UNIT – I

Computer fundamentals – Computer architecture (block diagram), CPU, Memory, Types of memory, I/O devices.

Software Development Steps - Algorithms, pseudo code, flowcharts, Software Development Life Cycle.

UNIT – II

C fundamentals – History of C Language, Features of C, Structure of C, Character set, identifiers, constants, variables and keywords.

Simple data types – char, int, float, double. Data type modifiers and qualifiers. Memory allocation for these types.

Operators – Unary, binary and ternary, precedence and association rules among operators. **Decision control structures** – if..else, dangling else, switch statement.

Repetitive control structures - while, do..while, for, break and continue statements, Nested structures.

UNIT – III

Functions – Function definition, arguments, return value, prototype, arguments and parameters.

Parameter passing – Call by value and call by reference.

Recursive functions – Definition, examples, advantages and disadvantages.

Macros – Definition, examples, comparison with functions.

Arrays – Definition, initialization, strings as character arrays, two dimensional and multidimensional arrays. Passing arrays as arguments to functions.

UNIT – IV

Pointers – Definition, Pointer variable, Pointer to a pointer, Memory mapping, arithmetic operations on pointers, relationship between arrays and pointers, pointers as arguments and return type of a function, pointers to a function, array of pointers and pointers to arrays, dynamic memory allocation.

Strings – Input output functions, string handling functions.

Structures – Declaring a structure, array of structures, nested structures, unions, passing structures as arguments to a function and structure as a return type of a function.

UNIT – V

Files – Data Organization, file operations, file opening modes, creating, storing, retrieving, appending, editing, copying files, Examples illustrating counting characters, tabs, spaces, string (line) I/O in files, record I/O in files, text files and binary files, command line arguments, error handling functions in files random access files.

UNIT – VI

Applications – Case study of simple bank transactions and program development.

Preprocessor directives – Macro expansion, file inclusion, condition compilation, miscellaneous directives.

Graphics in C – Line drawing, Rectangle, ellipse, working with image, move to function, and graphic related library functions.

TEXT BOOKS

1. Computer science, A structured programming approach using C, B.A. Forouzan and R.F. Gilberg, Third Edition, Thomson.
2. The C Programming Language, B.W. Kernighan, Dennis M.Ritchie, PHI/Pearson Education.

REFERENCES

1. Let us C by Yashwanth P. Kanetkar 8th edition BPB publications.
2. Understanding pointers in C by Yashwanth P. Kanetkar.
3. Computer programming for teens by Mary Farrell.
4. Working with C by Yashwanth P. Kanetkar.
5. Graphics under C by Yashwanth P. Kanetkar.
6. The complete reference, 4th Edition, Herbert Schmidt.
7. C Faqs by Steve Summit.

**Syllabus for B. Tech. I Year I semester
Computer Science and Engineering
ENGINEERING DRAWING-I**

Code: 101ME01

L	T	P/D	C
2	-	4	4

UNIT – I

INTRODUCTION TO ENGINEERING DRAWING: Drawing Instrument and their use Types of lines, use of pencils, Lettering, Rules of dimensioning.

Construction of polygons: Inscription and superscription of polygons given the diameter

SCALES: Scales used in Engineering Practice and Representative Fraction – construction of Plain, diagonal, Vernier Scales.

Curves used in Engineering Practice and their Constructions.

- a) Conic Sections including the Rectangular Hyperbola-General method only.
- b) Cycloid, Epicycloid and Hypocycloid
- c) Involute

UNIT – II

DRAWING OF PROJECTIONS OR VIEWS ORTHOGRAPHIC PROJECTION IN FIRST ANGLE PROJECTION ONLY: Principles of Orthographic Projections – Conventions – First and Third Angle Projections, Projection of Points, Projection of Lines - inclined to both planes, True lengths, traces.

UNIT – III

PROJECTIONS OF PLANES: Projections of regular Planes, Traces, Oblique planes. Introduction to Auxiliary planes

UNIT –IV

PROJECTIONS OF SOLIDS:

Projections of Regular Solids – Regular Polyhedra, solids of revolution, Axis inclined to both planes – Alteration of position and Auxiliary plane method.

UNIT –V

SECTIONS OF SOLIDS:

Sections and Sectional views of Right Regular Solids – Prism, Cylinder, Pyramid, Cone – Auxiliary views

UNIT –VI

DEVELOPMENT OF SURFACES:

Development of Surfaces of Right Regular Solids – Prisms, Cylinder, Pyramid Cone and their parts

TEXT BOOKS

1. Engineering Drawing, N.D. Bhat / Charotar
2. Engineering Drawing, Narayana and Kanniah / Scietech publishers.

REFERENCES

1. Engineering Drawing, K.Venugopal/G.Sreekanjana, New Age International Publishers.

**Syllabus for B. Tech. I Year I semester
Computer Science and Engineering
ENGLISH LANGUAGE LAB-I**

Code:101EN71

L	T	P/D	C
-	-	2	1

The Language Lab focuses on the production and practice of sounds of language and familiarizes 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
4. Oral Presentations-Prepared and Extempore
5. 'Just A Minute' Sessions (JAM)
6. Describing Objects/Situations/People
7. Information Transfer
8. Debate

Minimum Lab Requirements

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:

- 1) P-IV Processor
 - a) Speed – 2.8 GHZ
 - b) RAM -512 MB Minimum
 - c) Hard Disk – 80 GB
- 2) 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
- * Language in use, Foundation Books Pvt.Ltd with CD
- * Oxford Advanced Learner's Compass, 7th Edition.
- * Learning to Speak English – 4 CDs.
- * Vocabulary in Use, Michael McCarthy, Felicity O'Den, Cambridge.
- * Murphy's English Grammar, Cambridge with CD
- * English in Mind, Herbert Puchta and Jeff Stranks with Meredith Levy, Cambridge.

REFERENCES

1. English Conversation Practice by Grant Taylor, Tata Mc.Graw Hill
2. Speaking Effectively, Cambridge University Press
3. A text book of English Phonetics for Indian Students by T. Balasubramanian Mac Millan

Syllabus for B. Tech. I Year I semester
Computer Science and Engineering
Engineering Physics Lab-I

Code: 101PH71

L	T	P/D	C
-	-	3/2	1

1. Torsional Pendulum.
2. compound pendulum
3. Error estimation.
4. Determination of wavelength of a given laser source of light by using diffraction Grating.
5. Melde's Experiment.
6. A.C. Sonometer.
7. Characteristics of a Thermistor.

Syllabus for B. Tech. I Year I semester
Computer Science and Engineering
Engineering Chemistry Lab

Code:101CH71

L	T	P/D	C
-	-	3/2	1

1. Estimation of MnO_2 in Pyrolusite.
2. Estimation of Hardness of water.
3. Estimation of Mn^{+2} / Cu^{+2} ions by colorimetry.
4. Estimation of acid by conductometric titrations.
5. Estimation of acid by potentiometric titrations.
6. Determination of viscosity.
7. a) Estimation of Cu in Brass.
(or)
b) Hydrolysis of methyl acetate
8. a) Preparation of Aspirin
b) Preparation of Polymer (Thiokol rubber).

**Syllabus for B. Tech. I Year I semester
Computer Science and Engineering
COMPUTER PROGRAMMING LAB**

Code: 101IT71

L	T	P/D	C
-	-	3	2

1. UNIT I (Cycle 1)

1. Write an algorithm for converting a given Celsius temperature to its equivalent Fahrenheit temperature and draw a flowchart using RAPTOR tool and test it using the data: 0^oC, 35^oC, 55.35^oC, and 100^oC.
2. Write an algorithm to find the largest of three given numbers and draw a flowchart using RAPTOR tool and test it for data: (5, 7, 2), (3.5, 5.8, 9.2), (112, 19.6, 82.7).
3. Write an algorithm and draw a flowchart for finding the roots and nature of roots of a quadratic equation, given its coefficients and test it for data: (1, 3, 2), (2, 1, 6), (6, 5,1).

2. UNIT I (Cycle 2)

1. Write an algorithm and draw a flowchart for computing the sum of the digits of a given integer and test it for the data: 3259, 89725, 10092.
2. Write an algorithm and draw a flowchart to test whether a given integer is a prime number or not. Test for the data: 29, 35, 89.
3. Write an algorithm and flowchart for printing the first n Fibonacci numbers, give n. Test using the data: 10, 25, 50.

3. UNIT II (Cycle 3)

1. Write an algorithm, flowchart, and C program for:
 1. Finding the area and circumference of a circle of given radius.
 2. Finding the volume of a sphere of given radius.
 3. Finding the lateral surface area of a right circular cone of given base radius and height.
 4. Finding selling price of an item, given its cost price and profit percent.
 5. Finding the interest on a given principal for a given period of time at a given rate of per year.
2. Write a C program to display all the sizes of data types in C.
3. Write a C program to display a given decimal integer into an equivalent octal number and hexadecimal number.

4. UNIT II (Cycle 4)

1. Write a C program to find the roots and nature of the roots of a quadratic equation, given its coefficients.
2. Write a C program for finding the largest of three given numbers.
3. A salesman gets a commission of 5% on the sales he makes if his sales is below Rs.5000/- and a commission of 8% on the sales that exceeds Rs.5000/- together with Rs.250/-. Write an algorithm or a flowchart and develop C program for computing the commission of the salesman, given his sales.

5. UNIT II (Cycle 5)

1. Write a program that reads a letter given by the user and prints whether it is a vowel or not.
2. An institution gives grades to its students as follows:
 - a. Grade A if he gets 80 or more marks
 - b. Grade B if he gets between 60 and 79 (both inclusive)
 - c. Grade C if he gets between 50 and 59 (both inclusive)
 - d. Grade D if he gets between 40 and 49 (both inclusive)
 - e. Grade F otherwise.

Marks of student are always an integer ranging from 0 to 100. Use case structure to print the grade obtained by the candidate, given his marks.

3. Write three C programs to print a multiplication table for a given number using while, do..while, and for loops.

6. **UNIT II (Cycle 6)**
1. Write a C program to compute the sum of:
 1. $1+x+x^2+x^3+\dots+x^n$, given x and n .
 2. $1! + 2! + 3! + \dots + n!$, given n .
 3. $1 - x^2/2! + x^4/4! - x^6/6! + x^8/8! - x^{10}/10! + \dots$ to n terms where the n^{th} term becomes less than 0.0001.
 2. Write a C program in the menu driven style to perform the operations $+$, $-$, $*$, $/$, $\%$ between two given integers.
 3. Write a C program to find the largest and the least of some numbers given by the user.
7. **UNIT III (Cycle 7)**
1. Write C functions for the following:
 1. A function that takes an integer n as argument and returns 1 if it is a prime number and 0 otherwise.
 2. A function that takes a real number x and a positive integer n as arguments and returns x^n .
 3. A function that takes a positive integer n as an argument and returns the n^{th} Fibonacci number.
 2. Using recursion write C functions for the following:
 1. Factorial of a non-negative integer n .
 2. Number of combinations of n things taken r at a time.
 3. Greatest Common Divisor of two integers.
 4. Least Common Multiple of two integers.
8. **UNIT III (Cycle 8)**
1. Write a menu driven style program to compute the above functions (cycle 7) on the choice of the function given by the user.
 2. Write a C program to solve the problem of Towers of Hanoi.
 3. Write a program to generate Pascal's triangle.
 4. Write a program to count the number of letters, words, and lines in a given text.
9. **UNIT III (Cycle 9)**
1. Write a program to store the numbers given by the user in an array, and then to find the mean, deviations of the given values from the mean, and variance.
 2. Write a C program to initially store user given numbers in an array, display them and then to insert a given number at a given location and to delete a number at a given location.
 3. Write a program to store user given numbers in an array and find the locations of minimum and maximum values in the array and swap them and display the resulting array.
 4. Define macros for the following and use them to find sum of the squares of the minimum and maximum of two given numbers.
 1. Larger of two numbers.
 2. Smaller of two numbers.
 3. Sum of the squares of two numbers.
10. **UNIT IV (Cycle 10)**
1. Write a function to swap two numbers.
 2. Write a function to compute area and circumference of a circle, having area and circumference as pointer arguments and radius as an ordinary argument.
 3. Write a C program to implement the operations of matrices – addition, subtraction, multiplication.
 4. Write a program to find whether a given matrix is symmetric, lower triangular, upper triangular, diagonal, scalar, or unit matrix.
11. **UNIT IV (Cycle 11)**
1. Define a structure for complex number. Write functions on complex numbers (addition, subtraction, absolute value, multiplication, division, complex conjugate) and implement them in a menu driven style.
 2. Define a structure point. Write a program to find the distance between two points.
12. **UNIT IV (Cycle 12)**
1. Define a structure student having members roll no., name, class, section, marks. Create an array of 10 students give the data and find the average marks, section-wise.
 2. Define functions – length of the string, copy, concatenate, convert into upper case letters, compare two strings for alphabetical order – over strings and implement them in a program.

13. UNIT V (Cycle 13)

Write a program to:

1. Create a file by the name given by the user or by command line argument and add the text given by the user to that file.
2. Open the file created above and display the contents of the file.
3. Copy a file into some other file, file names given by the user or by command line arguments.
4. Append a user mentioned file to another file.
5. Reverse the first n characters of a file.

14. UNIT V (Cycle 14)

1. Store the marks of the students of a class into file and the display the results as per the rules of your institution.
2. In the above file search a student by roll no. and display the particulars.

15. UNIT VI (Cycle 15)

1. Write a program to draw figure of your liking with appropriate colors.
2. Write a program to implement simple bank transactions – opening an account, closing an account, deposit money into an account, withdraw money from an account, maintaining the customer database, and daybook.

Code:101ME71	Syllabus for B. Tech. I Year I semester Computer Science and Engineering ENGINEERING WORKSHOP-I			
	L	T	P/D	C
	-	-	3/2	1

1. House Wiring

- To connect the Tube Light as per circuit diagram
- To connect the Calling Bell as per circuit diagram

2. Home Appliances

Study of circuits and systems used in various home appliances such as Fans, Mixers, Washing machines etc.,

3. Welding

- To prepare a Lap Joint
- To prepare a Butt Joint

4. Machine Shop (demonstration)

Operations performed on Lathe, Drilling, Milling and grinding machines

**Syllabus for B. Tech. I Year I semester
Computer Science and Engineering
IT WORKSHOP-I**

Code:101IT72

L	T	P/D	C
-	-	3/2	1

Week 1 : Introduction to computers, identify the peripherals of a computers, componenets in a CPU & its functions, draw the block diagram of the CPU along with the configuration of each peripherals.

Week 2 : Disassemble & assemble the PC back to working condition [video, manual], Hardware troubleshooting.

Week 3 Introducton to operating system [Basics], Installation of Windows XP.

Week 4 : DOS (Internal & External) commands, work on that commands, comparisons of windows & open source OS.

Week 5 :Installation of Linux O.S [Advanced debian, ubuntu], Basic Linux Commands, work on that commands.

Week 6 : Software troubleshooting, Identify the system software problems & fix it to get the computer back to working conditions.

Cyber Hygeine : Installation of Antivirus software, Configure their personal firewall & windows update on their computer, customize the browsers to block POP UPS, block active x downloads to avoid viruses and worms.

Week 7 : Introduction to Internet & LAN

Browsing the Net : Connect the LAN and access the Internet, Know how to acces the websites and email.

Search Engines:

Introduction to search engines, types of search engines, uses of search engines, how to use search engine. Give few topics to students for which they need to search on GOOGLE.

Syllabus for B. Tech. I Year II semester
Computer Science and Engineering
English – II
(English Language Teaching Through Literature)

Code: 101EN02

	L	T	P/D
C	2	-	- 2

UNIT – I

1. Speech : Swami Vivekananda
2. Short Story : The Lottery Ticket: Anton Chekhov
3. Letter Writing

UNIT – II

1. Speech : Polonius Speech –An extract from Shakespeare’s *Hamlet*
2. Short Story : Ha’ Penny – Alan Paton
3. Sentence Construction

UNIT – III

1. Biography : Sam Pitroda
2. Short Story : Subha – Rabindranath Tagore
3. Letter : Abraham Lincoln’s Letter to His Son’s Teacher

UNIT – IV

1. Biography : Mother Theresa
2. Short Story : The Only American From Our Village by Arun Joshi
3. Note-Making

UNIT – V

1. Poem : The Gift of India – Sarojini Naidu
2. Short story : Diamond Rice - Ranga Rao S.S
3. Analogies

UNIT – VI

1. Poem : La Belle Dame sans Merci – John Keats
2. Short Story : Luck – Mark Twain
3. Reading Comprehension

TEXT BOOKS

1. Inspiring Speeches and Lives; B. Yadava Raju, Maruthi Publications, Guntur.
2. Vignettes of Life (A collection of short stories by T. Padma), McMillan India Ltd.

REFERENCES

1. Barron’s TOEFL; Barron, Galgotias Publication Pvt. Ltd.
2. A Modern Approach to Verbal And Non Verbal Reasoning – R S Aggarwal, S.Chand Publications.

**Syllabus for B. Tech. I Year II semester
Computer Science and Engineering**

Code:101MA03 ENGINEERING MATHEMATICS – II

L	T	P/D	C
3	1	-	3

UNIT-I

Ordinary Differential Equations Of First Order: Differential equations of first order and first degree – Exact, linear and Bernoulli equations. Applications to geometry, law of natural growth and decay and Newton’s law of cooling, electrical circuits, Orthogonal Trajectories.

UNIT-II

Ordinary Linear Differential Equations Of Higher Order: Linear differential equations of second and higher orders with constants coefficients – Method of variation of parameters – Systems of linear differential equations with constant coefficients – Applications: Bending of beams, electrical circuits, Simple harmonic motion.

UNIT-III

Laplace Transformations Laplace Transformations – Laplace transform, Shifting theorems, Multiplication by powers of t, Division by t, Laplace transform of Unit Step function, Impulse function, and periodic functions.
Inverse Laplace transforms Inverse Laplace transform, Shifting theorems, Partial fraction method, convolution theorem (without proof), solutions of ordinary differential equations with constant coefficients and systems of linear differential equations with constant coefficients using Laplace transformations.

UNIT-IV

Z- transforms : Z- transforms – Inverse Z- transforms – properties – Damping rule – Shifting rules – Initial and final value theorems – Convolution theorem – Solution of difference equation by Z- transforms

UNIT-V

Fourier series Fourier series – Even and Odd functions – Fourier series in an arbitrary interval – Half-range Fourier sine and cosine serie

UNIT-VI

Vector Calculus- Scalar and vector fields , vector differentiation, level surfaces, directional derivative, gradient of a scalar field, divergence and curl of a vector field, Laplacian operator and related properties. Line and surface integrals, Green’s theorem in plane, Gauss-Divergence theorem, Stoke’s theorem and verification of problems(without proof).

TEXT BOOKS

1. Higher Engineering Mathematics, B.S. Grewal , Khanna Publications, New Delhi.
2. Engineering Mathematics, B.V.Ramana, Tata McGraw Hill Publishing Company Ltd.

REFERENCES

1. A text Book of KREYSZIG’s Engineering Mathematics, Dr. A. Ramakrishna Prasad, Wiley Publications
2. A Text book of Engineering Mathematics,M.Venkata Krishna, Jaico Publishing House,2010.
3. Jain, S.R.K, Advanced Engineering Mathematics, Narosa Publishing House, London 2002.

Syllabus for B. Tech. I Year II semester
Computer Science and Engineering
ENGINEERING PHYSICS– II

Code: 101PH02

L	T	P/D	C
3	1	-	3

UNIT-I

Semiconductor Physics: Fermi Level in Intrinsic and Extrinsic Semiconductors, Intrinsic Semiconductors and Carrier Concentration, Extrinsic Semiconductors and Carrier Concentration-drift & diffusion, Equation of Continuity, Direct & Indirect Band Gap Semiconductors, Hall Effect.

UNIT-II

Physics of Semiconductor Devices: Formation of PN Junction, Open Circuit PN Junction, Energy Diagram of PN Diode, I-V Characteristics of PN Junction, PN Diode as a Half wave & Full wave Rectifiers (Forward and Reverse Bias), Diode Equation, LED, Pin & Avalanche Photo Diodes, Photo voltaic cells

UNIT-III

Dielectric Properties: Electric Dipole, Dipole Moment, Dielectric Constant, Electric Susceptibility, Polarizability, Electronic, Ionic and Orientation Polarizations and Calculation of Polarizabilities -Internal Fields in Solids, Clausius -Mossotti Equation, Piezo-electricity, Pyro-electricity and Ferro- electricity.

UNIT - IV

Magnetic Properties: Electron spin, Relation between electron spin and magnetic moment, Origin of Magnetic Moment, Bohr Magneton, Classification of Dia, Para and Ferro Magnetic Materials on the basis of Magnetic Moment, Domain Theory of Ferro Magnetism on the basis of Hysteresis Curve, Soft and Hard Magnetic Materials, Properties of Anti-Ferro and Ferri Magnetic Materials, super conductivity – Meisner’s effect, Type I & Type II superconductors, Magnetic levitation, Applications of super conductors.

UNIT - V

Lasers: Characteristics of Lasers, Spontaneous and Stimulated Emission of Radiation, Meta-stable State, Population Inversion, Lasing Action, Einstein’s Coefficients and Relation between them, Ruby Laser, Helium-Neon Laser, Carbon Dioxide Laser, Semiconductor Diode Laser, Applications of Lasers.

Fiber Optics: Principle of Optical Fiber, Acceptance Angle and Acceptance Cone, Numerical Aperture, Types of Optical Fibers and Refractive Index Profiles – step & Graded index optical fiber, Attenuation in Optical Fibers, Application of Optical Fiber in communication system.

UNIT - VI

Nanotechnology: Origin of Nanotechnology, Nano Scale, Surface to Volume Ratio, Quantum Confinement, Bottom-up Fabrication: Sol-gel, Precipitation, Combustion Methods; Top-down Fabrication: Chemical Vapour Deposition, Physical Vapour Deposition, Pulsed Laser Vapour Deposition Methods, Characterization (XRD&TEM), carbon nanotubes, Magnetic tunnel junction, Giant magneto resistance (GMR) devices.

TEXT BOOKS

1. Electrical Engineering Materials by A. J Decker
2. Applied Physics by M Chandrashekar and P Appla Naidu

REFERENCES

1. Introduction to Solid State Physics, by Charles Kittel
2. Solid State Physics [Neil by W. Ashcroft](#) , [N. David Mermin](#)
3. Physics for semiconductor devices by Michael Shur
4. Engineering Physics P K Palanisamy
5. Nanotechnology: A Gentle Introduction To The Next Big Idea by M Ratner, D Ratner
6. Nano Materials by A K Bandyopadhyay

**Syllabus for B. Tech. I Year II semester
Computer Science and Engineering
DATA STRUCTURES AND C++**

Code:101CS01

L	T	P/D	C
3	1	-	3

UNIT – I

Introduction to data structures: Abstract data type(ADT), Stacks and Queues circular queues and their implementation with arrays.Stack applications: infix to post fix conversion, postfix expression evaluation. Applications of queues.

UNIT – II

Singly linked lists, doubly linked lists, circular list and their operations, representing stacks and queues with linked lists.

UNIT – III

Trees- Binary trees, terminology, representation, traversals, Minimal Spanning trees.
Graphs- terminology, representation, graph traversals (dfs & bfs).

UNIT - IV

Searching - Linear and binary search methods.
Sorting - Bubble sort, selection sort, Insertion sort, Quick sort, merge sort.

UNIT – V

Introduction to c++ programming-object oriented programming concepts, Structured Vs OOP.
Classes and objects-class definition, Objects, class scope and accessing members, access functions and utility functions.

UNIT – VI

Constructors-default constructor, parameterized constructor, constructor initialization list, copy constructor.
Destructors, Static class members this pointer, friend functions and classes, Dynamic memory management with operators new and delete.
Overloading-function overloading, Operator overloading, restrictions on operator overloading, overloading unary and binary operators, type conversion, templates, inheritance.

TEXT BOOKS

- 1.Data Structure Through C by Yashavant Kanetkar.
- 2.The complete reference C++ By Herb Schildt.
3. Data Structures, A pseudocode Approach with C by Richard F. Gilberg & Behrouz A. Forouzan.

REFERENCES

1. Alfred V. Aho, Jeffrey D. Ullman, John E. Hopcroft. *Data Structures and Algorithms*. Addison Wesley, 1983.
2. Data Structures using c Aaron M.Tenenbaum , Yedidyah Langsam,Moshe J Augenstein.
3. Introduction To Data Structures In C By Kamtane

**Syllabus for B. Tech. I Year II semester
Computer Science and Engineering
ENGINEERING DRAWING - II**

Code:101ME02

L	T	P/D	C
1	-	2	2

UNIT – I**INTERSECTION OF SIMILAR SOLIDS:**

Line method, Cutting plane method, Intersection of prism Vs prism, Cylinders Vs Cylinder, Cone Vs Cone

UNIT – II**INTERSECTION OF DIS-SIMILAR SOLIDS:**

Cylinder Vs prism, Cylinder Vs cone, Cone Vs Prism

UNIT – III

ISOMETRIC PROJECTIONS : Principles of Isometric Projection – Isometric Scale – Isometric Views – Conventions – Isometric Views of Lines, Plane Figures, Simple and Compound Solids – Isometric Projection of objects having non- isometric lines.

UNIT –IV

TRANSFORMATION OF PROJECTIONS: Conversion of Orthographic Views to Isometric Views and Vice-Versa.

UNIT –V**PERSPECTIVE PROJECTION:**

Principle, Perspective elements, Perspective View of Points, Lines, Plane Figures and Simple Solids, Vanishing Point Method, Visual ray method.

UNIT –VI

Introduction to computer aided Drafting: Generation of points, lines, curves, polygons, simple solids, dimensioning.

TEXT BOOKS

1. Engineering Drawing, N.D. Bhat / Charotar
2. Engineering Drawing, Narayana and Kanniah / Scietech publishers.

REFERENCES

1. Engineering graphics with Auto CAD- R.B Choudary / Anuradha Publishes
2. Engineering Drawing, K.Venugopal/G.Sreekanjana, New Age International Publishers.

**Syllabus for B. Tech. I Year II semester
Computer Science and Engineering
Code:101EE41 BASIC ELECTRICAL ENGINEERING**

L	T	P/D	C
3	1	-	3

UNIT – I- INTRODUCTION TO ELECTRICAL ENGINEERING :

Ohm's Law, basic circuit components, Kirchhoff's Laws. Types of sources, source transformation, Voltage – current relationship for passive elements. Series parallel circuits, star delta and delta star transformation. Network theorems, superposition, Thevenin's Maximum power transfer theorems and simple problems. Faradays laws of electromagnetic induction, concept of self and mutual inductance.

UNIT – II- ALTERNATING CIRCUITS:

Principle of ac voltage, waveforms and basic definitions, r.m.s. and average values of alternating currents and voltage, form factor and peak factor, phasor representation of alternating quantities.

UNIT – III- DC MACHINES:

Principle of operation of dc machines, types of D.C. generators, e.m.f equation of D.C. Generator. Types of D.C. motors, losses, torque equation, efficiency calculation in D.C. machines.

UNIT – IV- (Simple Problems):

Transformers : Principles of constructing and operation Ideal Transformer and Practical Transformer, Losses, Transformer Test, Efficiency and Regulation.

UNIT – V:A.C. MACHINES:

Three phase circuits – phase sequence, star and delta connection, relation between line and phase voltages and currents in balanced system.

Three phase induction motor, principle of operation, slip and rotor frequency, torque . (Elementary treatment) single phase induction motors application slipped motor.

UNIT – VI- 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 T.K.Nagesarkar and M.S.Sukhja Oxford University Press.
2. Basic electrical Engineering – By M.S.Naidu and S.Kamakshiah – TMH

REFERENCES

1. Theory and problems of Basic electrical Engineering by D.P.Kotahari & L.J.Nagrath PHI.
2. Principles of Electrical Engineering by V.K.Mehta, S.Chand Publications.

Syllabus for B. Tech. I Year II semester
Computer Science and Engineering
Code:101ME04 BASIC MECHANICAL ENGINEERING

L	T	P/D	C
4	-	-	4

UNIT – I

Thermodynamics and Heat Transfer: Basic concepts of Thermodynamics, Property of gases, Zeroth Law, First Law of Thermodynamics and its applications, Second Law of Thermodynamics, Carnot cycle, Air standard cycles - Otto, Diesel, Cycles and simple problems.

Internal combustion engines and gas turbines: Internal combustion engines, definitions, classification, components, working of two- stroke, four stroke cycle engines, SI and CI Engines, performance parameters, simple problems, cooling, and lubrication of IC engines.

UNIT – II

Steam generators: Classification of boilers, differences between fire tube and water tube boilers, Cochran and Lancashire boilers, Locomotive boiler, Babcock – Wilcox boiler and High pressure boilers - Benson and La-Mount boilers only.

Steam and Gas Turbines: Layout of steam power plant, types of steam turbines, differences between impulse and reaction turbines, description of impulse and reaction turbines, methods of reducing turbine speed (compounding), Schematic of gas turbine power plants - closed and open cycle types, methods to improve performance of open cycle plant.

UNIT – III

Refrigeration and Air Conditioning: Definition, Refrigeration and Air conditioning, Schematic and description of vapour compression refrigeration and vapour absorption systems, Domestic Refrigerator, Summer and winter air conditioning systems.

UNIT – IV

Hydraulic pumps and Turbines: Reciprocating and centrifugal pumps and their applications. Layout of Hydro-electric power plant, Classification of water turbines, Description and principle of operation of Pelton wheel and Francis turbine (without velocity triangles), Axial flow reaction turbine.

UNIT- V

Metal casting: Casting methods and their characteristics, advantages, limitations and applications.

Welding: Types of welding - arc welding, gas welding & gas cutting, resistance welding, soldering and brazing.

UNIT - VI

Mechanical working of metals:

Hot working and cold working processes, Press working, differences, basic processes and their characteristics, advantages, limitations and applications.

Machine Tools:

Principles of working of different types of machine tools - lathe, shaper, drilling, milling, grinding, and NC Machines - Operations performed and Applications.

TEXT BOOKS

1. Mathur, M.L., Mehta, F.S. and Tiwari, R.P., Elements of Mechanical Engineering, Jain Brothers, New Delhi, 2005.
2. R.K. Rajput, "Elements of Mechanical Engineering", Laxmi Publications, 1994.

REFERENCES

1. P.N.Gupta, M.P. Poonia, "Elements of Mechanical Engineering", Standard Publishers Distributors Nai Sarak, Delhi.
R.C.Gupta, "Mechanical Engineering", Khanna Publishers, Delhi.

**Syllabus for B. Tech. I Year II semester
Computer Science and Engineering
ENGLISH LANGUAGE LAB-II**

Code:101EN72

L	T	P/D	C
-	-	2	1

Introduction

The introduction of the English Language lab is considered essential at third 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 globalize 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 organize 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 communicate effectively in informal and formal situations

Objectives

The lab focuses on using computer-aided multimedia instruction for language development to meet the following targets:

1. 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.
2. Further they would be required to communicate their ideas relevantly and coherently in writing

Syllabus

1. Functional English –Starting a conversation-responding appropriately and relevantly-using the right body language-role plays based on different situations
2. Vocabulary building – Synonyms and antonyms, word roots, one-word substitutes, prefixes and suffixes, etymology, analogy, idioms and phrases
3. Reading Comprehension – Reading for facts, guessing meanings from the context, scanning, skimming, inferring meaning and critical reading
4. Report Writing Strategies– Types of formats and styles, subject matter – organization, clarity, coherence, and style, planning, data collection, tools and analysis
5. Debate

Minimum Lab Requirement:

The English language lab shall have two parts:

- a. 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.
- b. The Communication Skills lab with movable chairs and audio visual aids with a PA system. A T V, Digital stereo-audio and video system and camcorder etc.

References:

1. Communicate or Collapse: A Handbook of Effective Public Speaking
2. Group Discussions and Interviews by Pushpa Lata & Kumar, Prentice Hall of India
3. Academic Writing – A practical Guide for students by Stephen Bailey, Rontledge Falmer, London and New York, 2004

**Syllabus for B. Tech. I Year II semester
Computer Science and Engineering
Code: 101CS71 DATASTRUCTURES AND C++ LAB**

L	T	P/D	C
-	-	3	2

1. Write a C program that implement stack and its operations using arrays
2. Write a C program that implement Queue and its operations using arrays.
3. Write a C program that uses Stack operations to perform the following
 - i) Converting infix expression into postfix expression
 - ii) Evaluating the postfix expression
4. Write a C program that uses functions to perform the following operations on singly linked list.:
 - i) Creation ii) Insertion iii) Deletion iv) Traversal
5. 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
6. 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.
7. 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
8. 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
9. 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 iii) Selection Sort
10. Write a C++ 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.
11. 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.
12. Write a C++ program that checks whether a given string is palindrome or not.

TEXT BOOKS:

1. Data Structure through C by Yashavant Kanetkar.
2. The complete reference C++ by Herb Schildt.
3. Data Structures, A pseudocode Approach with C by Richard F. Gilberg & Behrouz A. Forouzan.

Syllabus for B. Tech. I Year II semester
Computer Science and Engineering
ENGINEERING PHYSICS LAB-II

Code:101PH72

L	T	P/D	C
-	-	3/2	1

1. R.C. Network.
2. L.C.R. series and parallel resonance.
3. Energy gap of a semiconductor
4. Characteristics of Laser diode.
5. Numerical aperture of optical fiber.
6. Bending loss of optical fiber.
7. Stewart & Gee's Experiment (Determination of magnetic induction flux density along the axis of a circular coil).

**Syllabus for B. Tech. I Year II semester
Computer Science and Engineering
IT WORKSHOP -II**

Code:101IT73

L	T	P/D	C
-	-	3/2	1

Week 1 : Introduction. Difference b/w hardware and software. Introduction to MS-Office & Latex and its importance.

Using latex & word – Accessing, overview of toolbars saving files, rulers, format painter.

Features : Formating fonts, Drop cap, Applying text effects, character spacing, Borders, colors, inserting Header & Footer & Date & Time options.

Week 2 : Creating Project

Formating styles, Inserting Table, Bullets & Numbering, Changing Text Direction, Cell Alignment, Footnote, Hyperlink, Symbols, Spell check, Track changes.

Creating News letters :

Table of content, Newspaper columns, Images from files & Clip Art, Drawing toolbar & Word Art, Formatting Images, Textboxes, Paragraphs & Mail merge.

Week 3 :

Basics of PP

Features : PPT Orientation, Slide layouts, Inserting Text, Word Art, Formatting Text, Bullets & Numbering, Autosshapes, Lines & Arrows, Hyperlinks, Inserting Images, ClipArt, Audio, Video, Objects, Tables & Charts, Master layouts (Slide template & Notes) types of views (basic, Presentation, slide slotter, notes), Inserting – Background, text Design Templates, Hidden slides.

Week 4 : Excel

Introduction to Excel

Features :

Accessing, Overview at toolbars, Saving excel files, Gridlines, Format cells, Summation, Auto fill, formating text.

Week 5 :

Formula in excel – Avg, std Dev, Charts, Roaming & Inserting worksheets, Hypoer linking, count function, looup / Vlookup, sorting, Conditional formatting.

Week 6:

Introduction to MS-Acess,

Features :

Create a db, Create a table, Adding data, create Form, modify a Form, Create a query, Modify a query, create a macro.

Week 7:

Conversation Access Database to excel, Introduction ot MS-Outlook – Introduction to outlook, Different views in outlook.

Features :

Reviewing msg's in the Inbox, replying to msg, forarding a msg, envelopes moving from msg to msg in the Inbox, prompting a msg, Address books, contacts, Adding Names to contacts, Personal Distribution lists, Folders Making a msg's to folders, Recovering & deleting a msg calendar.

Syllabus for B. Tech. II Year I semester
Computer Science and Engineering
NUMERICAL METHODS &
PARTIAL DIFFERENTIAL EQUATIONS
 (Common to CSE & IT)

Code: 101MA07

L	T	P/D	C
3	1	-	3

UNIT-I

Solution Of Algebraic And Transcendental Equations: Introduction – The Bisection Method – The Method of False Position – The Iteration Method – Newton-Raphson Method.

Interpolation: Introduction— Finite differences- Forward Differences- Backward differences –Central differences – Symbolic relations and separation of symbols, Newton’s formulae for interpolation – Gauss Central Difference Formulae (without proofs)

UNIT-II

Interpolation with unevenly spaced points – Lagrange’s Interpolation formula – Newton’s divided difference method. Numerical Differentiation.

Curve Fitting Fitting a straight line – Second degree curve – exponential curve – power curve by method of least squares –Correlation and Regression.

UNIT-III

Numerical Integration– Trapezoidal rule – Simpson’s 1/3 Rule – Simpson’s 3/8 Rule, Gaussian quadrature rule. Numerical solution of Ordinary Differential equations: Solution by Taylor’s series – Picard’s Method of successive Approximations – Euler’s Method – Runge-Kutta Methods (without proofs).

UNIT-IV

Partial Differential Equations Partial differential equations : Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions – Solutions of first order linear equation – Non-linear (Standard type) equations. Method of separation of variables.

UNIT – V

Fourier Transforms : Fourier transformation, sine and cosine transformations, Finite Fourier transforms ,Parseval’s identities

UNIT –VI

Elementary Graph Theory: Graphs, Representation by matrices, Adjacent matrix, Warshall’s Algorithm, M Incident matrix, Simple, Multiple, Regular, complete, Sub graphs, Isomorphic graphs.

TEXT BOOKS

1. Higher Engineering Mathematics, B.S. Grewal , Khanna Publications, New Delhi.
2. Engineering Mathematics, B.V.Ramana, Tata McGraw Hill Publishing Company Ltd.

REFERENCES

1. A text Book of KREYSZIG’s Engineering Mathematics, Dr. A. Ramakrishna Prasad, Wiley Publications
2. A Text book of Engineering Mathematics, M.Venkata Krishna, Jaico Publishing House, 2010.
3. Jain, S.R.K, Advanced Engineering Mathematics, Narosa Publishing House, London 2002.

**Syllabus for B. Tech. II Year I semester
Computer Science and Engineering**

Code:101EC06 SWITCHING THEORY AND LOGIC DESIGN

L	T	P/D	C
3	1	-	3

UNIT I

Boolean Algebra: Axiomatic definition of Boolean algebra, Binary operators, postulates and theorems. Switching functions, Canonical forms and Standard forms, Simplification of switching functions using theorems.

UNIT II

Minimization of Switching Functions: Karnaugh map method, Prime implicants, don't care combinations, Minimal SOP and POS forms, Quine-McCluskey Tabular Method, Prime Implicant chart, simplification rules.

UNIT III

Combinational Logic Design: Single output and multiple output combinational logic circuit design, AND-OR, OR-AND, and NAND/NOR realizations, Exclusive-OR and Equivalence functions, Binary adders/subtractors, Encoder, Decoder, Multiplexer, Demultiplexer, MUX realization of switching functions, Parity bit generator, Code-converters, Contact Networks, Hazards and hazard free realizations.

UNIT - IV

Programmable Logic Devices, Threshold Logic: Basic PLD's-ROM, PROM, PLA, and PLD Realization of Switching functions using PLDs.

UNIT - V

Symmetric Networks: Properties of Symmetric Functions, Symmetric relay contact networks, Identification and realization of symmetric functions.

Threshold Logic: Capabilities and limitations of Threshold gate. Synthesis of threshold functions. Multigate Synthesis.

UNIT - VI

Sequential Circuits: Classification of sequential circuits (Synchronous, Asynchronous Pulse mode, and Level mode with examples). Basic flip-flops-Triggering and excitation tables. The sequential circuit model. Design of simple synchronous sequential circuits such as counters. Design of modulo-N Ring & Shift counters, Serial binary adder, and sequence detector.

Introduction to Asynchronous Machines.

TEXTBOOKS

1. Switching & Finite Automata theory – Zvi Kohavi, TMH, 2nd Edition.
2. Switching Theory and Logic Design – CVS Rao, Pearson Education, 2005.

REFERENCES

1. An Engineering Approach to Digital Design – Fletcher, PHI. Digital Logic – Application and Design – John M. Yarbrough, Thomson.
2. Fundamentals of Logic Design – Charles H. Roth, Thomson Publications, 5th Edition, 2004.
3. Digital Logic Applications and Design – John M. Yarbrough, Thomson Publications, 2006

Syllabus for B. Tech. II Year I semester
Computer Science and Engineering
BASIC ELECTRONICS

Code:101EC02

L	T	P/D	C
3	1	-	3

UNIT-I

SEMICONDUCTOR DIODES AND APPLICATIONS: p-n junction diode, Characteristics and Parameters, Diode approximations, DC load line, Temperature dependence of p-n characteristics, AC equivalent circuits, Zener diodes. Half-wave diode rectifier, Ripple factor, Full-wave diode rectifier, Other full-wave circuits, Shunt capacitor Power supply performance, Zener diode voltage regulators. (Qualitative treatment only) - 08 periods

UNIT-II

TRANSISTORS: Bipolar Junction transistor, Transistor Voltages and currents, amplification, Common Base, Common Emitter and Common Collector Characteristics, DC Load line and Bias Point.
 BIASING METHODS: Base Bias, Collector to Base Bias, Voltage divider Bias, Comparison of basic bias circuits, Bias circuit design, Thermal Stability of Bias Circuits (Qualitative discussions only). - 08 periods

UNIT-III

OTHER DEVICES: Silicon Controlled Rectifier (S.C.R), SCR Control Circuits, More S.C.R applications; Unijunction transistor, UJT applications, Junction Field effect Transistors (Exclude Fabrication and Packaging), JFET Characteristics, FET Amplification. - 08 periods

UNIT-IV

AMPLIFIERS & OSCILLATORS: Decibels and Half power points, Single Stage CE Amplifier and Capacitor coupled two stage CE amplifier (Qualitative discussions only), Series voltage negative feedback and additional effects of Negative feed back(Qualitative discussions only), The Barkhausen Criterion for Oscillations, BJT RC phase shift oscillator, Hartley, Colpitts and crystal oscillator (Qualitative discussions only). -08 periods

UNIT-V

COMMUNICATION SYSTEMS: Block diagram, Modulation, Radio Systems, Superhetrodyne Receivers. - 06 periods

UNIT-VI

NUMBER SYSTEMS: Introduction, decimal system, Binary, Octal and Hexadecimal number systems, addition and subtraction, fractional number, Binary Coded Decimal numbers. -06periods

DIGITAL LOGIC: Boolean algebra, Logic gates, Half-adder, Full-adder, Parallel Binary adder. - (06 periods)

TEXTBOOKS

1. Electronic Devices and Circuits: David. A. Bell; PHI, New Delhi, 2004
2. Electrical and Electronics & Computer Engineering for Scientists and Engineers Second Edition -K.A. Krishnamurthy & M.R.

**Syllabus for B. Tech. II Year I semester
Computer Science and Engineering
ADVANCED DATA STRUCTURES**

Code:101CS02

L	T	P/D	C
4	1	-	4

UNIT I**Balanced Search Trees**

Height-Balanced Trees (AVL), Weight-Balanced Trees, (a, b)- and B-Trees Red-Black Trees and Trees of Almost Optimal Height, Top-Down Rebalancing for Red-Black Trees, Trees with Partial Rebuilding: Amortized Analysis

UNIT II

Splay Trees: Adaptive Data Structures, Skip Lists: Randomized Data Structures ,Joining and Splitting Balanced Search Trees, m-way search tree: insertion, deletion, performance, B-Trees-searching, insertion, deletion, performance. Overview of B*- Trees and B+-Trees

UNIT III**Tree Structures for Sets of Intervals**

Segment Trees, Trees for the Union of Intervals, Trees for Sums of Weighted Intervals, Trees for Interval-Restricted Maximum Sum Queries, Orthogonal Range Trees.

UNIT IV**Heaps**

Balanced Search Trees as Heap, Array-Based Heaps (Priority /queues),Heap-Ordered Trees and Half-Ordered Trees, Leftist Heaps, Skew Heaps, Binomial Heaps, Heaps of Optimal Complexity, Double-Ended Heap Structures and Multidimensional Heaps,

UNIT V**Hash Tables 374**

Basic Hash Tables and Collision Resolution(dictionaries), Perfect Hash Functions, Hash Trees, Extendible Hashing

UNIT VI**Data Structures for Strings**

Tries and Compressed Tries, Dictionaries Allowing Errors in Queries, Suffix Trees , Suffix Arrays

TEXT BOOKS :

Will be given later

**Syllabus for B. Tech. II Year I semester
Computer Science and Engineering**

Code: 101IT02 **MATHEMATICAL FOUNDATION OF
COMPUTER SCIENCE**

L	T	P/D	C
3	1	-	3

UNIT – I: Mathematical and Predicate Logic

Statements and Notations, Connectives, Well Formed Formulae, Truth Tables, Tautology, Predicate Logic, Free & Bound Variables, Rules of Inference, Consistency, Proof of Contradiction.

UNIT – II: Relations and Functions

Properties of Binary Relations, Equivalence Relations, POSETs, Hasse Diagrams, Functions, Inverse Functions, Recursive Functions.

UNIT – III: Algebraic Structures

Algebraic Systems Examples and General Properties, Semi-groups and Monoids, Groups, Subgroups.

UNIT IV: Elementary Combinatorics

Permutations, Combinations, Combinations with Repetitions, Principle of Inclusion-Exclusion.

UNIT – V: Recurrence Relations

Generating Functions, Recurrence Relations, Method of Generating Functions.

UNIT – VI: Graph Theory

Representation of Graphs, Euler and Hamiltonian Graphs, Planar Graphs, Graph Colouring.

TEXT BOOKS

1. Joe L. Mott, Abraham Kandel, Theodore P. Baker, *Discrete Mathematics for Computer Scientists & Mathematicians*, Second Edition, PHI, 2005.
2. Bernard Kolman, Robert C. Busby, Sharon Cutler Ross, *Discrete Mathematical Structures*, Fourth Edition, PHI, 2002.

REFERENCES

1. Tremblay J. P. & Manohar R., *Discrete Mathematical Structures with applications to Computer Science*, TMH, 2006.
2. Dr. D. S. Chandrasekharaiah, *Mathematical Foundations of Computer Science (Discrete Structures)*, Prism, 2006.
3. Ralph P. Grimaldi and B. V. Ramana, *Discrete and Combinatorial Mathematics – An Applied Introduction*, Fifth Edition, Pearson, 2006.

**Syllabus for B. Tech. II Year I semester
Computer Science and Engineering**

Code: 101MA10 PROBABILITY AND STATISTICS FOR IT

L	T	P/D	C
3	1	-	3

UNIT – I

Probability Sample spaces and Events – Counting – Probability – The Axioms of probability – some Elementary Theorems – Conditional probability – Baye’s Theorem .

UNIT – II

Probability Distributions Random variable – Discrete and continuous – Distribution – Distribution function – Distributions, Expectation. Binomial, Poisson and normal distributions – related properties.

UNIT – III

Sampling Distributions: Populations and samples – Sampling distribution of the Mean (known) – The sampling distribution of the mean (unknown), proportions, sums and differences . Applications of central Limit Theorem

UNIT – IV

Estimation: Point estimation – Interval estimation – Bayesian estimation

Inferences Concerning Means And Proportions : Tests of Hypotheses, type –I and type-II errors, , Hypotheses concerning means and proportions for large size samples

UNIT – V

Test of significance-Student t-test, F-tests, χ^2 test, goodness of fit, independence of attributes.

UNIT – VI

Linear Programming: Introduction, Formulation of LPP ,Graphical method, Simplex method, Big-M method, Two Phase Method, Duality Principle.

TEXT BOOKS

1. Higher Engineering Mathematics, B.S. Grewal , Khanna Publications, New Delhi.
2. Engineering Mathematics, B.V.Ramana, Tata McGraw Hill Publishing Company Ltd.

REFERENCES

1. Probability and Statistics for Engineers: Miller and John E. Freund, PHI Publishers, 6th Edition.
2. Probability and Statistics –M.Venkata Krishna & G.Shankar Rao, BS Publications
3. Fundamentals of Mathematical Statistics: Gupta and Kapoor – S. Chand and Co.
4. Probability and Statistics for Engineers- Walpole and Meyer.

Syllabus for B. Tech. II Year I semester
Computer Science and Engineering
Code:101EN73 FUNCTIONAL AND COMMUNICATIVE
WRITTEN ENGLISH

L	T	P/D	C
-	-	2	2

Course Description

This course provides a platform to the learners to practice written communication to excel and sustain in the industry. It emphasizes on the techniques of collecting, organizing, and presenting the information in formal settings. The focus is also on the use of appropriate vocabulary using different formats and templates to communicate in different professional situations.

Learning Objectives**By the end of this course, students will be equipped with:**

1. Good written communication skills
2. Will perform all written tasks with clarity and coherence
3. Effective written employment communication
4. Report Writing and documentation skills
5. Become adept using electronic communication

UNIT I**An introduction to Technical writing**

- The writing process: an overview
- The process in practice
- Objectives in Technical Writing

UNIT II**Correspondence**

- Memos
- Letters
- Résumé

UNIT III**Visual Appeal**

- Document Design
- Graphics
- Three dimensional graphics
- Criteria for effective graphics
- Types of graphics

UNIT IV**Electronic Communication**

- The Internet- The “Information Superhighway”
- The Internet – A Company’s Internal Web
- The Extranet – A Web within a Web

UNIT V**Technical Applications**

- Technical Description
- Instructions and User’s Manuals

UNIT VI**Report Strategies**

- The Summary
- Reports
- Proposals

TEXTBOOK

1. Technical Writing: Process and Product by Sharon J Gerson; Fifth edition. Pearson Publishers.

REFERENCES

1. Strategies for Engineering Communication: Stevenson Susan and Steve Whitmore: Wiley, India.
2. Technical Report Writing Today
3. How to build a better vocabulary –Nurnberg Maxwell & Morris Rosenblum: Grand Central Publishing
4. Six weeks to words of power –Funk Wilfred: W.R.Goyal Publishers & Distributors
5. Word power made easy – Norman Lewis
6. Norman Lewis, How to read better and faster: W.R.Goyal Publishers, New Delhi

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Syllabus for B. Tech. II Year I semester
Computer Science and Engineering
Code:101EE91 **BASIC ELECTRICAL LAB**

L	T	P/D	C
-	-	3/2	1

The following experiments are required to be conducted as compulsory experiments:

1. Swinburne's test on D.C. shunt machine. (Predetermination of efficiency of a given D.C. Shunt machine working as motor and generator.)
2. OC and SC tests on single phase transformer (Predetermination of efficiency and regulation at given power factors)
3. Brake test on 3-phase Induction motor (Determination of performance characteristic)
4. Regulation of alternator by Synchronous impedance method. In addition to the above four experiments, any one of the experiments from the following list is required to be conducted:
5. Speed control of D.C. Shunt motor by
 - a) Armature Voltage control
 - b) Field flux control method
6. Brake test on D.C. Shunt Motor

**Syllabus for B. Tech. II Year I semester
Computer Science and Engineering
BASIC ELECTRONICS LAB**

Code:101EC84

L	T	P/D	C
-	-	3/2	1

1. Transistor CE Characteristics (Input and Output)
2. Full wave Rectifier with and without filters.
3. CE Amplifiers.
4. RC Phase Shift Oscillator
5. Class A Power Amplifier
6. Micro Processor

**Syllabus for B. Tech. II Year I semester
Computer Science and Engineering
Code: 101CS72 **ADVANCED DATA STRUCTURES LAB****

L	T	P/D	C
-	-	3	2

Week1 :

Write a program to perform the following operations for AVL trees

- a) Insertion
- b) Deletion

Week2 :

Write a program to create red-black trees.

- a) Creation
- b) Insertion
- c) Deletion

Week3 :

Write a program to create B* and B+ trees

- a) Creation
- b) Insertion
- c) Deletion

Week 4:

Write a program to create Splay trees and Skip lists

Week 5 :

Write a program to create R-trees. And R* trees

Week 6 :

Write a program to create segment trees

Week 7:

Write a program to create Orthogonal range trees

Week 8 :

Write a program to create Priority queues

Week 9 :

Write a program to create BST as Heaps

Week 10

Write a program to create Double-Ended Heap structures

Week 11

Write a program to create extendible hashing

Week 12 :

Write a program to create tries and suffix trees

**Syllabus for B. Tech. II Year II semester
Computer Science and Engineering
ENVIRONMENTAL STUDIES**

Code:101CH07

L	T	P/D	C
3	1	-	3

UNIT I: ECOLOGY AND ECOSYSTEMS: Component of nature, Definition, S Scope and importance, Eco system Definition and concept, Structure and function, Food chain and food web, Ecological pyramids, Biogeo chemical cycles, Ecological niche and succession, Classification (forest, grass land, desert, pond, river, marine, estuarine, wet lands). Environmental organizations (UNEP, WWF, IPCC, MOEN, TERI), Environmental activists- Sunderlal Bahuguna , Baba Amte, Anna Hazare, Medha Patkar, Arundathi Roy, AL Gore.

UNIT II: METAL IONS IN BIOLOGICAL SYSTEM: Nitrogen Fixation, Oxygen transport (Hemo globin, Mayoglobin), Electron transfer reaction, Porphyrines(Chlorophil), Metallo enzymes, photo system (PSI, PS II).

UNIT III: ENVIRONMENTAL CHEMISTRY: Atmosphere definition, layers, state(weather and climate) acid rain, Green house effect, PAN, Smog, Preliminary concepts of climate change, Ozone layer depletion, Seasons in India, Monsoons, El Nino, ENSO, Global warming, Kyoto protocol, Montreal Protocol, Carbon Trading, Hydrosphere-definition, Types (surface and ground water), Distribution, Water conservation, Use and over exploitation, Floods, Drought, dams-benefits and problems, Conflicts over water, Litho sphere- chemical composition of earth (core,montle,crust), Minerals resources- Environmental Effects of mining, Rocks and Soils, Plate tectonics.

UNIT IV: BIO DIVERSITY AND ITS CONSERVATION: Introduction, Definition, Genetic species and Eco system diversity, Value of bio diversity, Hot spots, Threats to bio diversity, Conservation strategies: Insitu and Exsitu conservation, Biological Diversity Act 2002, Wild life Protection Act.

UNIT V: ENVIRONMENTAL POLLUTION: Air pollution definition, causes, Effects and Control measures, Environment protection Act, Air (prevention and control of pollution) Act 1981, Case study: Bhopal gas tragedy, London Smog, Chernobyl disaster, Water pollution- Definition, types, Characteristics of domestic and industrial effluents-water quality parameters, BOD, COD, DO, Drinking Water treatment and Standards.

UNIT VI: POLLUTION CONTROL: Waste water treatment, Case studies: Ganga water pollution, Mercury pollution- Minamatabay disease, Water(prevention and control of pollution) Act 1974, Definition, Causes, Effect and Control measures: Soil pollution, Noise Pollution and Marine Pollution, Waste management- Solid waste Hazardous waste and E-Waste Management, Disaster Management Floods, Earth quakes and Cyclones.

TEXT BOOKS

1. INTRODUCTION TO ENVIRONMENTAL SCIENCE –by Dr.Y.Anjaneyulu, B.S.Publications 2004.
2. ENVIRONMENTAL STUDIES by Erach bharucha 2005, University grants commission, University press.
3. ENVIRONMENTAL SCIENCES-A NEW APPROACH by Purohit, shammi and Agarwal, Agrobios (India) 2004.
4. ENVIRONMENTAL SCIENCES-A Text book for Undergraduate by Dr. K.Mukkanti, S. Chand & Company Ltd., 2010.

Code:101MB01

**Syllabus for B. Tech. II Year II semester
Computer Science and Engineering
MANAGERIAL ECONOMICS
& FINANCIAL ANALYSIS**

L	T	P/D	C
3	1	-	3

UNIT – I: INTRODUCTION TO MANAGERIAL ECONOMICS:

Definition, Nature and Scope of Business Economics– Demand Analysis: Demand Determinants, Law of Demand and its exceptions. Elasticity of Demand and Demand Forecasting.

UNIT – II: THEORY OF PRODUCTION AND COST ANALYSIS:

Production Function – Isoquants and Isocosts, Internal and External Economies of Scale, Laws of returns. Cost Analysis: Cost concepts, different types of costs, cost control and cost efficiency. Break-even Analysis (BEA)- Determination of Break-Even Point (simple problems).

UNIT – III: INTRODUCTION TO MARKETS:

Market structures: Types of competition, Features of Perfect competition, Monopoly and Monopolistic Competition. Pricing strategies, transfer pricing and performance measurement, Price-Output Determination in case of Perfect Competition and Monopoly. Business Environment: forms of Business organization, Features of Joint Stock Company, Public Enterprises and their types. Liberalization, Globalization and Privatization (LPG).

UNIT – IV: FUNDAMENTALS OF FINANCIAL ACCOUNTING:

Concepts and conventions, principles of Double-Entry, Book Keeping, Journal, Ledger, Trial Balance, Final Accounts - Trading Account, Profit and Loss Account and Balance Sheet with simple adjustments.

UNIT – V: CAPITAL BUDGETING TECHNIQUES:

Nature and scope of Capital Budgeting, Methods of Capital Budgeting: Traditional methods and Discounting Cash Flow methods.

UNIT – VI: RATIO ANALYSIS:

Introduction to Ratio analysis – Leverage ratios – Liquidity ratios – Turnover ratios – Profitability ratios, Du-point chart. (Simple problems)

TEXT BOOKS

1. Aryasri: Managerial Economics and Financial Analysis, 2/e, TMH, 2005.

REFERENCES

1. Ambrish Gupta, Financial Accounting for Management, Pearson Education, New Delhi.
2. H. Craig Peterson & W. Cris Lewis, Managerial Economics, PHI, 4th Ed.
3. Suma Damodaran, Managerial Economics, Oxford University Press.
4. Lipsey & Chrystel, Economics, Oxford University Press.

**Syllabus for B. Tech. II Year II semester
Computer Science and Engineering
OOP THROUGH JAVA**

Code: 101CS03

L	T	P/D	C
3	1	-	3

UNIT-I

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

UNIT-II

Inheritance – Definition, single inheritance, benefits of inheritance, Member access rules, super class, polymorphism- method overriding, using final with inheritance, abstract classes, Base class object.

UNIT-III

Interfaces :definition, variables and methods in interfaces, differences between classes and interfaces, usage implements and extends keyword, an application using interfaces, uses of interfaces. Packages: Definition, types of packages, Creating and importing a user defined package

UNIT-IV

Exception handling -exception definition, benefits of exception handling, exception hierarchy, usage of try, catch, throw, throws and finally, built in exceptions, creating own exception sub classes.

Multi-Threading:-Thread definition, types of multitasking, uses of multitasking, creating threads using Thread class and Runnable interface, synchronizing threads, thread life cycle .

UNIT-V

Advantages of GUI over CUI, The AWT class hierarchy, Component, Frame, Event handling:

Delegation event model, closing a Frame, mouse and keyboard events, Adapter classes.

user interface components- labels, button, scrollbars, text components,

check box, check box groups, choices, lists panels – scrollpane, menubar, graphics, layout

manager – layout manager types – boarder, grid, flow, card and grid bag.

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

UNIT-VI

Networking – Basics of network programming, addresses, ports, sockets, simple client server program, multiple clients, sending file from server to client, parallel search server.

TEXT BOOKS

1. Java; the complete reference, 6th edition, Herbert Schildt, TMH.
2. Introduction to Java programming 6th edition, Y. Daniel Liang, Pearson Education.

REFERENCES

1. Core Java 2, Vol 1, Fundamentals, Cay.S.Horstmann and Gary Cornell, seventh Edition, Pearson Education.
2. Core Java 2, Vol 2, Advanced Features, Cay.S.Horstmann and Gary Cornell, Seventh Edition, Pearson Education

**Syllabus for B. Tech. II Year II semester
Computer Science and Engineering
DATA COMMUNICATIONS**

Code:101EC32

L	T	P/D	C
3	1	-	3

UNIT - I

Introduction to Data Communications; Networks, the Internet, protocols and standards. Network models: layered tasks, the OSI model, Layers in the OSI model, TCP/IP protocol suite, addressing

UNIT – II

Physical layer and media: Data and signals: Analog and digital, periodic analog signals, digital signals, Transmission impairment, Data rate limits, Performance.

Digital transmission: Digital – to – digital conversion, Analog – to – digital conversion, Transmission modes.

Analog transmission: Digital – to – analog conversion, Analog – to – analog conversion.

Bandwidth utilization: Multiplexing and spreading; Multiplexing, Spread spectrum

UNIT– III

Transmission media: Guided media, and unguided media

Switching: Circuit – switched networks, Datagram networks, Virtual – circuit networks, Structure of a switch.

UNIT– IV

Data link layer: error detection and correction; Introduction, Block coding, Linear block codes, Cyclic codes, Checksum

Data link control: Framing, Flow and error control, Protocols, Noiseless channels, Noisy channels, HDLC, Point – to – point protocol

UNIT – V

Multiple access: Random access, Controlled access, Channelization, Wired LANs: Ethernet: IEEE standards, Changes in the standard, Fast Ethernet, Gigabit Ethernet.

Wireless LANs: IEEE 802.11, Bluetooth, cellular telephone and satellite networks.

UNIT – VI

Connecting LANs, backbone networks, and virtual LANs: Connecting devices, Backbone networks, Virtual LANs.

Virtual Circuit Networks: Frame Relay, ATM, and ATM LANs.

TEXT BOOKS

Data Communications and Networking, Behrouz A Forouzan, Fourth Edition 2006, Tata McGraw Hill, New Delhi, India.

REFERENCES

Data Communications, William Stallings, Seventh edition.

Syllabus for B. Tech. II Year II semester
Computer Science and Engineering
Code:101EM08 **COMPUTER ORGANIZATION &**
MICROPROCESSOR AND INTERFACING

L	T	P/D	C
3	1	-	3

UNIT - I

BASIC STRUCTURE OF COMPUTERS : Computer Types, Functional units, Basic operational concepts, Bus structures, Software, Performance, multiprocessors and multi computers. Data Representation. Fixed Point Representation. Floating – Point Representation. Error Detection codes. Register Transfer language, Register Transfer Bus and memory transfers, Arithmetic Microoperations, logic micro operations, shift micro operations, Arithmetic logic shift unit. Instruction codes. Computer Registers – Instruction cycle. memory – Reference Instructions. Input – Output and Interrupt. STACK organization. Instruction formats, Addressing modes. DATA Transfer and manipulation. Program control. Reduced Instruction set computer.

UNIT - II

CONTROL UNIT DESIGN & ARITHMETIC & LOGIC OPERATIONS : Control memory, Address sequencing, microprogram example, design of control unit Hardwired control, Microprogrammed control. Addition and subtraction, multiplication Algorithms, Division Algorithms, Floating – point Arithmetic operations. Decimal Arithmetic unit Decimal Arithmetic operations, AND, OR, NOT & XOR operations.

UNIT - III

INPUT-OUTPUT ORGANIZATION & MEMORY SYSTEM: Peripheral Device, Input-Output Interface, Modes of Data Transfer, Priority Interrupt Direct memory Access, Input-Output processor (IOP) Serial communication. Introduction to standard serial communication protocols like RS232, USB, IEEE1394. Basic concepts semiconductor RAM memories. Read-only memories Cache memories performance considerations, Virtual memories, secondary storage & Memory management and MMU.

UNIT - IV

An over view of 8085, Architecture of 8086 Microprocessor. Special functions of General purpose registers. 8086 flag register and function of 8086 Flags. Addressing modes of 8086. Instruction set of 8086. Assembler directives, simple programs, procedures, and macros.

UNIT - V

Assembly language programs involving logical, Branch & Call instructions, sorting, evaluation of arithmetic expressions, string manipulation. Pin diagram of 8086-Minimum mode and maximum mode of operation. Timing diagram. Memory interfacing to 8086 (Static RAM & EPROM).

UNIT - VI

8255 PPI – various modes of operation and interfacing to 8086. Interfacing Keyboard, Displays, Stepper Motor and actuators. D/A and A/D converter interfacing. Interrupt structure of 8086. Vector interrupt table. Interrupt service routines. Introduction to DOS and BIOS interrupts. 8259 PIC Architecture and interfacing cascading of interrupt controller and its importance.

TEXT BOOKS

- Computer Systems Architecture – M.Moris Mano, IIIrd Edition, Pearson/PHI.
- Microprocessors and interfacing – Douglas V. Hall, TMH, 2nd Edition, 1999.

REFERENCES

1. Computer Organization and Architecture – William Stallings Sixth Edition, Pearson/PHI.
2. Micro computer systems, The 8086/8088 Family Architecture, Programming and Design – Y.Liu and G.A. Gibson, PHI, 2nd Edition.

Syllabus for B. Tech. II Year II semester
Computer Science and Engineering
SOFTWARE ENGINEERING

Code: 101CS04

L	T	P/D	C
3	1	-	3

UNIT I

Introduction to Software Engineering : The evolving role of software, Changing Nature of Software, Software myths. A Generic view of process : Software engineering- A layered technology, a process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models. Process models : The waterfall model, Incremental process models, Evolutionary process models, The Unified process.

UNIT II

Software Requirements : Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document. Requirements engineering process : Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management.

UNIT III

System models : Context Models, Behavioral models, Data models, Object models, structured methods. 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 IV

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. 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.

UNIT V

Product metrics : Software Quality, Metrics for Analysis Model, Metrics for Design Model, Metrics for source code, Metrics for testing, Metrics for maintenance. Metrics for Process and Products : Software Measurement, Metrics for software quality. Risk management : Reactive vs. Proactive Risk strategies, software risks, Risk identification, Risk projection, Risk refinement, RMMM, RMMM Plan.

UNIT VI

Quality Management : Quality concepts, Software quality assurance, Software Reviews, Formal technical reviews, Statistical Software quality Assurance, Software reliability, The ISO 9000 quality standards.

TEXT BOOKS

1. Software Engineering, A practitioner's Approach- Roger S. Pressman, 6th edition. McGrawHill International Edition.
2. Software Engineering- Sommerville, 7th edition, Pearson education.

REFERENCES

1. Software Engineering- K.K. Agarwal & Yogesh Singh, New Age International Publishers
2. Software Engineering, an Engineering approach- James F. Peters, Witold Pedrycz, John Wiely.
3. Systems Analysis and Design- Shely Cashman Rosenblatt, Thomson Publications.
4. Software Engineering principles and practice- Waman S Jawadekar, The McGraw-Hill Companies.

Syllabus for B. Tech. II Year II semester
Computer Science and Engineering
Code:101EN74 EFFECTIVE ENGLISH COMMUNICATION
AND SOFT SKILLS

	L	T	P/D
C	-	-	2
2			

Course Description

This course empowers the students for career opportunities, thus enhancing professional and personal growth. Effective communication and interpersonal skills are crucial to increase employment opportunities and to compete successfully in the business environment.

Soft skills provide students with a strong conceptual and practical framework to build, develop and manage teams. They play an important role in the development of the students' overall personality, thereby enhancing their career prospects. The soft skills training provides strong practical orientation to the students and helps them in building and improving their skills in communication, the effective use of English, business correspondence, presentations, team building, leadership, time management, group discussions, interviews, and inter-personal skills. This training also helps students in career visioning and planning, effective resume writing and dealing with placement consultants and headhunters.

The training is conducted in a very informal, interesting, and interactive manner, which gives ample scope for the students to interact with each other and face a wide variety of issues, topics, and situations that they are likely to come across as entry-level managers.

Learning Objectives:

By the end of the soft skills training program, the students will be able to:

- Develop effective communication skills (spoken and written).
- Develop effective presentation skills.
- Conduct effective business correspondence and prepare business reports which produce results.
- Become self-confident individuals by mastering inter-personal skills, team management skills, and leadership skills.
- Develop all-round personalities with a mature outlook to function effectively in different circumstances.
- Develop broad career plans, evaluate the employment market, identify the organizations to get good placement, match the job requirements and skill sets.
- Take part effectively in various selection procedures adopted by the recruiters.

UNIT – I	Soft Skills
UNIT –II	Body Language
UNIT –III	Group Discussion
UNIT – IV	Interview Skills
UNIT – V	Etiquette and Manners
UNIT – VI	Developing Positive Attitude

TEXT BOOKS

1. Soft Skills: Know Yourself and know the World by Dr.K.Alex
- S. Chand Publishing

REFERENCES

1. Prof. Kevnair's - Fluency Dictionaries
2. Kleiser Grenville-Common Errors in English:Aph publishing corporation
3. Shaw Harry and Collins- Errors in English Language and ways to correct them.
4. Funk Wilfred-Six Weeks to Words of Power: W.R. Goyal Publishers & Distributors.
5. Body Language – Your success Mantra by Shalini Verma, S Chand, 2006

**Syllabus for B. Tech. II Year II semester
Computer Science and Engineering
OOP THROUGH JAVA LAB**

Code: 101CS74

L	T	P/D	C
-	-	3	2

1

- A) Write a program to print prime numbers up to a given number.
 B) Write a program to print roots of a quadratic equation $ax^2+bx+c=0$.
 C) Write a program to print Fibonacci sequence up to a given number.
 D) Write a program to print the following format.

```

*
 * *
* * *
* * * *
```

2.

- A) Define a class to represent a bank account and include the following members Instance variables:
 (i)Name of depositor
 (ii)Account No
 (iii)Type of account
 (iv)Balance amount in the account

Instance Methods:

- (i) To assign instance variables(Constructors-Zero argument and parameterized)
 (ii) To deposit an amount
 (iii) To withdraw amount after checking the balance
 (iv) To display name and address

Define ExecuteAccount class in which define main method to test above class.

- B) In the above account class , maintain the total no. of account holders present in the bank and also define a method to display it. Change the main method appropriately.
 C) In main method of ExecuteAccount class , define an array to handle five accounts.
 D) In Account class constructor ,demonstrate the use of “this” keyword.
 E) Modify the constructor to read data from keyboard.
 F) Overload the method deposit() method (one with argument and another without argument)
 G) In Account class , define set and get methods for each instance variable.

Example:

For account no variable, define the methods
 getAccountNo() and setAccountNo(int accno)

In each and every method of Account class , reading data from and writing data to instance variables should be done through these variables.

3.

- A) Define Resister class in which define the following members:
 Instance variables:
 resistance
 Instance Methods:
 giveData():To assign data to the resistance variable
 displayData(): To display data in the resistance variable
 constructors

Define subclasses for the Resistor class called SeriesCircuit and ParallelCircuit in which define methods : calculateSeriesResistance() and calculateParallelResistance() respectively.Both the methods should take two Resistor objects as arguments and return Resistor object as result.In main method , define another class called ResistorExecute to test the above class.

- B) Modify the above two methods which should accept array of Resistor objects as argument and return Resistor object as result.
- C) Write a program to demonstrate method overriding.
- D) Write a program to demonstrate the uses of “super” keyword (three uses)
- E) Write a program to demonstrate dynamic method dispatch(i.e .Dynamic polymorphism).
- 4)
- A) Write a program to check whether the given string is palindrome or not.
- B) Write a program for sorting a given list of names in ascending order.
- C) Write a program to count the no. of words in a given text.
- 5)
- A) Define an interface “GeomtricShape” with methods area() and perimeter() (Both method’s return type and parameter list should be void and empty respectively.
Define classes like Triangle, Rectangle and Circle implementing the “GeometricShape” interface and also define “ExecuteMain” class in which include main method to test the above class
- B) Define a package with name “sortapp” in which declare an interface “SortInterface” with method sort() whose return type and parameter list should be void and empty. Define “subsortapp” as subpackage of “sortapp” package in which define class “SortImpl” implementing “SortInterface” in which sort() method should print a message linear sort is used.
Define a package “searchingapp” in which declare an interface “SearchInterface” with search() method whose return type and parameter list should be void and empty respectively.
Define “searchingimpl” package in which define a “SearchImpl” class implementing “SearchInterface” defined in “searchingapp” package in which define a search() method which should print a message linear search is used.
Define a class ExecutePackage with main method using the above packages(classes and its methods).
- 6) Modify the withdraw() method of Account class such that this method should throw “InsufficientFundException” if the account holder tries to withdraw an amount that leads to condition where current balance becomes less than minimum balance otherwise allow the account holder to withdraw and update the balance accordingly.
- 7)
- A) Define two threads such that one thread should print even numbers and another thread should print even numbers.
- B) Modify the Account class to implement thread synchronization concept.
- C) Define two threads such that one thread should read a line of text from text file and another thread should write that line of text to another file.(Thread communication example).
- D) Write a program to implement thread priority.
- 8) Design the user screen as follows and handle the events appropriately.

Add Window

First Number

Second Number

Result

ADD

SUBTRACT

9)Write a program to simulate a calculator

10)Write a program to create feedback form

Feedback Form

Date: 2/1/2020

Faculty Name: Vengal Rao

Subject: DSP
Sem

Year/Semester: III/IV 1st

Optional

Student Name : FORMTEXT

Roll Number: FORMTEXT

Branch : FORMDROPDOWN

Review Guidelines					
Complete this peer review, using the following scale: NA = Not Applicable 1 = Unsatisfactory 2 = Marginal 3 = Meets Requirements 4 = Exceeds Requirements 5 = Exceptional					
Evaluation					
	(5) = Exceptional	(4) = Exceeds Requirements	(3) = Meets Requirements	(2) = Marginal	(1) = Unsatisfactory
Required Skills And Knowledge in the Class	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX
Response To Questions	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX
Ability To Learn And Teach New Skills	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX
English Speaking Skills	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX
Making Students To Involve In The Class	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX
The Way Syllabus is Covered	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX

11) Develop a simple client server program (one way communication)

12) Develop a client that sends data to the server and also develop a server that sends data to the client (two way communication)

13) Develop a client/server application in which client reads a file name from keyboard and sends the file name to the server, and server will read the file name from client and send the file contents to the client.

**Syllabus for B. Tech. II Year II semester
Computer Science and Engineering
Code:101EM74
MICRO PROCESSORS
AND INTERFACING LAB**

L	T	P/D	C
-	-	3	2

Introduction to MASM/TASM Assembler

Familiarization with 8086 Kit

Experiment I, II

Write ALP and execute the program to

1. Add two 8-bit numbers
2. Add two 16-bit numbers
3. Add two 32-bit numbers
4. Subtract two 8-bit numbers
5. Subtract two 16-bit numbers
6. Subtract two 32-bit numbers
7. Multiply two 8-bit numbers
8. Multiply two 16-bit numbers
9. Perform 8-bit division
10. Perform 16-bit division
11. Find square of a number
12. Find cube of a number
13. Exchange two numbers

Experiment III

Write ALP and execute the program to

14. Add a given series of numbers
15. Find average of a given series of numbers
16. Add a constant to a series of values in memory & store the result back in memory
17. Find sum of squares of a given series of numbers
18. Find sum of cubes of a given series of numbers
19. Display squares of a given series of numbers in memory

Experiment IV

Write ALP and execute the program to

20. Display cubes of a given series of numbers in memory
21. Find factorial of a given number
22. Find largest number from a given series of numbers
23. Find smallest number from a given series of numbers

Experiment V

Write ALP and execute the program to

24. Sort a series of given numbers in ascending order
25. Sort a series of given numbers in descending order
26. Find whether the given number is even or odd number
27. Find the no. of odd & even numbers from a given series of numbers

Experiment VI

Write ALP and execute the program to

28. Find sum of all even no.s from a given series of even and odd numbers
29. Find sum of all odd no.s from a given series of even and odd numbers
30. Find GCD of two given numbers
31. Find LCM of two given numbers
32. Perform one byte BCD addition
33. Perform one byte BCD subtraction

Experiment VII

Write ALP and execute the program to

34. Produce packed BCD from two ASCII characters
35. Convert decimal number to binary
36. Convert a binary number to a decimal number
37. Add two 3 x 3 matrices

Experiment VIII

Write ALP and execute the program to

38. Display Fibonacci series
39. Move a string of data bytes from one location to another
40. Concatenate two strings
41. Reverse a given string

Experiment IX

Write ALP and execute the program to

42. Compare two strings
43. Find length of a given string
44. Find whether the given byte is in the string or not
45. Insert an element in a given string

Experiment X

Write ALP and execute the program to

46. Display a message on the screen of a microcomputer
47. Fill the screen with any character pressed from the keyboard

Experiment XI

Write ALP and execute the program to

48. Interface a stepper motor
49. Generate a triangular wave

Experiment XII

Write ALP and execute the program to

50. Generate a square wave
51. Generate a saw tooth waveform

Experiment XIII

Write ALP and execute the program to

52. Interface a keyboard
53. Interface seven segment display

**COURSE STRUCTURE
AND
DETAILED SYLLABUS**

for

B.Tech – III and IV Year

in

COMPUTER SCIENCE AND ENGINEERING

(Applicable from the Academic Year 2010-2011)



SREENIDHI INSTITUTE OF SCIENCE & TECHNOLOGY
(An Autonomous Institution approved by UGC and affiliated to JNTUH)
Yamnapet, Ghatkesar, R.R.District-501 301.

SREENIDHI INSTITUTE OF SCIENCE & TECHNOLOGY (AUTONOMOUS)
B. Tech Computer Science & Engineering

I YEAR I SEMESTER COURSE STRUCTURE

Sl. No	Code	Subject	L	T	P/D	C	Max. Marks	
							Int.	Ext.
1.	101EN01	English – I	3	-	-	3	30	70
2.	101MA01	Engineering Mathematics – I	3	1	-	3	30	70
3.	101PH01	Engineering Physics – I	3	1	-	3	30	70
4.	101CH01	Engineering Chemistry	2	1	-	2	30	70
5.	101IT01	Computer Programming	3	1	-	3	30	70
6.	101ME01	Engineering Drawing - I	2	-	4	4	30	70
7.	101EN71	English Language Lab – I	-	-	2	1	25	50
8.	101PH71	Engineering Physics Lab-I	-	-	3/2	1	25	50
9.	101CH71	Engineering Chemistry Lab	-	-	3/2	1	25	50
10.	101IT71	Computer Programming Lab	-	-	3	2	25	50
11.	101ME71	Engineering workshop-I	-	-	3/2	1	25	50
12.	101IT72	IT workshop – I	-	-	3/2	1	25	50
Total :			16	4	15	25	330	720

I YEAR II SEMESTER COURSE STRUCTURE

Sl. No.	Code	Subject	L	T	P/D	C	Max. Marks	
							Int.	Ext.
1.	101EN02	English-II	2	1	-	2	30	70
2.	101MA03	Engineering Mathematics – II	3	1	-	3	30	70
3.	101PH02	Engineering Physics – II	3	1	-	3	30	70
4.	101CS01	Data Structures and C++	3	1	-	3	30	70
5.	101ME02	Engineering Drawing – II	1	-	3	2	30	70
6.	101EE41	Basic Electrical Engineering	3	2	-	3	30	70
7.	101ME04	Basic Mechanical Engineering	4	-	-	4	30	70
8.	101EN72	English Language Lab – II	-	-	2	1	25	50
9.	101CS71	Data structures and C++ Lab	-	-	3	2	25	50
10	101PH72	Engineering Physics Lab – II	-	-	3/2	1	25	50
11	101IT73	IT workshop – II	-	-	3/2	1	25	50
Total :			19	6	11	25	310	790

II YEAR I SEMESTER COURSE STRUCTURE

Sl. No	Code	Subject	L	T	P/D	C	Max. Marks	
							Int.	Ext.
1.	101MA07	Numerical Methods & Partial Differential Equations	3	2	-	3	30	70
2.	101EC06	Switching Theory and Logic Design	3	1	-	3	30	70
3.	101EC02	Basic Electronics	3	1	-	3	30	70
4.	101CS02	Advanced Data Structures	3	2	-	3	30	70
5.	101IT02	Mathematical Foundations of Computer Science	4	1	-	4	30	70
6.	101MA10	Probability And Statistics For Computer Engineers	3	2	-	3	30	70
7.	101EN73	Functional and Communicative Written English	-	-	3	2	25	50
8.	101EE91	Basic Electrical Engineering Lab	-	-	3/2	1	25	50
9.	101EC84	Basic Electronics Engineering Lab	-	-	3/2	1	25	50
10.	101CS72	Advanced Data Structures Lab	-	-	3	2	25	50
Total :			19	9	9	25	280	620

II YEAR II SEMESTER COURSE STRUCTURE

Sl. No	Code	Subject	L	T	P/D	C	Max. Marks	
							Int.	Ext.
1.	101CH07	Environmental Studies	3	1	-	3	30	70
2.	101MB01	Managerial Economics & Financial Analysis	3	1	-	3	30	70
3.	101CS03	OOP through Java	3	1	-	3	30	70
4.	101EC32	Data Communications	3	1	-	3	30	70
5.	101EM08	Computer Organization & Microprocessor and Interfacing	3	1	-	3	30	70
6.	101CS04	Software Engineering	3	1	-	3	30	70
7.	101EN74	Effective English Communication and Soft Skills	-	-	3	2	25	50
8.	101CS73	Comprehensive Viva I	-	-	-	1	-	50
9.	101CS74	OOP through Java Lab	-	-	3	2	25	50
10.	101EM74	Microprocessor and Interfacing Lab	-	-	3	2	25	50
Total :			18	6	9	25	255	620

III YEAR I SEMESTER COURSE STRUCTURE

Sl. No	Code	Subject	L	T	P/D	C	Max. Marks	
							Int.	Ext.
1.	101BT37	Human values, Ethics and IPR	2	-	-	2	30	70
2.	101IT03	Data Base Management Systems	3	1	-	3	30	70
3.	101IT04	Design and Analysis of Algorithms	3	1	-	3	30	70
4.	101CS05	Computer Networks	3	1	-	3	30	70
5.	101MB02	Management Science	3	1	-	3	30	70
6.	101CS06	Object Oriented Analysis & Design	3	1	-	3	30	70
7.	101MA71	Logical Reasoning – 1	-	-	2	2	25	50
8.	101CS75	Group Project	-	-	3	1	25	50
9.	101IT75	Data Base Management Systems Lab	-	-	3	2	25	50
10.	101CS76	Object Oriented Analysis & Design Lab	-	-	3	2	25	50
Total :			17	5	11	24	280	620

III YEAR II SEMESTER COURSE STRUCTURE

Sl. No	Code	Subject	L	T	P/D	C	Max. Marks	
							Int.	Ext.
1.		Open Elective - I	2	2	-	2	30	70
2.	101CS07	Operating Systems	4	1	-	4	30	70
3.	101CS08	Automata Theory and Compiler Design	3	1	-	3	30	70
4.	101IT06	Computer Graphics	3	1	-	3	30	70
5.	101CS09	Software Quality Assurance and Testing	4	1	-	4	30	70
6.		Professional Elective – I	3	1	-	3	30	70
7.	101MA72	Quantitative Aptitude	-	-	2	2	25	50
8.	101CS77	Comprehensive Viva II	-	-	-	1	-	50
9.	101CS78	Operating Systems and Compiler Design Lab	-	-	3	2	25	50
10.	101CS79	Software Testing Lab	-	-	3	2	25	50
Total :			19	7	8	26	255	620

OPEN ELECTIVE - I		PROFESSIONAL ELECTIVE - I	
Code	Subject	Code	Subject
101FL01	Basic Spanish Language	101CS10	Advanced Algorithms
101FL02	Basic French Language	101CS11	Artificial Intelligence
101FL03	Basic German Language	101CS12	Software Project Management
101ME22	Operations Research	101CS20	Network Management Systems
101MB55	Entrepreneurship		
101EM07	VLSI Design		

IV YEAR I SEMESTER COURSE STRUCTURE

Sl. No	Code	Subject	L	T	P/D	C	Max. Marks	
							Int.	Ext.
1.	101IT05	Data Warehousing and Data Mining	3	1	-	3	30	70
2.		Professional Elective - II	3	1	-	3	30	70
3.	101CS15	Network Programming	3	1	-	3	30	70
4.	101CS22	Multimedia and Web Technologies	3	1	-	3	30	70
5.	101IT11	Information Security	3	1	-	3	30	70
6.		Open Elective - II	3	-	-	3	30	70
7.	101MA73	Logical Reasoning- II	-	-	2	2	25	50
8.	101CS80	Pre Project Seminar	-	-	-	2	50	-
9.	101CS81	Industry Oriented Mini Project	-	-	-	2	25	50
10.	101CS82	Network Programming Lab	-	-	3	2	25	50
11.	101CS83	Multimedia and Web Technologies Lab.	-	-	3	2	25	50
Total :			18	5	8	28	330	620

PROFESSIONAL ELECTIVE - II		OPEN ELECTIVE - II	
Code	Subject	Code	Subject
101IT10	Neural Networks and Fuzzy Logic	101MB56	Banking Operations, Insurance and Risk Management
101CS13	Software Architecture and Design Pattern		
101CS14	Information Retrieval System	101BT41	Bio Informatics for CSIT
101CS17	Human Computer Interaction	101ME28	Robotics

IV YEAR II SEMESTER COURSE STRUCTURE

Sl. No	Code	Subject	L	T	P/D	C	Max. Marks	
							Int.	Ext.
1.		Professional Elective - III	4	-	-	4	30	70
2.	101CS16	Mobile computing	4	-	-	4	30	70
3.	101CS84	PROJECT	-	-	-	10	50	150
4.	101CS85	Comprehensive Viva III	-	-	-	2	-	50
5.	101CS86	Technical Seminar	-	-	-	2	25	-
Total :			8	-	-	22	135	340

PROFESSIONAL ELECTIVE - III	
Code	Subject
101CS18	Advanced Computer Architecture
101EM06	Embedded and Real time systems
101IT07	Shell Programming & Scripting Languages
101IT12	Image Processing

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

T – Tutorial

L- Theory

P/D – Practical/Drawing

C- Credits

Int. - Internal Exam

Ext. - External Exam

**Syllabus for B. Tech. III Year I semester
Computer Science and Engineering
Code:101BT37 HUMAN VALUES, ETHICS AND IPR**

L	T	P/D	C
2	-	-	2

UNIT -I:**A: INDIAN CULTURE- HUMAN VALUES AND VALUE EDUCATION:**

Purpose of Education – Indian Perspective, Civilization and Culture, Wisdom of selflessness and sacrifice, ancient wisdom on good governance and Happy life, bunch of thoughts and contribution of ancient to modern sages/ monks on Indian culture, need for interfaith understanding, cultural unity of India, what sages, seers said about knowledge devotion, meditation and happiness in life.

Concept of Human Values, Morals, Ethics, Characteristics of Values, Principles and Types of Values, Core Values , Rules of Behaviour, Distinguishing and Defining ‘Human’ Values. Truth Love and Caring, Peace, Responsibility, Justice, Human Values Applied in Practice, Values and Psychic Health, The Hierarchy of Human Values, Values of Nature, **Values of the Person**, Moral Values, **Value Education**, Basic Guidelines, content and process of Value Education.

UNIT- II:

B:ENGINEERING AND PROFESSIONAL ETHICS: Engineering and professionalism. Types of ethics and morality. Ethics in various professions. Professional codes of conduct and organizational mission vision and culture. Engineering Standards. Social and Global dimension of professions vis-a-vis Technology and Growth. Trust and Reliability. Role of Transparency, Honesty, Integrity and sincerity in Professional life.

UNIT -III:**C: HUMAN VALUES AND ETHICS:**

Understanding Relationship between Ethics, Morality, Law, Characteristics of an Ethical Person. Professional Ethics, Professional Responsibility, Codes of conducts, Practice, Dos and DON'Ts of various professions. Ethical Behavior and issues in various professions (like business, marketing, media and advertising, legal, medical, financial, Education, public services and Governance Etc- through case studies). Impact of Ethical behavior and Violations on society at large (Law, culture, religion and life style). Ethical issues arising from modern technology like communications and computers. Ethical Standards, Ethics in Engineering. General Business and Ethics, Religious Views on Business Ethics, Work Ethics, Criticisms of Work Ethic Concept, Working with Ethics.

UNIT -IV:**D:RELEVANCE OF ANCIENTS WISDOM AND PRACTICES FOR PROFESSIONALS IN MODERN AGE:**

Problems of Modernity and impact on modern life (self, family and society). Problems of freedom in Individual centric vs family centric social structure. Health issues related to Individual freedom, competition and professional life. Relevance of Indian wisdom on

individual, family and social life. Relevance of yogic and spiritual practices in modern times for intellect-mind-body harmony. Science and religion, concentration and meditation, peace of mind, Hinduism in view of Mahatma Gandhi, Role of expanse of Technology in Third Millennium. Indian literature and cultural identity, Teacher- Student relationship. Need for balance and harmonious growth in all stages of life and Development into holistic professional.

UNIT- V

E: INTELLECTUAL PROPERTY RIGHTS (IPR)

Invention and Creativity, Basic Types of Property, Need for Protection of IPR, IP Types – Industrial Property (Patents, Trade Marks, Trade Secrets, Industrial Designs and Integrated Circuits), Copyrights and Related Rights, Geographical Indications.

UNIT-VI

WIPO Mission and Activities, GATT & Trips, Indian Position on WTO and strategies, Indian IPR legislations-commitments to WTO-Patent Ordinance and the Bill, Draft of a National Intellectual Property Policy, Case Studies on IP.

TEXT BOOKS

1. Charles E. Harris, Michael S .Pritchard & Michael J . Rabins “Engineering Ethics” – CENGAGE Learning
2. I.V. Chalapati Rao “Ancient Wisdom, Modern Insights” - Sri Yabaluri Raghavaiah Memorial Trust
3. Smriti Srivastava “Human Values and Professional Ethics” – S.K. Kataria & Sons.
4. Anitha Rao R & Bhanoji Rao “Intellectual Property Rights- A Primer”, Eastern Book Company, 2008.

REFERENCES:

1. Govindarajan M, Natarajan S, Senthil Kumar V.S, “Engineering Ethics”, Prentice Hall of India, New Delhi, 2004.
2. Charles D. Fleddermann, “Engineering Ethics”, Pearson Education/Prentice Hall, New Jersey, 2004(Indian Print)
3. Deborah E. Bouchoux “ Intellectual Property Rights” CENGAGE Learning

**Syllabus for B. Tech. III Year I semester
Computer Science and Engineering
Code:101IT03 DATABASE MANAGEMENT SYSTEMS**

L	T	P/D	C
3	1	-	3

UNIT - I

Data base System Applications, data base System VS file System – View of Data – Data Abstraction –Instances and Schemas – data Models – the ER Model – Relational Model – Other Models – Database Languages – DDL – DML – database Access for applications Programs – data base Users and Administrator – Transaction Management – data base System Structure – Storage Manager – the Query Processor, 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 - II

Introduction to the Relational Model – Integrity Constraint Over relations – Enforcing Integrity constraints – Querying relational data – Logical data base Design – Introduction to Views – Destroying /altering Tables and Views.
Relational Algebra – Selection and projection set operations – renaming – Joins – Division – Examples of Algebra overviews – Relational calculus – Tuple relational Calculus – Domain relational calculus – Expressive Power of Algebra and calculus.

UNIT - III

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 - IV

Schema refinement – Problems Caused by redundancy – Decompositions – Problem related to decomposition – reasoning about FDS – FIRST, SECOND, THIRD Normal forms – BCNF – Lossless join Decomposition – Dependency preserving Decomposition – Schema refinement in Data base Design – Multi valued Dependencies – FORTH Normal Form.

UNIT - V

Transaction Concept- Transaction State- Implementation of Atomicity and Durability – Concurrent – Executions – Serializability- Recoverability – Implementation of Isolation – Testing for serializability- Lock –Based Protocols – Timestamp Based Protocols- Validation- Based Protocols – Multiple Granularity, Recovery and Atomicity – Log – Based Recovery – Recovery with Concurrent Transactions – Buffer Management – Failure with loss of nonvolatile storage-Advance Recovery systems- Remote Backup systems.

UNIT -VI

Data on External Storage – File Organization and Indexing – Cluster Indexes, Primary and Secondary Indexes – Index data Structures – Hash Based Indexing – Tree base Indexing – Comparison of File Organizations – Indexes and Performance Tuning- Intuitions for tree Indexes – Indexed Sequential Access Methods (ISAM) – B+ Trees: A Dynamic Index Structure.

TEXT BOOKS

1. Data base Management Systems, Raghurama Krishnan, Johannes Gehrke, TATA McGrawHill 3rd Edition
2. Data base System Concepts, Silberschatz, Korth, McGraw hill, V edition.

REFERENCES

1. Data base Systems design, Implementation, and Management, Peter Rob & Carlos Coronel 7th Edition.
2. Fundamentals of Database Systems, Elmasri Navrate Pearson Education
3. Introduction to Database Systems, C.J.Date Pearson Education

Syllabus for B. Tech. III Year I semester				
Computer Science and Engineering				
Code:101IT04	DESIGN AND ANALYSIS OF ALGORITHMS			
	L	T	P/D	C
	3	1	-	3

UNIT I

Introduction: Algorithm, Psuedo code for expressing algorithms, Performance Analysis- Space complexity, Time complexity, Asymptotic Notation- Big oh notation, Omega notation, Theta notation and Little oh notation, Probabilistic analysis, Amortized analysis.

UNIT II

Divide and conquer: General method , applications-Binary search, Quick sort, Merge sort, Strassen's matrix multiplication.

UNIT III

Greedy method: General method, applications-Job sequencing with dead lines, 0/1 knapsack problem, Minimum cost spanning trees, Single source shortest path problem.

UNIT IV

Dynamic Programming: General method, applications-Matrix chain multiplication, Optimal binary search trees, 0/1 knapsack problem, All pairs shortest path problem, Travelling sales person problem, Reliability design.

UNIT V

Backtracking: General method, applications-n-queen problem, sum of subsets problem, graph coloring, Hamiltonian cycles.

Branch and Bound: General method, applications - Travelling sales person problem, 0/1 knapsack problem- LC Branch and Bound solution, FIFO Branch and Bound solution.

UNIT VI

NP-Hard and NP-Complete problems: Basic concepts, non deterministic algorithms, NP - Hard and NPComplete classes, Cook's theorem.

TEXT BOOKS

1. Fundamentals of Computer Algorithms, Ellis Horowitz, Satraj Sahni and Rajasekharam, Galgotia publications pvt. Ltd.
2. Algorithm Design: Foundations, Analysis and Internet examples, M.T.Goodrich and R.Tomassia, John wiley and sons.

REFERENCES

1. Introduction to Algorithms, second edition, T.H.Cormen, C.E.Leiserson, R.L.Rivest, and C.Stein, PHI Pvt. Ltd./ Pearson Education
2. Introduction to Design and Analysis of Algorithms A strategic approach, R.C.T.Lee, S.S.Tseng, R.C.Chang and T.Tsai, Mc Graw Hill.
3. Data structures and Algorithm Analysis in C++, Allen Weiss, Second edition, Pearson education.

4. Design and Analysis of algorithms, Aho, Ullman and Hopcroft, Pearson education.
5. Algorithms – Richard Johnson baugh and Marcus Schaefer, Pearson Education

**Syllabus for B. Tech. III Year I semester
Computer Science and Engineering
COMPUTER NETWORKS**

Code:101CS05

L	T	P/D	C
3	1	-	3

UNIT I

Introduction : OSI, TCP/IP and other networks models, Examples of Networks: Novell Networks ,Arpanet, Internet, Network Topologies WAN, LAN, MAN.

Physical Layer: Transmission media copper, twisted pair wireless, switching and encoding asynchronous communications;

UNIT II

Data link layer : Design issues in data link layer, Logical link control, framing, flow control, Protocol-stop and wait, Sliding Window, error detection and correction, CRC ,HDLC, ATM.

UNIT III

Medium Access sub layer: ALOHA, MAC addresses, Carrier sense multiple access, ISDN, IEEE 802.X Standard Ethernet, wireless LANS. Bridges

UNIT IV

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

UNIT V

Congestion, Control Algorithms – General Principles – of Congestion prevention policies. Internetworking: The Network layer in the internet and in the ATM Networks.

UNIT VI

Transport Layer: Transport Services, Connection management, TCP and UDP protocols; ATM AAL Layer Protocol.

Application Layer – network threats, confidentiality , authenticity, DES and RSA algorithms, Domain name system, Electronic Mail, WWW, Multi Media.

TEXT BOOKS

1. Computer Networks — Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI
2. Data Communications and Networking – Behrouz A. Forouzan.Third Edition TMH.

REFERENCES

1. An Engineering Approach to Computer Networks-S.Keshav, 2nd Edition, Pearson Education
2. Understanding communications and Networks, 3rd Edition, W.A. Shay, Thomson

**Syllabus for B. Tech. III Year I semester
Computer Science and Engineering
MANAGEMENT SCIENCE**

Code:101MB02

L	T	P/D	C
3	1	-	3

UNIT I: INTRODUCTION TO MANAGEMENT:

Management- Definitions, Levels of Management, functions of management Planning: types of planning, planning process; Organizing: Organizational Design and structure, staffing; Directing; Maslow's Motivational theory, Leadership styles, Controlling: Basic control process.

UNIT II: INTRODUCTION TO OPERATIONS MANAGEMENT:

Plant Location, plant layout, types of production, Work Study, Method study and Work Measurement, Basic Procedures, Project Management: Network Analysis - Programme Evaluation and Review Techniques, Critical Path Method, Crashing of Simple Networks.

UNIT III: MATERIALS MANAGEMENT:

Objectives of Materials, Need for Inventory Control, Economic Order Quantity, ABC Analysis, Inventory Control Systems, Just In Time, Introduction to LSCM, Quality Control Techniques – Inspection, ISO standards, Six Sigma.

UNIT IV:

(i) Human Resources Management: Objectives of HRM, Challenges of HRM, HR Planning process, HR functions and policies – Recruitment, Selection, Training and Development, Performance Appraisal, Assessment of HR requirements.

(ii) Marketing Management: Concept of Marketing, Functions, Marketing Mix, Product Life Cycle, Marketing Strategies, Channels of Distribution, Differences between products and services

UNIT V: INTRODUCTION TO ORGANIZATIONAL BEHAVIOUR:

Definition, Nature and Scope, Perception – Perceptual selectivity and organization, Personality and Attitudes - Personality as a continuum – Meaning of personality, Communication – types - interactive communication in organizations –barriers to communication and strategies to improve the follow of communication.

UNIT VI: STRATEGY AND MANAGEMENT CONTROL SYSTEM:

Concepts in Strategic Management, Vision, Mission, Objectives, SWOT Analysis, Concept of Strategic Planning, Competitive Advantage, Concept of Core Competence. An overview, Process and its Implementation, Target Setting, Balanced Score Card, Management Control in Empowered Organization – Conflict between Creativity and Control.

REFERENCES

- 1 Dr. Y. Satyanarayana: Management control systems in competitive environment, Icfai books.
2. A R Aryasri: Management Science, Tata Mc Graw Hill
3. Koontz & Weihrich: Essentials of Management, 6/e, TMH, 2005
4. Kotler Philip & Keller Kevin Lane: Market Management 12/e, PHI, 2005

5 Strategic Management, Text and Cases, VSP Rao, V Hari Krishna

6. Thomas N Duening & John M. Ivancevich Management – Principles and Guidelines, Biztantra, 2003.

Syllabus for B. Tech. III Year I semester**Computer Science and Engineering****Code:101CS06****OBJECT ORIENTED ANALYSIS AND DESIGN**

L	T	P/D	C
3	1	-	3

UNIT I

Introduction to UML: Importance of modelling, principles of modelling, object oriented modelling, conceptual model of the UML, Architecture, Software Development Life Cycle.

UNIT II

Basic Structural Modelling: Classes, Relationships, common Mechanisms, and diagrams.

Advanced Structural Modelling: Advanced classes, advanced relationships, Interfaces, Types and Roles, Packages.

UNIT III

Class Diagrams: Terms, concepts, modelling techniques for Class Diagrams.

Object Diagrams: Terms, concepts, modelling techniques for Object Diagrams.

UNIT IV

Basic Behavioural Modelling-I: Interactions, Interaction diagrams, Use cases, Use case Diagrams, Activity Diagrams.

UNIT V

Advanced Behavioural Modelling: Events and signals, state machines, processes and Threads, time and space, state chart diagrams.

UNIT VI

Architectural Modelling: Component, Deployment, Component diagrams and Deployment diagrams.

Collaboration and CASE STUDY on Unified Library Application.

TEXT BOOKS

1. The Unified Modelling Language User Guide by Grady Booch, James Rumbaugh, Ivar Jacobson, Pearson Education.
2. UML 2 Toolkit by Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado, WILEY-Dreamtech India Pvt. Ltd.

REFERENCES

1. Fundamentals of Object Oriented Design in UML by Meilir Page-Jones, Pearson Education.
2. Modeling Software Systems Using UML2 by Pascal Roques, WILEY-Dreamtech India Pvt. Ltd.
3. Object Oriented Analysis & Design by Atul Kahate, The McGraw-Hill Companies.
4. Practical Object-Oriented Design with UML by Mark Priestley, TATA McGrawHill
5. Applying UML and Patterns: An introduction to Object – Oriented Analysis and Design and Unified Process

by Craig Larman, Pearson Education.

**Syllabus for B. Tech. III Year I semester
Computer Science and Engineering
LOGICAL REASONING - I**

Code:101MA71

L	T	P/D	C
-	-	2	2

UNIT I

Series Completion: Number Series, Alphabet Series, Alpha – Numeric Series.

UNIT II

Analogy: Completing the Analogous Pair, Simple Analogy, Choosing the Analogous pair, Double Analogy, Word Analogy, and Number Analogy.

UNIT III

Classification / Odd One Out: Word Classification, Number Classification, Letter Classification.

UNIT IV

Coding – Decoding: Letter Coding, Number Coding, Matrix Coding, Substitution, Deciphering Message Word Codes, Jumbled Coding.

UNIT V

Blood Relations: Deciphering Jumbled up Descriptions, Relation Puzzle – Direction sense test.

UNIT VI

Number, Ranking & Time Sequence Test – Arithmetical Reasoning – Mathematical Operations.

TEXT BOOKS

Verbal and Non Verbal Reasoning by R.S.Agarwal.

**Syllabus for B. Tech. III Year I semester
Computer Science and Engineering
GROUP PROJECT**

Code:101CS75

L	T	P/D	C
-	-	3	1

A group project shall be carried out by a group of students consisting of 2 to 3 in number in third year first semester. This work shall be carried out under the guidance of the teacher and shall involve design, fabrication, software development or any other significant activity. This can be of interdisciplinary nature also. There will be 75 marks in total with 25 marks of internal evaluation.

The **internal evaluation** shall consist of:

Day to day work	10 marks
Report	05 marks
Demonstration / presentation	10 marks
End examination	50 Marks.

The end examination will be carried out by a committee consisting of an external examiner, head of the department, a senior faculty member and the supervisor.

**Syllabus for B. Tech. III Year I semester
Computer Science and Engineering
DATABASE MANAGEMENT SYSTEMS LAB**

Code:101IT75

L	T	P/D	C
-	-	3	2

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, NOTEXISTS, UNION, INTERSET, Constraints.
Example: - Select the roll number and name of the student who secured fourth rank in theclass.
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 Statement and write complex functions.
 - Program development using creation of package specification, package bodies, private objects, package variables and cursors and calling stored packages.
 - Develop programs using features parameters in a CURSOR, FOR UPDATE CURSOR, WHERE CURRENT of clause and CURSOR variables.
 - 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 3 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.

Syllabus for B. Tech. III Year I semester
Computer Science and Engineering
OBJECT ORIENTED ANALYSIS AND DESIGN LAB

Code:101CS76	L	T	P/D	C
	-	-	3	2

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 whatever 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.

Case studies:

1. ATM System
2. Online Ticket Reservation
3. Course Registration System
4. E- Book Shop

**Syllabus for B. Tech. III Year II semester
Computer Science and Engineering
BASIC SPANISH LANGUAGE
(OPEN ELECTIVE – I)
(101FL01) Basic Spanish Language
Course Contents**

		L	T	P/D	C
		2	2	-	3
Unit-I	<p>Functional Aspects Greetings, introductions, identifying others; tools to ask meaning, pronunciation and spellings; different nationalities and their languages; Hispanic names, family relations and professions; days of the week, Months.</p> <p>Grammatical Aspects Basic structure of spelling and pronunciation; present indicative of the regular verbs ('ar/er/ir) and 'querer'; subject pronouns; interrogative sentences with 'Por que', and 'quien'; causal phrase with 'porque'; 'ser' and 'estar'; negative sentences; adjectives of nationality.</p>				
Unit-II	<p>Functional Aspects Ordinal and cardinal numbers: quantities; to go shopping, identifying Material, color, size etc; to go to a restaurant, food habits of Spanish and Latin American people.</p> <p>Grammatical Aspects Gender and number of nouns and adjectives; the verb 'tener'; interrogative Sentences; demonstrative and qualitative adjectives.</p>				
Unit-III	<p>Functional Aspects To express opinions on something contradict someone in modest ways; Suggest something, to value things aesthetically and intellectually; Expression of likes and dislikes; expression and reaction to certain things, (agreement or disagreement)</p> <p>Grammatical Aspects Qualitative adjectives, forms and usage, gradations, superlative adjectives, Exclamatory sentences; the verb 'gustar', forms and syntax; personal ProNouns; definite and indefinite pronouns, direct object pronouns Prepositions; verbs like 'parecer' and 'encontrar and preferir, their form And syntax, interrogative pronouns.</p>				
Unit-IV	<p>Functional Aspects Invitations; accepting and rejecting invitations; how to fix an appointment; Inviting through e-mail or telephone</p> <p>Grammatical Aspects Present indicative of irregular verbes, expressions with 'tener' and estar Prepositional pronouns; interrogative sentences</p>				

Unit-V **Functional Aspects**
Expression of time; Spanish and Latin American time tables and
Comparison with Indian time tables, festivals Indian and Hispanic
Grammatical Aspects
Time with 'ser', expressions relating to festivals.

Unit-VI **Functional Aspects**
Expressions relating to climate, weather of the day seasons, vacations,
planning of holiday and brochures, hotel reservations, offers
Grammatical Aspects
Expressions with verbs, 'ser' and 'hacer' and other verbs.

Text Book:

1. NOUVEAU ELE INICIAL 1

Reference Books:

1. Espanol sin Fronteras, A. Sanchez, M. Rios, J.A. Metella, SGEL. Madrid, 1997
2. Entre Nosotros A. Sanchez, M. Rios, J.A. Metella, SGEL. Madrid, 1997

**Syllabus for B. Tech. III Year II semester
Computer Science and Engineering
BASIC FRENCH LANGUAGE
(OPEN ELECTIVE – I)**

Code: 101FL02

L	T	P/D	C
2	2	-	3

UNIT – I :

Professions et nationalités, vie quotidienne et loisirs,
descriptions physiques et psychologiques, nombres cardinaux.

Articles définis et indéfinis, genre et nombre des noms et des
interrogation et négation, conjugaison du présent.

adjectifs,

UNIT – II

Intonation, liaison, voyelles orales et nasales.

Faire connaissance, inviter et répondre à une invitation, décrire les personnes.

UNIT – III

Paris, monuments et lieux publics. La vie de quatre parisiens de professions différentes.

Logement et nourriture, vêtements et couleurs, fêtes et faits divers, nombres ordinaux.

UNIT – IV

Articles partitifs, adjectifs démonstratifs et possessifs, prépositions et adverbes de quantité et de lieu, pronoms toniques, l'impératif, verbes pronominaux.

Intonation, semi-voyelles, liaison, consonnes sonores et sourdes.

UNIT – V

Exprimer l'ordre et l'obligation, demander et commander, évaluer et apprécier, féliciter et remercier.

Une région de France: la Bourgogne, vie quotidienne à la campagne.

UNIT – VI

Teaching passé composé through the above lessons.

Text Book:

1. Dominique, Philippe, *et al.* 1999. *Le Nouveau sans Frontières -I* (Including Exercise Book). Paris: Clé, International (Indian Edition).

Reference Books:

1. Alter Ego I & II. Published by Hachette
2. Connexion I & II. Published by Didier
3. Echo I & II. Clé International publishers
4. Latitude I & II. Published by Didier

**Syllabus for B. Tech. III Year II semester
Computer Science and Engineering
BASIC GERMAN LANGUAGE
(OPEN ELECTIVE – I)**

Code:101FL03

L	T	P/D	C
2	2	-	3

Unit –I

- Definite and Indefinite articles(including negation)
- Noun: Gender and Plural forms, cases (nominative, accusative, dative & genitive)

Unit –II

- Verb: Strong and Weak verbs, Verbs with separable and inseparable prefixes, modal verbs, position of verb in the main and subordinate clauses, auxiliary verbs, reflexive verbs in accusative and dative cases, imperative constructions

Unit –III

- Pronouns: personal, possessive, reflexive, interrogative and demonstrative
- Prepositions: with the accusative, dative and with both these cases

Unit –IV

- Adjective :declension with the
 - Indefinite article
 - Definite article
 - Without article
 - With the indefinite pronoun
 - Degrees of comparison (also adverbs),ordinal numbers, adjectives as nouns
- Conjunctions: subordinating and coordinating with respect to the position of the verb

Unit –V

- Pretaritim of sein and haben
- Perfect tense

Unit –VI

- Negatin :of a sentence and words therein.
- Sentence structure: general principles observed in German Language.

Text Book

1. Hermann Funk, Christina Kuhn, Oliver Bayerlein., Studio d A 1.2005 Comelsen Verlag, Berlin.

Reference Books

1. Rosa –Marie Dallapiazza, Eduard von Jan, Till Schonherr,unter Mitarbeit von Jutta Orth-Chambah Tangram aktuell 1 –Lektion 1-4, Lektion 5 - 8
Max Hueber Verlag. Munchen. 2009
2. Jutta Muller, Thomas Storz, 2006. Laguna. Heuber Veerlag, Ismaning. Deutschland

**Syllabus for B. Tech. III Year II semester
Computer Science and Engineering
OPERATIONS RESEARCH
(OPEN ELECTIVE – I)**

Code:101ME22

L	T	P/D	C
2	2	-	2

UNIT I

INTRODUCTION: Development – Definition– Characteristics and Phases – Types of models – operation Research models – applications.

LINEAR PROGRAMMING PROBLEM- Formulation – Graphical solutions, Simplex method, Artificial variables techniques -Two–phase method, Big-M method -Degeneracy, Duality Principle.

UNIT II

TRANSPORTATION PROBLEM – Formulation – Optimal solution, unbalanced transportation problem – Degeneracy.

ASSIGNMENT PROBLEM – Formulation – Optimal solution - Variants of Assignment Problem-Unbalanced, Traveling Salesman problem.

UNIT III

SEQUENCING – Introduction – Flow Shop sequencing – n jobs through two machines – n jobs through three machines – Job shop sequencing – two jobs through ‘m’ machines.

REPLACEMENT: Introduction – Replacement of items that deteriorate with time – when money value is not counted and counted – Replacement of items that fail completely, Group replacement.

UNIT IV

THEORY OF GAMES: Introduction – Pure strategies-Minimax (maximin) – Criterion and optimal strategy – Solution of games with saddle points – Mixed Strategies-Rectangular games without saddle points- Dominance principle – 2 X 2 games , m X 2 & 2 X n games - Graphical method.

UNIT V

WAITING LINES: Introduction – Single Channel – Poisson arrivals – exponential service times – with infinite population and finite population models– Multichannel – Poisson arrivals – exponential service times with infinite population single channel Poisson arrivals.

INVENTORY : Introduction – Single item Deterministic models without shortages– Single item inventory models with one price break and multiple price breaks – Stochastic models – demand may be discrete variable or continuous variable – Instantaneous production. Instantaneous demand and continuous demand and no set up cost.

UNIT VI

SIMULATION: Definition – Types of simulation – phases of simulation– applications of simulation – Inventory and Queuing problems – Advantages and Disadvantages – Computers in Simulation.

DYNAMIC PROGRAMMING: Introduction – Bellman’s Principle of optimality – Applications of dynamic programming- shortest path problem -capital budgeting problem — linear programming problem.

TEXT BOOKS

1. Operations research / Hira & Gupta
2. Operation Research /J.K.Sharma/MacMilan publishers.

REFERENCES

- 1.Operations Research / S.D.Sharma/Kedarnath publishers
- 2.Operations research/V.K.Kapoor

**Syllabus for B. Tech. III Year II semester
Computer Science and Engineering
ENTREPRENEURSHIP
(OPEN ELECTIVE – I)**

Code:101MB55

L	T	P/D	C
2	2	-	2

The objective of the course is to make students understand the nature of entrepreneurship, and its importance to business.

UNIT I

NATURE OF ENTREPRENEURSHIP: Definition of entrepreneurship, Evolution of entrepreneurship Concept Categories of Entrepreneurship, Entrepreneurial Propensity, Entrepreneurial potential, Entrepreneurial Orientation, Schools of thought on Entrepreneurship, Essential features of Entrepreneurship, attitude and leadership of Entrepreneur, Characteristics of entrepreneur, Qualities and skills, functions of entrepreneur

UNIT II

FORMS OF ENTREPRENEURSHIP: Small Business, Importance in Indian Economy, Types of ownership, sole trading, partnership, Joint Stock Company, Important features of Various types of businesses, corporate entrepreneurship, entrepreneurship, Role of Government in the promotion of Entrepreneur, State Enterprises in India.

UNIT III

ASPECTS OF PROMOTION: Opportunity Analysis, SWOT Analysis, Internal and External Environment Analysis, Technological Competitiveness, Entrepreneurs and legal regulatory systems.

UNIT IV

PROJECT PLANNING AND FEASIBILITY STUDIES: The Concept of Project, Project Life Cycle, Project Planning, Feasibility, SWOT Analysis, Product and Process Development, Major steps in product development.

UNIT V

FINANCIAL ASPECTS OF THE ENTREPRENEURSHIP: Source of Capital, Debt-Equity Financing Commercial Banks, Bank Loans, Assessment of Benefits and Costs, Informal Agencies In financing entrepreneurs, Government Grants and Subsidies, Types of Investors and Private Offerings. Entrepreneurial Strategy: Generation of new entry opportunity, Decisions under Uncertainty, entry strategy, new entry exploitation, environmental instability and First-Mover disadvantages, Risk Reduction strategies, Market scope strategy, Imitation strategies and Managing Newness, Marketing strategies for start-ups, Operational complexities in start-ups

UNIT VI

WOMEN ENTREPRENEURSHIP: Introduction, Problems faced by Women Entrepreneurs in India, Strategies to overcome obstacles faced by women entrepreneurs. The dynamic need, entrepreneurship in a Developing economy, the scope of entrepreneurship among women, promotional efforts supporting women entrepreneurs in India, Issues of employment generation.

REFERENCES

- 1.H. Nandan, Fundamentals of Entrepreneurship, Prentice Hall of India, First Edition, New Delhi, 2007.
- 2.Robert D Hisrich, Michael P Peters, Dean A Shepherd, Entrepreneurship, Sixth Edition, New Delhi, 2006.
- 3.Alfred E. Osborne, Entrepreneur's Toolkit, Harvard Business Essentials, HBS Press, USA, 2005.
- 4.Madhurima Lall, Shikha Sahai, Entrepreneurship, Excel Books, First Edition, New Delhi, 2006.
- 5.S.S. Khanka, Entrepreneurial Development, S. Chand and Company Limited, New Delhi, 2007.
- 6.Thomas W. Zimmerer, Norman M. Scarborough, Essentials of Entrepreneurship
- 7.And Small Business Management, Fourth Edition, Pearson, New Delhi, 2006
- 8.S.R. Bhowmik, M. Bhowmik, Entrepreneurship-A tool for Economic Growth And A key to Business Success, New Age International Publishers, First Edition, (formerly Wiley Eastern Limited), New Delhi, 2007.

**Syllabus for B. Tech. III Year II semester
Computer Science and Engineering
VLSI DESIGN**

Code:101EM07

(OPEN ELECTIVE – I)

L	T	P/D	C
2	2	-	2

UNIT I

Introduction to IC Technology, IC fabrication process, Layout design rules, packaging integrated circuits

UNIT II

Electrical characteristics of MOSFET, NMOS, CMOS and Bi-CMOS:Ids-vds relationships,MOS transistor threshold voltage,gm,gds,figure of merit, pass transistors,NMOS inverter, various pull-ups,CMOS inverter analysis and Design,BiCMOS inverters.

UNIT III

Interconnects: parasitic estimation. Lumped and distributed models, transmission line model, interconnect layer sizing and scaling, power distribution design-clocking and timing issues.

UNIT IV

CMOS inverter: static and dynamic behavior, CMOS combinational logic circuits: Static and dynamic CMOS Design.

UNIT V

CMOS sequential logic circuits: static latches and registers, dynamic latches and registers

Data path Design: memory, control logic, system consideration, adders, multipliers,

shifters, high density memory elements.

UNIT VI

Digital system design implementation options: ASICs, PLDs, CPLDs, FPGAs.

CMOS Testing: Faults, Test generation, Design for Testability, Scan based design, BIST, BST.

TEXT BOOKS

1. Jan M. Rabaey, A. Chandrakasan, and B. Nikolic, Digital Integrated Circuits: A design Perspective, Pearson Education, 2002
2. Wayne Wolf, Modern VLSI Design system on chip design, Prentice Hall of India, Third Edition 2005
3. Neil H. E. Weste and David Harris, Principles of CMOS VLSI Design, Second edition, Pearson education, 2005

REFERENCES

1. S.M.Kang & Y. Leblebici, CMOS Digital Integrated Circuits, McGraw Hill, 2002
2. John P.Uyemura, Introduction to VLSI Circuits and Systems, John Wiley & Sons, 2002

**Syllabus for B. Tech. III Year II semester
Computer Science and Engineering
OPERATING SYSTEMS**

Code:101CS07

L	T	P/D	C
4	1	-	4

UNIT I

Introduction: Introduction to Operating System Concepts (including Multitasking, multiprogramming, multi user, Multithreading etc)., Types of Operating Systems: Batch operating system, Time-sharing systems, Distributed OS, Network OS, Real Time OS; Various Operating system services, architecture, System programs and calls.

UNIT II

Process Management: Process concept, process scheduling, operation on processes; CPU scheduling, scheduling criteria, scheduling algorithms -First Come First Serve (FCFS), Shortest-Job-First (SJF), Priority Scheduling, Round Robin(RR), Multilevel Queue Scheduling.

Case studies: unix, linux and windows.

UNIT III

Process-Synchronization & Deadlocks: Critical Section Problems, semaphores; methods for handling deadlocks-deadlock prevention, avoidance & detection; deadlock recovery.

UNIT IV

Memory Management: Logical & Physical Address Space, swapping, contiguous memory allocation, non-contiguous memory allocation paging and segmentation techniques, segmentation with paging; virtual memory management - Demand Paging & Page-Replacement Algorithms; Demand Segmentation.

Case studies: unix, linux and windows.

UNIT V

File System: Different types of files and their access methods, directory structures, various allocation methods, disk scheduling and management and its associated algorithms, Introduction to distributed file system.

UNIT VI

I/O Systems: I/O Hardware, Application I/O Interface, Kernel, Transforming I/O requests, Performance Issues.

Protection and security: access control list, capabilities, third party tools.

TEXT BOOKS

1. Operating System Concepts by Silberchatz Galvin, 8th edition.
2. Modern Operating Systems by A. Tanenbaum, 1992, Prentice-Hall.
3. Operating Systems Internals and Design Principles by William Stallings, 4th edition, 2001, Prentice-Hall

REFERENCES

1. Operating System By Peterson , 1985, AW.
2. Operating System By Milankovic, 1990, TMH.

3. Operating System Incorporating With Unix & Windows By Colin Ritche, 1974, TMH.
4. Operating Systems by Mandrik & Donovan, TMH
5. Operating Systems By Deitel, 1990, AWL.
6. Operating Systems – Advanced Concepts By Mukesh Singhal , N.G. Shivaratri, 2003, T.M.H

**Syllabus for B. Tech. III Year II semester
Computer Science and Engineering**

Code:101CS08 AUTOMATA THEORY AND COMPILER DESIGN

L	T	P/D	C
3	1	-	3

UNIT I

Formal Language and Regular Expressions: Languages, Definition, regular expressions, Regular sets, identity rules.

Finite Automata: DFA, NFA, NFA with λ transitions - Significance, acceptance of languages, NFA to DFA conversion, minimization of DFA, Finite Automata with output-Moore and Mealy machines. Constructing finite Automata for a given regular expressions, Conversion of Finite Automata to Regular expressions.

UNIT II

Grammar Formalism: Chomsky hierarchy of languages, Context free grammar, derivation trees, and sentential forms. Right most and leftmost derivation of strings, Ambiguity in context free grammars. Minimization of Context Free Grammars. Chomsky normal form, Greiback normal form.

Push down Automata: Push down automata, definition, model, acceptance of CFL, Acceptance by final state and acceptance by empty stack and its equivalence. Equivalence of CFL and PDA,

UNIT III

Compiler: phases of compiler, difference between phase and a pass, lexical analyzer. Top down parsing: ambiguity, LL(1) grammars , LL(1) parsing

UNIT IV

Bottom up parsing: handle pruning, shift reduce parser, LR Parsers, LALR parsing, parsing ambiguous grammars.

Semantics: Syntax directed translation, S-attributed and L-attributed grammars

UNIT V

Intermediate code Generation – intermediate languages, Implementation of 3-address statements, translation of simple statements and control flow statements.

Type checking, equivalence of type expressions, type conversions, overloading of functions and operations.

UNIT VI

Code optimization: Principal sources of optimization, optimization of basic blocks, peephole optimization, flow graphs, Data flow analysis of flow graphs

Code generation: Machine dependent code generation, object code forms, generic code generation algorithm, Using DAG representation of Basic Block

TEXT BOOKS

1. “Introduction to Automata Theory Languages and Computation”. Hopcroft H.E. and Ullman J. D.

Pearson Education

2. Compilers Principles, Techniques and Tools Aho, Ullman, Ravisethi, Pearson Education.

REFERENCES

1. Introduction to Computer Theory, Daniel I.A. Cohen, John Wiley.
2. Introduction to languages and the Theory of Computation, John C Martin, TMH
3. “Elements of Theory of Computation”, Lewis H.P. & Papadimition C.H. Pearson /PHI.
- 4 Theory of Computer Science – Automata languages and computation -Mishra and Chandrashekar, 2nd edition, PHI
5. Modern Compiler Construction in C , Andrew W.Appel Cambridge University Press.
6. Compiler Construction, LOUDEN, Thomson.
7. Introduction to Theory of Computation –Sipser 2nd edition Thomson

**Syllabus for B. Tech. III Year II semester
Computer Science and Engineering
COMPUTER GRAPHICS**

Code:101IT06

L	T	P/D	C
3	1	-	3

UNIT I

Introduction, Application areas of Computer Graphics, overview of graphics systems, video-display devices, raster-scan systems, random scan systems, graphics monitors and work stations and input devices. Output primitives : Points and lines, line drawing algorithms, mid-point circle and ellipse algorithms.

UNIT II

Filled area primitives: Scan line polygon fill algorithm, boundary-fill and flood-fill algorithms 2-D geometrical transforms : Translation, scaling, rotation, reflection and shear transformations, matrix representations and homogeneous coordinates, composite transforms, transformations between coordinate systems.

UNIT III

2-D viewing : The viewing pipeline, viewing coordinate reference frame, window to view-port coordinate transformation, viewing functions, Cohen-Sutherland and Cyrus-beck line clipping algorithms, Sutherland – Hodgeman polygon clipping algorithm

UNIT IV

3-D object representation : Polygon surfaces, quadric surfaces, spline representation, Hermite curve, Bezier curve and B-Spline curves, Bezier and B-Spline surfaces. Basic illumination models, polygon rendering methods. 3-D Geometric transformations : Translation, rotation, scaling, reflection and shear transformations, composite transformations.

UNIT V

3-D viewing : Viewing pipeline, viewing coordinates, view volume and general projection transforms and clipping Visible surface detection methods : Classification, back-face detection, depth-buffer, scan-line, depth sorting, BSP-tree methods, area sub-division and octree methods

UNIT VI

Computer animation : Design of animation sequence, general computer animation functions, raster animation, computer animation languages, key frame systems, motion specifications. (p.nos 604- 16 of text book -1, chapter 21 of text book-2).

TEXT BOOKS

1. “Computer Graphics C version”, Donald Hearn and M.Pauline Baker, Pearson Education.
2. “Computer Graphics Principles & practice”, second edition in C, Foley, VanDam, Feiner and Hughes, Pearson Education.

REFERENCES

1. “Computer Graphics”, second Edition, Donald Hearn and M.Pauline Baker, PHI/Pearson Education.
2. “Computer Graphics Second edition”, Zhigand xiang, Roy Plastock, Schaum’s outlines, Tata Mc- Graw hill

edition.

3. Procedural elements for Computer Graphics, David F Rogers, Tata Mc Graw hill, 2nd edition.
4. “Principles of Interactive Computer Graphics”, Neuman and Sproul, TMH.
5. Principles of Computer Graphics, Shalini Govil, Pai, 2005, Springer.
6. Computer Graphics, Steven Harrington, TMH

**Syllabus for B. Tech. III Year II semester
Computer Science and Engineering
SOFTWARE QUALITY ASSURANCE AND TESTING**

Code:101CS09

L	T	P/D	C
4	1	-	4

UNIT I

SQA framework, Software Quality Assurance, Components of Software Quality assurance, software Quality Assurance plan, Steps to develop and implement a SQA plan, Quality standards: ISO standards, CMM, CMMI, PCMM, Malcom Balridge, Malcom Balridge

UNIT II

Metrics and Measurements introduction, product quality metrics, In-process Quality Metrics, Metrics for Software maintenance, Examples of Metric programs, Software Quality metrics methodology, Establish quality requirements, Identify software quality metrics, Implement the software quality metrics, Analyze software metrics results, Validate the software quality metrics.

UNIT III

Software testing strategy and Environment, Establishing testing policy, structured approach to testing, Test factors, Economics of SDLC testing.

UNIT IV

Software Testing Methodology, Defects hard to find, Verification and validation, Functional and structural, Workbench concept, Eight Consideration of software testing methodology, testing tactics checklist.

UNIT V

Software Testing Techniques, Black-box, Boundary value, Bottomup, Branch coverage, Cause Effect graphing, CRUD, Database, Histogram, Graybox, Inspections, JADs, Pareto Analysis, Prototyping, Random Testing, Risk based testing, Regression Tasting, Structured walkthroughs, Thread testing, Performance testing, White box testing

UNIT VI

Graph matrices and application: Motivational overview, matrix of graph, relations, power of a matrix, node reduction algorithm.
Exposure to Software Testing Tools: Load Runner, Win runner and QTP.

TEXT BOOKS

1. Effective Methods for Software Testing, 2nd Edition by William E.Perry, Wiley publications.
2. Software Quality, by Mordechai Ben-Menachem/ Gray S.Marlist By Thomson learning publications
3. Software Testing and continuous Quality Improvement, by William E.Lewis, Gunasekaran, 2nd Edition
Auerbach publications
4. Metrics and Models for Software Quality Engineering by Stephen H.Kan by Pearson Education Publications
5. Software testing techniques – Boris Beizer, Dreamtech, second edition.

6. Software testing tools – by Dr. K.V.K.K Prasad Dreamtech

REFERENCES

1. Software Testing Techniques ,by Bories Beizer, Second Edition,Dreamtech Press
2. Testing and Quality Assurance for Component based software ,by Gao,Tsao and Wu,Artech House Publishers
3. Managing the Testing Process,by Rex Black,Wiley.
4. Handbook of Software Quality Assurance, by G.Gordon Schulmeyer,James I.McManus,2nd Edition,International Thomson Computer Press.

**Syllabus for B. Tech. III Year II semester
Computer Science and Engineering
ADVANCED ALGORITHMS
(PROFESSIONAL ELECTIVE – I)**

Code:101CS10

L	T	P/D	C
3	1	-	3

UNIT I

The Role of Algorithms in Computing. Algorithms as a technology .Fibonacci heaps. Van Emde Boas trees.

Probabilistic Analysis and Randomized Algorithms: The hiring problem, Indicator random variables, Probabilistic analysis and further uses of indicator random variables.

UNIT II

String Matching: The naive string-matching algorithm, Rabin-Karp algorithm.

Maximum Flow: Flow networks, The Ford-Fulkerson method, maximum bipartite matching, maximum bipartite matching, Push-relabel algorithms.

UNIT III

Linear Programming: Formulating problems as linear programs. Duality.

Approximation Algorithms: The vertex-cover problem, the set-covering problem.

UNIT IV

Parallel Algorithms: PRAM. Pointer jumping and parallel prefix. Tree contraction. Divide and conquer.

Augmenting Data Structures: Dynamic order statistics, How to augment a data structure.

UNIT V

External-Memory Algorithms: Accounting for the cost of accessing data from slow memory.

Multithreaded Algorithms: The basics of dynamic multithreading, multithreaded matrix multiplication, Multithreaded merge sort.

UNIT VI

Computational Geometry: Line-segment properties, determining whether any pair of segments intersects, finding the convex hull, finding the closest pair of points.

TEXT BOOKS

1. Cormen, Leiserson, Rivest, and Stein. Introduction to Algorithms. MIT Press. 2001.
2. Algorithms sequential & parallel: A unified approach (Charles River Media Computer Engineering) By Russ

Miller and Laurence Boxer.

REFERENCES

1. Motwani and Raghavan. Randomized Algorithms. Cambridge University Press, 1995.
2. Dan Gusfield. Algorithms on Strings, Trees, and Sequences: Computer Science and Computational Biology.
Cambridge University Press, 1997.

3. Allan Borodin and Ran El-Yaniv. Online Computation and Competitive Analysis.
Cambridge University
Press, 1998.

**Syllabus for B. Tech. III Year II semester
Computer Science and Engineering
ARTIFICIAL INTELLIGENCE
(PROFESSIONAL ELECTIVE – I)**

Code:101CS11

L	T	P/D	C
3	1	-	3

UNIT I

Introduction : AI problems, foundation of AI and history of AI intelligent agents: Agents and Environments, the concept of rationality, the nature of environments, structure of agents, problem solving agents, problem formulation.

UNIT II

Searching : Searching for solutions, uniformed search strategies – Breadth first search, depth first Search. Search with partial information (Heuristic search) Greedy best first search, A* search Game Playing: Adversial search, Games, minimax, algorithm, optimal decisions in multiplayer games, Alpha-Beta pruning, Evaluation functions, cutting of search.

UNIT III

Knowledge Representation & Reasons logical Agents, Knowledge – Based Agents, the Wumpus world, logic, propositional logic, Resolution patterns in propos ional logic, Resolution, Forward & Backward. Chaining.

UNIT IV

First order logic. Inference in first order logic, propositional Vs. first order inference, unification & lifts forward chaining, Backward chaining, Resolution.

UNIT V

Planning: Classical planning problem, Language of planning problems, Expressiveness and extension, planning with state – space search, Forward states space search, Backward states – space search, Heuristics for states space search. Planning with state space search, partial order planning Graphs.

UNIT VI

Learning: Forms of learning, Induction learning, Learning Decision Tree, Statistical learning methods, Learning with complex data, learning with hidden variables – EM algorithm, Instance based learning, Neural Networks.

TEXT BOOKS

1. Artificial Intelligence – A Modern Approach. Second Edition, Stuart Russel, Peter Norvig, PHI/ Pearson Education.
2. Artificial Intelligence, 3rd Edition, Patrick Henry Winston, Pearson Education.

REFERENCES

1. Artificial Intelligence , 2nd Edition, E.Rich and K.Knight (TMH).

2. Artificial Intelligence and Expert Systems – Patterson PHI.
3. Expert Systems: Principles and Programming- Fourth Edn, Giarrantana/ Riley, Thomson.
4. PROLOG Programming for Artificial Intelligence. Ivan Bratka- Third Edition – Pearson Education.

**Syllabus for B. Tech. III Year II semester
Computer Science and Engineering
SOFTWARE PROJECT MANAGEMENT
(PROFESSIONAL ELECTIVE – I)**

Code:101CS12

L	T	P/D	C
3	1	-	3

UNIT I

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

Evolution of Software Economics : Software Economics, pragmatic software cost estimation.

UNIT II

Improving Software Economics : Reducing Software product size, improving software processes, improving team effectiveness, improving automation, Achieving required quality, peer inspections.

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.

Project Organizations and Responsibilities : Line-of-Business Organizations, Project Organizations, evolution of Organizations.

UNIT VI

Process Automation : Automation Building blocks, The Project Environment.

Project Control and Process instrumentation : The seven core Metrics, Management indicators, quality indicators, life cycle expectations,

Future Software Project Management : Modern Project Profiles, Next generation Software economics, modern process transitions.

TEXT BOOKS

1. Software Project Management, Walker Royce: Pearson Education, 2005.

REFERENCES

1. Software Project Management, Bob Hughes and Mike Cotterell: Tata McGraw-Hill Edition.
2. Software Project Management, Joel Henry, Pearson Education.
3. Software Project Management in practice, Pankaj Jalote, Pearson Education.2005.

**Syllabus for B. Tech. III Year II semester
Computer Science and Engineering
NETWORK MANAGEMENT SYSTEMS
(PROFESSIONAL ELECTIVE – I)**

Code: 101CS20

L	T	P/D	C
3	1	-	3

UNIT I

Data communications and Network Management Overview : Analogy of Telephone Network Management, Communications protocols and Standards, Case Histories of Networking and Management, Challenges of Information Technology Managers, Network Management: Goals, Organization, and Functions, Network and System Management, Network Management System Platform, Current Status and future of Network Management.

UNIT II

SNMPV1 Network Management : Organization and Information and Information Models.

Managed network : Case Histories and Examples, The History of SNMP Management, The SNMP Model, The Organization Model, System Overview, The Information Model.

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

UNIT III

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.

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 IV

Telecommunications Management Network : Why TMN? , Operations Systems, TMN Conceptual Model, TMN Standards, TMN Architecture, TMN Management Service Architecture, An Integrated View of TMN, mplementation Issues.

UNIT V

Network Management Tools and Systems: Network Management Tools, Network Statistics Measurement Systems, History of Enterprise Management, Network Management systems, Commercial Network management Systems, System Management, Enterprise Management Solutions.

UNIT VI

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 BOOKS

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

REFERENCES

1. Network management, Morris, Pearson Education.
2. Principles of Network System Administration, Mark Burges, Wiley Dreamtech.
3. Distributed Network Management, Paul, John Wiley.

**Syllabus for B. Tech. III Year II semester
Computer Science and Engineering
QUANTITATIVE APTITUDE**

Code: 101MA72

L	T	P/D	C
-	-	2	2

UNIT I

Number System: Test for Divisibility, Test of prime number, Division and Remainder – HCF and LCM of Numbers - Fractions.

UNIT II

Average: Average of different groups, Replacement of some of the items - Percentage - Profit and Loss.

UNIT III

Ratio and Proportion: Properties of Ratio, Comparison of Ratios, Useful Simple Results on Proportion – Partnership and Share – Mixtures.

UNIT IV

Simple Interest: Effect of change of P, R and T on Simple Interest - Compound Interest: Conversion Period, Difference between Compound Interest and Simple Interest – Time and Work – Time and Distance.

UNIT V

Mensuration: Area of Plane Figures, Volume and Surface Area of Solid Figures .

UNIT VI

Data Interpretation: Tabulation, Bar Graphs, Pie Charts, Line Graphs.

TEXT BOOKS

1. Quantitative Aptitude by R.S. Agarwal
2. Quantitative Aptitude by Abhijit Guha

Code:101CS77	Syllabus for B. Tech. III Year II semester Computer Science and Engineering COMPREHENSIVE VIVA II			
	L	T	P/D	C
	-	-	-	1

There shall be a Comprehensive Viva-Voce in III year II Semester. The Comprehensive Viva-Voce will be conducted by a Committee consisting of an external examiner, Head of the Department and two Senior Faculty members of the Department. The Comprehensive Viva-Voce is aimed to assess the students' understanding in various subjects he/she studied during the B.Tech. course of study up to III Year. The Comprehensive Viva-Voce is valued for 50 marks by the Committee. There are no internal marks for the Comprehensive Viva-Voce.

**Syllabus for B. Tech. III Year II semester
Computer Science and Engineering
OPERATING SYSTEMS AND COMPILER DESIGN LAB**

Code:101CS78

L	T	P/D	C
-	-	3	2

Objective :

- To provide an understanding of the language translation peculiarities by designing a complete translator for a mini language.
- To provide an understanding of the design aspects of operating system

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 JDK kit

PART - A

1. Simulate the following CPU scheduling algorithms
a) Round Robin b) SJF c) FCFS d) Priority
2. Simulate all file allocation strategies
a) Sequential b) Indexed c) Linked
3. Simulate MVT and MFT
4. Simulate all File Organization Techniques
a) Single level directory b) Two level c) Hierarchical d) DAG
5. Simulate Bankers Algorithm for Dead Lock Avoidance
6. Simulate Bankers Algorithm for Dead Lock Prevention
7. Simulate all page replacement algorithms
a) FIFO b) LRU c) LFU Etc. ...
8. Simulate Paging Technique of memory management.

PART - B

Consider the following mini Language, a simple procedural high-level language, only operating on integer data, with a syntax looking vaguely like a simple C crossed with Pascal. The syntax of the language is

defined by the following BNF grammar:

```

<program> ::= <block>
<block> ::= { <variabledefinition> <slist> }
| { <slist> }
<variabledefinition> ::= int <vardeflist> ;
<vardeflist> ::= <vardec> | <vardec> , <vardeflist>
<vardec> ::= <identifier> | <identifier> [ <constant> ]
<slist> ::= <statement> | <statement> ; <slist>
<statement> ::= <assignment> | <ifstatement> | <whilestatement>
| <block> | <printstatement> | <empty>
<assignment> ::= <identifier> = <expression>
| <identifier> [ <expression> ] = <expression>
<ifstatement> ::= if <bexpression> then <slist> else <slist> endif
| if <bexpression> then <slist> endif
<whilestatement> ::= while <bexpression> do <slist> enddo
<printstatement> ::= print ( <expression> )

```

```

<expression> ::= <expression> <addingop> <term> | <term> | <addingop> <term>
<bexpression> ::= <expression> <relop> <expression>
<relop> ::= < | <= | == | >= | > | !=
<addingop> ::= + | -
<term> ::= <term> <multop> <factor> | <factor>
<multop> ::= * | /
<factor> ::= <constant> | <identifier> | <identifier> [ <expression> ]
| ( <expression> )
<constant> ::= <digit> | <digit> <constant>
<identifier> ::= <identifier> <letterordigit> | <letter>
<letterordigit> ::= <letter> | <digit>
<letter> ::= a|b|c|d|e|f|g|h|i|j|k|l|m|n|o|p|q|r|s|t|u|v|w|x|y|z
<digit> ::= 0|1|2|3|4|5|6|7|8|9
<empty> has the obvious meaning
Comments (zero or more characters enclosed between the standard C/Java-style comment
brackets /
*...*/) can be inserted. The language has rudimentary support for 1-dimensional arrays. The
declaration
int a[3] declares an array of three elements, referenced as a[0], a[1] and a[2]. Note also that
you should
worry about the scoping of names.
A simple program written in this language is:
{ int a[3],t1,t2;
t1=2;
a[0]=1; a[1]=2; a[t1]=3;
t2=-(a[2]+t1*6)/(a[2]-t1);

if t2>5 then
print(t2);
else {
int t3;
t3=99;
t2=-25;
print(-t1+t2*t3); /* this is a comment
on 2 lines */
} endif }

```

1. Design a Lexical analyzer for the above language. The lexical analyzer should ignore redundant spaces, tabs and newlines. It should also ignore comments. Although the syntax specification states that identifiers can be arbitrarily long, you may restrict the length to some reasonable value.
2. Implement the lexical analyzer using JLex, flex or lex or other lexical analyzer generating tools.
3. Design Predictive parser for the given language
4. Design LALR bottom up parser for the above language.
5. Convert the BNF rules into Yacc form and write code to generate abstract syntax tree.
6. Write program to generate machine code from the abstract syntax tree generated by the parser. The following instruction set may be considered as target code.

The following is a simple register-based machine, supporting a total of 17 instructions. It has three distinct internal storage areas. The first is the set of 8 registers, used by the individual instructions as detailed below, the second is an area used for the storage of variables and the third is an area used

for the storage of program. The instructions can be preceded by a label. This consists of an integer in the range 1 to 9999 and the label is followed by a colon to separate it from the rest of the instruction. The numerical label can be used as the argument to a jump instruction, as detailed below.

In the description of the individual instructions below, instruction argument types are specified as follows :

R

specifies a register in the form R0, R1, R2, R3, R4, R5, R6 or R7 (or r0, r1, etc.).

L

specifies a numerical label (in the range 1 to 9999).

V

specifies a “variable location” (a variable number, or a variable location pointed to by a register - see below).

A

specifies a constant value, a variable location, a register or a variable location pointed to by a register (an indirect address). Constant values are specified as an integer value, optionally preceded by a minus sign, preceded by a # symbol. An indirect address is specified by an @ followed by a register.

So, for example, an A-type argument could have the form 4 (variable number 4), #4 (the constant value 4), r4 (register 4) or @r4 (the contents of register 4 identifies the variable location to be accessed).

The instruction set is defined as follows:

LOAD A,R

loads the integer value specified by A into register R.

STORE R,V

stores the value in register R to variable V.

OUT R

outputs the value in register R.

NEG R

negates the value in register R.

ADD A,R

adds the value specified by A to register R, leaving the result in register R.

SUB A,R

subtracts the value specified by A from register R, leaving the result in register R.

MUL A,R

multiplies the value specified by A by register R, leaving the result in register R.

DIV A,R

divides register R by the value specified by A, leaving the result in register R.

JMP L

causes an unconditional jump to the instruction with the label L.

JEQ R,L

jumps to the instruction with the label L if the value in register R is zero.

JNE R,L

jumps to the instruction with the label L if the value in register R is not zero.

JGE R,L

jumps to the instruction with the label L if the value in register R is greater than or equal to zero.

JGT R,L

jumps to the instruction with the label L if the value in register R is greater than zero.

JLE R,L

jumps to the instruction with the label L if the value in register R is less than or equal to zero.

JLT R,L

jumps to the instruction with the label L if the value in register R is less than zero.

NOP

is an instruction with no effect. It can be tagged by a label.

STOP

stops execution of the machine. All programs should terminate by executing a STOP instruction.

**Syllabus for B. Tech. III Year II semester
Computer Science and Engineering
SOFTWARE TESTING LAB**

Code:101CS79

L	T	P/D	C
-	-	3	2

1. Write programs in 'C' Language to demonstrate the working of the following constructs:
i) do...while ii) while...do iii) if ...else iv) switch v) for
2. A program written in 'C' language for matrix multiplication fails” Introspect the causes for its failure and write down the possible reasons for its failure.
3. Take any system (e.g. ATM system) and study its system specifications and report the various bugs.
4. write the test cases for any known application(e.g. banking application)
5. Create a test plan document for any application(e.g. library management system)
6. Study of testing tool(e.g. win runner)
7. Study of testing tool (QTP)
8. Study of any bug tracking tool(e.g.Bugzilla,bugbit)
9. Study of Load runner.
10. study on openSTA(open source testing tool)

**Syllabus for B. Tech. IV Year I semester
Computer Science and Engineering
DATA WAREHOUSING AND DATA MINING**

Code:101IT05

L	T	P/D	C
3	1	-	3

UNIT I

Introduction : Fundamentals of data mining, Data Mining Functionalities, Classification of Data Mining systems, Major issues in Data Mining, 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 II

Data Preprocessing : Introduction to machine learning, Needs Preprocessing the Data, Data Cleaning, Data Integration and Transformation, Data Reduction, Discretization and Concept Hierarchy Generation. Data Mining Primitives, Data Mining Query Languages, Architectures of Data Mining Systems,

UNIT III

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 IV

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 V

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 VI

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.

TEXT BOOK

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.

3. Data Warehousing in the Real World – SAM ANAHORY & DENNIS MURRAY. Pearson
Edn
Asia.

4. Data Warehousing Fundamentals – PAULRAJ PONNAIAH WILEY STUDENT
EDITION.

5. The Data Warehouse Life cycle Tool kit – RALPH KIMBALL WILEY STUDENT
EDITION

**Syllabus for B. Tech. IV Year I semester
Computer Science and Engineering
NEURAL NETWORKS AND FUZZY LOGIC
(PROFESSIONAL ELECTIVE – II)**

Code:101IT10

L	T	P/D	C
3	1	-	3

UNIT I

Characteristics of Neural Networks, Historical Development of Neural Networks Principles, Artificial Neural Networks: Terminology, Models of Neuron, Topology, Basic Learning Laws, Pattern Recognition Problem, Basic Functional Units, Pattern Recognition Tasks by the Functional Units.

UNIT II**Feedforward Neural Networks:**

Introduction, Analysis of pattern Association Networks, Analysis of Pattern Classification Networks, Analysis of pattern storage Networks. Analysis of Pattern Mapping Networks.

UNIT III**Feedback Neural Networks**

Introduction, Analysis of Linear Autoassociative FF Networks, Analysis of Pattern Storage Networks.

UNIT IV**From Classical Sets to Fuzzy Sets: A Grand Paradigm Shift:**

Introduction, Crisp Sets: An Overview, Fuzzy Sets: Basic Types, Fuzzy Sets: Basic Concepts, Characteristics and Significance of the paradigm Shift.

Fuzzy Sets Vs Crisp Sets:

Additional properties of α - Cuts, Representations of Fuzzy Sets, Extension Principle for Fuzzy Sets

UNIT V

Operations on Fuzzy Sets: Types of operations, Fuzzy Complements, Fuzzy intersections: t-Norms, Fuzzy Unions: t- Conorms, Combinations of Operations, Aggregation Operations.

Fuzzy Arithmetic: Fuzzy Numbers, Linguistic Variables, Arithmetic Operations on Intervals, Arithmetic Operations on Fuzzy Numbers, Lattice of Fuzzy Numbers, Fuzzy Equations.

UNIT VI

Fuzzy Logic: Classical Logic: An Over View, Multivalued Logic, Fuzzy Prepositions, Fuzzy Quantifiers, Linguistic Hedges, Inference from Conditional Fuzzy Prepositions, Inference from Conditional and Quantified Prepositions, Inference from Quantified Prepositions

TEXT BOOKS

1. Fuzzy Sets and Fuzzy Logic by George J. Klir/ Bo Yuan Printice Hall of India P Ltd.
2. Artificial neural networks – B. Vegnanarayana Printice Hall of India P Ltd.

REFERENCES

1. Artificial Intelligence , 2nd Edition, E.Rich and K.Knight (TMH).

2. Artificial Intelligence and Expert Systems – Patterson PHI.
3. Expert Systems: Principles and Programming- Fourth Edn, Giarrantana/ Riley, Thomson.
4. PROLOG Programming for Artificial Intelligence. Ivan Bratka- Third Edition – Pearson Education.
5. Neural Networks Simon Haykin PHI
6. Artificial Intelligence, 3rd Edition, Patrick Henry Winston., Pearson Edition.

**Syllabus for B. Tech. IV Year I semester
Computer Science and Engineering
SOFTWARE ARCHITECTURE AND DESIGN PATTERN
(PROFESSIONAL ELECTIVE – II)**

Code:101CS13

L	T	P/D	C
3	1	-	3

UNIT I***Envisioning Architecture***

The Architecture Business Cycle, What is Software Architecture? , Architectural patterns, reference models, reference architectures, architecture structures and views.

UNIT II***Creating an Architecture***

Quality Attributes, Architectural styles and patterns, Designing the Architecture, Documenting the architecture, Reconstructing Software Architecture.

UNIT III***Analyzing Software Architecture***

Architecture evaluation, Architecture design decision making, SAAM, ATAM, CBAM.

Moving from Architecture to Systems

Software Product Lines, Building systems from off the shelf components, Software architecture in future.

UNIT IV***Design Patterns***

What is pattern? Pattern Description, Organizing catalogs, Role in solving problems, Selection and usage.

UNIT V

Creational patterns: Abstract factory, Builder, Factory method, prototype, singleton.

Structural patterns: Adapter, Bridge, Composite, Decorator, Façade, Flyweight, Proxy.

UNIT VI

Behavioural patterns: Chain of responsibility, Command, Interpreter, Iterator, Mediator, Memento, Observer, State, Strategy, Template method, Visitor.

Case Studies

The World Wide Web - a case study in interoperability, Flight Simulation- A Case Study in an Architecture for Integrability.

TEXT BOOKS

- 1 Software Architecture in Practice, 2nd Edition by Len Bass, Paul Clements, Rick Kazman, published by Pearson Edition
2. Design Patterns, by Erich Gamma, Pearson Education

REFERENCES

1. Beyond Software Architecture, Luke Hohmann, Addison Wesley, 2003.

2. Software Architecture, David M Dikel, David Kane and James R Wilson, Prentice Hall PTR, 2001.
3. Pattern Oriented Software Architecture, F Buschmann & others, John Wiley & Sons.
4. Head First Design patterns, Eric Freeman & Elisabeth Freeman, O'REILLY, 2007.
5. Design pattern in java, Steven John Metsker & William C. Wake, Pearson Education, 2006.
6. Design patterns in C#, Steven John Metsker, Pearson Education, 2004.
7. J2EE Patterns, Deepak Alur, John Crupi & Dan Malks, Pearson Education, 2003.
8. Software Design, David Budgen, Second edition, Pearson Education, 2003.

**Syllabus for B. Tech. IV Year I semester
Computer Science and Engineering
INFORMATION RETRIEVAL SYSTEM
(PROFESSIONAL ELECTIVE – II)**

Code:101CS14

L	T	P/D	C
3	1	-	3

UNIT I

Introduction: Definition, Objectives, Functional Overview, Relationship to DBMS, Digital libraries and Data Warehouses, **Information Retrieval System Capabilities** - Search, Browse, Miscellaneous.

UNIT II

Cataloguing and Indexing: Objectives, Indexing Process, Automatic Indexing, Information Extraction, **Data Structures:** Introduction, Stemming Algorithms, Inverted file structures, N-gram data structure, PAT data structure, Signature file structure, Hypertext data structure.

UNIT III

Automatic Indexing: Classes of automatic indexing, Statistical indexing, Natural language, Concept indexing, Hypertext linkages
Document and Term Clustering: Introduction, Thesaurus generation, Item clustering, Hierarchy of clusters.

UNIT IV

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 V

Text Search Algorithms: Introduction, Software text search algorithms, Hardware text search systems. **Information System Evaluation:** Introduction, Measures used in system evaluation, Measurement example – TREC results.

UNIT VI

Multimedia Information Retrieval – Models and Languages – Data Modeling, Query Languages, Indexing and Searching - **Libraries and Bibliographical Systems** – Online IR Systems, OPACs, Digital Libraries.

TEXT BOOKS

1. Information Storage and Retrieval Systems: Theory and Implementation By Kowalski, Gerald, Mark T Maybury Kluwer Academic Press, 2000.
2. Modern Information Retrieval By Ricardo Baeza-Yates, Pearson Education, 2007.
3. Information Retrieval: Algorithms and Heuristics By David A Grossman and Ophir Frieder, 2nd Edition, Springer International Edition, 2004.

REFERENCES

1. Information Retrieval Data Structures and Algorithms By William B Frakes, Ricardo Baeza-Yates, Pearson Education, 1992.
2. Information Storage & Retrieval By Robert Korfhage – John Wiley & Sons.
3. Introduction to Information Retrieval By Christopher D. Manning and Prabhakar Raghavan, Cambridge University Press, 2008.

**Syllabus for B. Tech. IV Year I semester
Computer Science and Engineering
HUMAN COMPUTER INTERACTION
(PROFESSIONAL ELECTIVE – II)**

Code:101CS17

L	T	P/D	C
3	1	-	3

UNIT I

Introduction : Importance of user Interface – definition, importance of good design. Benefits of good design. A brief history of Screen design.

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

Screen Designing : Design goals – Screen planning and purpose, organizing screen elements, ordering of screen data and content – screen navigation and flow – Visually pleasing composition – amount of information – focus and emphasis – presentation information simply and meaningfully – information retrieval on web – statistical graphics – Technological consideration in interface design.

UNIT V

Windows – New and Navigation schemes selection of window, selection of devices based and screen based controls.

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

UNIT VI

Software tools – Specification methods, interface – Building Tools.

Interaction Devices – Keyboard and function keys – pointing devices - speech recognition digitization and generation – image and video displays – drivers.

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,
3. User Interface Design, Soren Lauesen, Pearson Education

**Syllabus for B. Tech. IV Year I semester
Computer Science and Engineering
NETWORK PROGRAMMING**

Code:101CS15

L	T	P/D	C
3	1	-	3

UNIT**I**

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

Sockets: Introduction, Address structures, value – result arguments, Byte ordering and manipulation function and related functions.

UNIT II

Elementary TCP sockets: Socket, connect, bind, listen, accept, fork and exec function, concurrent servers. Close function and related function. 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 III

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 and TCP socket-options.

UNIT IV

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, Introduction to Advanced sockets and Raw sockets.

UNIT V

Elementary name and Address conversions: DNS, gethostbyname function, Resolver options and Functions, IPV6 support, and other networking information. Unix Domain Protocols-introduction, domain structure, socket functions, client-server scenario.

UNIT VI

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

Remote Login: Terminal line disciplines, Pseudo-Terminals, Terminal modes, Control Terminals, rloginOverview, RPC, TransparencyIssues.

TEXT BOOKS

1. UNIX Network Programming, Vol. I, Sockets API, 2nd Edition. - W.Richard Stevens, Pearson Edn. Asia.
2. UNIX Network Programming, 1st Edition, - W.Richard Stevens. PHI.

REFERENCES

1. UNIX Systems Programming using C++ T CHAN, PHI.

2. UNIX for Programmers and Users, 3rd Edition Graham GLASS, King abls, Pearson Education
3. Advanced UNIX Programming 2nd Edition M. J. ROCHKIND, Pearson Education

**Syllabus for B. Tech. IV Year I semester
Computer Science and Engineering
MULTIMEDIA AND WEB TECHNOLOGIES**

Code:101CS22

L	T	P/D	C
3	1	-	3

UNIT I

HTML Common tags- List, Tables, images, forms, Frames; Cascading Style sheets; Introduction to Java Scripts, Objects in Java Script, Dynamic HTML with Java Script.

UNIT II

XML: Document type definition, XML Schemas, Document Object model, Presenting XML, Using XML Processors: DOM and SAX.

UNIT III

Web Servers and Servlets: Tomcat web server, Introduction to Servlets: Lifecycle of a Servlet, JSDK, The Servlet API, The javax.servlet Package, Reading Servlet parameters, Reading Initialization parameters. The javax.servlet HTTP package, Handling Http Request & Responses, Using Cookies-Session Tracking, Security Issues.

UNIT IV

Introduction to JSP: The Problem with Servlet. The Anatomy of a JSP Page, JSP Processing. JSP Application Design with MVC Setting Up

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 Data between Pages – Sharing Session and Application Data.

UNIT V

Fundamental concepts in Text and Image: Multimedia and hypermedia, world wide web, overview of multimedia software tools. Graphics and image data representation graphics/image data types, file formats, Color in image and video: color science, color models in images.

UNIT VI

Multimedia application to Web-Adding background sound-Creating animation –adding video using windows Media Player ActiveX control- Creating Multimedia application using java.(Chapters 19,20,21 and chapter 16 of java how to program by Deitel and Deitel)

TEXT BOOKS

1. Web Programming, building internet applications, Chris Bates 2nd edition, WILEY Dreamtech (UNITs 1,2)
2. Java™ 2: The Complete Reference, Fifth Edition (UNIT 3)
3. Java Server Pages –Hans Bergsten, SPD O'Reilly (UNIT 4)
4. Digital multimedia by Nigel Chapman and Jenny Chapman (Units 5 & 6)

REFERENCES

1. Programming world wide web-Sebesta,Pearson
2. Core SERVLETS ANDJAVASERVER 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.
4. Servlet Programming-Jason Hunter, O'REILLY publications.
5. Javaserer Pages by Hans Bergsten O'REILLY publications.
6. Web Applications Technologies Concepts-Knuckles,John Wiley
7. Programming world wide web-Sebesta,Pearson
8. Web Warrior Guide to Web Programmimg-Bai/Ekedaw-Thomas
9. Beginning Web Programming-Jon Duckett WROX.
10. Java Server Pages, Pekowsky, Pearson.

**Syllabus for B. Tech. IV Year I semester
Computer Science and Engineering
INFORMATION SECURITY**

Code: 101IT11

L	T	P/D	C
3	1	-	3

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.

UNIT II

Conventional Encryption Principles, Conventional encryption algorithms: DES, TDES, AES, cipher block modes of operation, location of encryption devices, key distribution, Approaches of Message Authentication, Secure Hash Functions: SHA1 and HMAC.

Public key cryptography principles, public key cryptography algorithms: RSA, DIFFIE HELL MAN, digital signatures, digital Certificates, Certificate Authority and key management

Kerberos, X.509 Directory Authentication Service.

UNIT III

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

UNIT IV

IP Security Overview, IP Security Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations and Key Management.

UNIT V

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

Intruders, Viruses and related threats.

UNIT VI

Firewall Design principles, Trusted Systems. Intrusion Detection Systems.

TEXT BOOKS

1. Network Security Essentials (Applications and Standards) by William Stallings Pearson Education.
2. Hack Proofing your network by Ryan Russell, Dan Kaminsky, Rain Forest Puppy, Joe Grand, David Ahmad, Hal Flynn Ido Dubrawsky, Steve W.Manzuik and Ryan Permech, wiley Dreamtech

REFERENCES

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

**Syllabus for B. Tech. IV Year I semester
Computer Science and Engineering
BANKING OPERATIONS, INSURANCE AND RISK MANAGEMENT
(OPEN ELECTIVE – II)**

Code:101MB56

L	T	P/D	C
3	-	-	3

UNIT I**INTRODUCTION TO BANKING BUSINESS:**

Banking Sectors- Retail, Corporate, Rural, and International; Non-banking financial intermediaries; Types of advances and deposits in a bank, New Dimensions and Products. - Credit, Debit and Smart Cards, and e-Banking Structure of the Indian Banking System's. Commercial Banks – Public and Private Sector and Foreign Banks. Cooperative Banks.

UNIT II**BANKING REFORMS AND REGULATION:**

Banking Regulation Act, 1949, Reserve Bank of India Act 1934, and Reserve Bank's Instruments of Credit Control. Deficiencies in Indian Banking including Problems Accounts and Non-Performing Assets, Banking Sector Reforms.

UNIT III**INSURANCE:**

Need for and importance of insurance, branches of insurance (life and general insurance) policy and procedure.

UNIT IV**INSURANCE BUSINESS ENVIRONMENT:**

Mathematical basis of life insurance, reinsurance coverage, regulatory and legal frame work governing the insurance, business and economics of insurance, need for changing mindset; Latest trends.

UNIT V**INTRODUCTION TO RISK**

Types of Risks facing Business and Individuals, Risk Management Process, Risk Management Methods, Risk Identification and Measurement, Risk Management Techniques: Non Insurance Methods.

UNIT VI**INSURANCE AS A RISK MANAGEMENT**

Techniques Principles: Principle of Indemnity, Principle of Insurable Interest, Principle of Subrogation, Principle of utmost good Faith, Requisites of Insurable Risks, Requirements of an Insurance Contract, Distinguishes Characteristics of Insurance Contracts, Role of Agents and Brokers.

TEXT BOOKS

1. Varshney, P.N., Banking Law and Practice, Sultan Chand & Sons, New Delhi.
2. General principles of Insurance - Harding and Evanly
3. Mark S.Dorfman: Risk Management and Insurance, Pearson, 2009.

REFERENCES

1. Scott E. Harringam Gregory R. Nichaus: Risk Management & Insurance, , TMH, 2009.
2. George E. Rejda: Principles of risk Management & Insurance, , 9/e, Pearson Education, 2009.
3. G.Koteshwar: Risk Management Insurance and Derivatives, Himalaya, 2008
4. Gulati: Principles of Insurance Management, Excel, 2009
5. James S Trieschmann, Robert E. Hoyt & David N. Sommer: Risk Management & Insurance, Cengage, 2009.
6. Dorfman: Introduction to Risk Management and Insurance, 8/e, Pearson, 2009.
7. P.K.Gupta: Insurance and Risk Management, Himalaya, 2009.
8. Vivek & P.N. Asthana: Financial Risk Management, Himalaya, 2009

**Syllabus for B. Tech. IV Year I semester
Computer Science and Engineering
BIO INFORMATICS FOR CSIT
(OPEN ELECTIVE – II)**

Code: 101BT41

L	T	P/D	C
3	-	-	3

UNIT I: SCOPE OF BIOINFORMATICS and BIOLOGICAL DATABASES

History, definition, importance and applications of bioinformatics, Introduction to biological data, Organization and management of databases, Nucleotide databases (Genbank,), Protein Databases(SWISS PROT)

UNIT II: SEQUENCE ALIGNMENT

Basic concepts of sequence homology Dynamic Programming, Dot Matrix analysis, Smith-Waterman Algorithm, Needleman-Wunsch Algorithm, **Scoring** matrices: PAM and BLOSUM matrices

UNIT III: SEQUENCE-BASED DATABASE SEARCHES

BLAST and FASTA algorithms, various versions of basic BLAST and FASTA, Use of these methods for sequence analysis including the on-line use of the tools and interpretation of results.

UNIT IV: MULTIPLE SEQUENCE ALIGNMENT

Basic concepts of various approaches for MSA (e.g. progressive, hierarchical etc.). Algorithm of CLUSTALW and its application

UNIT V: PHYLOGENETIC ANALYSIS

Definition and description of phylogenetic trees. Distance based and character based methods of phylogenetic analysis .

UNIT VI: PROTEIN STRUCTURE PREDICTION

Secondary structure prediction methods, Algorithms of Chou Fasman, GOR methods. Protein homology modeling.

TEXT BOOKS

1. Bioinformatics. David Mount, 2000. CSH Publications

REFERENCES

1. Bioinformatics: A Machine Learning Approach P. Baldi. S. Brunak, MIT Press 1988.
2. Genomics and Proteomics-Functional and Computational aspects. Springer Publications. Editor-Sandor Suhai.
3. Bioinformatics- Methods and Protocols-Human Press. Stephen Misener, Stephen A. Krawetz.
4. Bioinformatics – A Practical guide to the Analysis of Genes and Proteins – Andreas D.Baxevanis, B.F. Francis Ouellette.

**Syllabus for B. Tech. IV Year I semester
Computer Science and Engineering
ROBOTICS**

Code: 101ME28

(OPEN ELECTIVE – II)

L	T	P/D	C
3	-	-	3

UNIT I

Introduction: An over view and applications of Robotics, classification by coordinate system and control system. Different types of robot actuators: pneumatic, hydraulic and electric

UNIT II

Motion Analysis and Manipulator Kinematics: Specifications of matrices, Homogeneous transformations as applicable to rotation and translation, D-H notation, Differential transformations, Jacobians; Forward and inverse kinematics – problems.

UNIT III

Statics and Dynamics of manipulators: Force and moment balance, Use of Jacobian, Velocity analysis, Lagrange – Euler and Newton – Euler formations for dynamics of manipulators – Problems.

UNIT IV

Trajectory Planning: Path planning, Skew motion, joint integrated motion – straight line motion.

UNIT V

Control of Manipulators: Introduction to control systems: open and closed loop control, transfer functions, characteristics of linear and nonlinear systems and their control schemes; model of a manipulator joint, actuator; control schemes applied in robotics: PID

UNIT VI

Robot Sensors and Vision: Classification of sensors, sensors in robotics; introduction to machine vision, image representation and processing.

TEXT BOOKS

1. Robotics and Control / Mittal R K & Nagrath I J / TMH.
2. Robotics / Fu K S/ McGraw Hill.

REFERENCES

1. Robot Dynamics & Control – Mark W. Spong and M. Vidyasagar / John Wiley & Sons
2. Robotic Engineering / Richard D. Klafter, Prentice Hall

**Syllabus for B. Tech. IV Year I semester
Computer Science and Engineering
LOGICAL REASONING - II**

Code: 101MA73

L	T	P/D	C
-	-	2	2

Unit – I

Data Sufficiency: Problems in which a question on any topic such as Coding – Decoding, Blood Relations, Directions, Arithmetical Reasoning etc.

Unit – II

Puzzle Test: Classification Type Questions, Seating Arrangements Comparison Type Questions, Sequential Order of Things, Selection Based on given conditions, Family – Based Puzzles, Jumbled Problems.

Unit – III

Assertions and Reason – Logical Venn Diagrams – Alpha Numeric Sequence Puzzle.

Unit – IV

Cubes and Dice – Analytical Reasoning

Unit – V

Logical Deduction: Logic, Statement – Arguments, Statement – Assumptions, Statement – Conclusions, Deriving Conclusions from Passages.

Unit – VI

Clocks & Calendar.

Text Books:

1. Verbal and Non Verbal Reasoning by R. S. Agarwal.

**Syllabus for B. Tech. IV Year I semester
Computer Science and Engineering
PRE PROJECT SEMINAR**

Code: 101CS80

L	T	P/D	C
-	-	-	2

A pre-project seminar in fourth year first semester will be evaluated for 50 marks as follows. This is aimed at the students to identify a project on which they are likely to continue for their project in final year second semester.

Preliminary Report on progress of the work	10 marks
Mid Semester presentation	10 marks
Final report	10 marks
Final Presentation and Defense before a departmental Committee consisting of head, a senior faculty and supervisor	20 marks
There shall be no external evaluation in pre-project seminar.	

**Syllabus for B. Tech. IV Year I semester
Computer Science and Engineering
INDUSTRY ORIENTED MINI PROJECT**

Code: 101CS81

L	T	P/D	C
-	-	-	2

There shall be an industry-oriented mini-Project in their specialization that may be carried out in collaboration with an industry / R & B organization / Academic Institution, to be taken up during the vacation after III year II Semester examination. However, the mini project and its report shall be evaluated during IV year I Semester. The industry oriented mini project shall be evaluated for a total of 75 marks with 25 marks for internal assessment and 50 marks for end examination. The mini project must be submitted in report form and should be presented before a committee, consisting of an external examiner, head of the department, a senior faculty member of the department and supervisor of the mini project.

The pattern of internal evaluation is as follows:

Work in progress as evaluated by internal guide	:	05 marks
Work in progress as evaluated by External guide	:	10 marks
Report	:	05 marks
Seminar presentation and defense of project	:	05 marks

If the mini project is conducted within the college, the work in progress is evaluated by the supervisor for 15 marks.

**Syllabus for B. Tech. IV Year I semester
Computer Science and Engineering
NETWORK PROGRAMMING LAB**

Code: 101CS82

L	T	P/D	C
-	-	3	2

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 at least 64 MB RAM and 100 MB free disk space LAN Connected

- Any flavor of Unix / Linux

1. Implement the following forms of IPC.

a) Pipes

b) FIFO

2. Implement file transfer using Message Queue form of IPC

3. Write a program to create an integer variable using shared memory concept and increment the variable simultaneously by two processes. Use semaphores to avoid race conditions

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

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

6. Design TCP client and server application to transfer file

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

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

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

10. Design UDP Client server to transfer a file

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

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

REFERENCES

1. Advance UNIX Programming Richard Stevens, Second Edition Pearson Education
2. Advance UNIX Programming, N.B. Venkateswarlu, BS Publication.

**Syllabus for B. Tech. IV Year I semester
Computer Science and Engineering
MULTIMEDIA AND WEB TECHNOLOGIES LAB**

Code: 101CS83

L	T	P/D	C
-	-	3	2

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:

A working computer system with either Windows or Linux

A web browser either IE or firefox

Tomcat web server and Apache web server

XML editor like Altova Xml-spy [www.Altova.com/XMLSpy – free], Stylusstudio , etc.,

A database either MYSQL or Oracle

JVM(Java virtual machine) must be installed on your system

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.

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	Description of the Web Site			

Fig 1.1

2) LOGIN PAGE:

This page looks like below:

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	Login : <input type="text"/> Password: <input type="text"/> <input type="button" value="Submit"/> <input type="button" value="Reset"/>			

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:




Snap shot of Cover Page.

Author Name.

Publisher.

Price.

Add to cart button.

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE		Book : XML Bible Author : Winston Publication : Wiley	\$ 40.5	<input type="button" value="Add to cart"/>
ECE		Book : AI Author : S. Russell Publication : Princeton hall	\$ 63	<input type="button" value="Add to cart"/>
EEE		Book : Java 2 Author : Watson Publication : BPB publications	\$ 35.5	<input type="button" value="Add to cart"/>
CIVIL		Book : HTML in 24 hours Author : Sam Peter Publication : Sam publication	\$ 50	<input type="button" value="Add to cart"/>

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:

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	Book name Amount	Price	Quantity	
	Java 2	\$35.5	2	\$70
	XML bible	\$40.5	1	
	\$40.5			
			Total amount -	
	\$130.5			

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.

For example:

```
<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}
.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>

<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:

```
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}
```

```
A:visited {text-decoration: none}
```

```
A:active {text-decoration: none}
```

```
A:hover {text-decoration: underline; color: red;}
```

```
</style>
```

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:

- 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-7:**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 8:

Write JSP programs to do the following using scripting elements.

Check whether the number is prime or not (use Math.random() to take input)

Find factorial of a number using function (use Math.random() to take input).

Write a bean and use an expression to set an attribute.

Week-9:

Write a JSP to do week 8 without using cookies: (use request and config objects to read userid, password and init parameters)

Week-10:

Write JSP programs to do the following using servlets and beans

An example based on Request – Based Sharing.

An example based on Session – Based Sharing.

An example based on Application– Based Sharing.

(Refer core servlets and java server pages by Marty Hall and Larry Brown)

Week-11:

Develop the web pages which show the following things.

Add background sound

Add video

Create multimedia application with java.

**Syllabus for B. Tech. IV Year II semester
Computer Science and Engineering
ADVANCED COMPUTER ARCHITECTURE
(PROFESSIONAL ELECTIVE – III)**

Code: 101CS18

L	T	P/D	C
4	-	-	4

UNIT - I

Fundamentals of Computer design- Technology trends- cost-
Instruction set principles and examples- classifying instruction set- memory addressing- type and size of operands- addressing modes -operations in the instruction set- instructions for control flow- encoding an instruction set.-the role of compiler

UNIT - II

Instruction level parallelism (ILP)- over coming data hazards- reducing branch costs –high performance instruction delivery- hardware based speculation- limitation of ILP

UNIT - III

ILP software approach- compiler techniques- static branch protection - VLIW approach - H.W support for more ILP at compile time- H.W verses S.W Solutions

UNIT - IV

Memory hierarchy design- cache performance- reducing cache misses penalty and miss rate – virtual memory- protection and examples of VM.

UNIT - V

Multiprocessors and thread level parallelism- symmetric shared memory architectures- distributed shared memory- Synchronization- multi threading.

UNIT - VI

Storage systems- Types – Buses - RAID- errors and failures- bench marking a storage device- designing a I/O system.
interconnection network media – practical issues in interconnecting networks.

TEXT BOOKS

1. Computer Architecture A quantitative approach 3rd edition John L. Hennessy & David A. Patterson Morgan Kufmann (An Imprint of Elsevier)

REFERENCES

1. “Computer Architecture and parallel Processing” Kai Hwang and A.Briggs International Edition McGraw-Hill.
2. Advanced Computer Architectures, Dezso Sima, Terence Fountain, Peter Kacsuk, Pearson.
3. Parallel Computer Architecture, A Hardware / Software Approach, David E. Culler, Jaswinder Pal singh with Anoop Gupta, Elsevier

Syllabus for B. Tech. IV Year II semester				
EMBEDDED AND REAL TIME SYSTEMS (PROFESSIONAL ELECTIVE – III)				
Code: 101EM06	L	T	P/D	C
	4	-	-	4

UNIT – I

Introduction : Embedded systems overview, design challenge, processor technology, IC technology, Design Technology, Trade-offs. Single purpose processors RT-level combinational logic, sequential logic (RT-level), custom single purpose processor design (RT-level), optimizing custom single purpose processors.

UNIT – II

General Purpose Processors : Basic architecture, operation, Pipelining, Programmer's view, development environment, Application Specific Instruction-Set processors (ASIPs) – Micro controllers and Digital Signal Processors.

UNIT – III

State Machine and Consurent Process Models : Introduction, models Vs, languages, finite state machines with data path model (FSMD), using state machines, program state machine model (PSM), concurrent process model, concurrent processes, communication among processes, synchronization among processes, implementation, data flow model, real-time systems.

UNIT – IV

Design Technology : Introduction, Automation, Synthesis, Parallel evolution of compilation and synthesis, Logic Synthesis, RT synthesis, Behavioral Synthesis, Systems Synthesis and Hardware/Software Co-Design, Verification, Hardware/Software co-simulation, Reuse of intellectual property codes.

UNIT – V

Introduction to Real-Time 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 and RTOS Environment.

UNIT – VI

Basic Design Using a Real-Time Operating System : Principles, Semaphores and Queues, Hard Real-Time Scheduling Considerations, Saving Memory and Power, An example RTOS like uC-OS (Open Source); Embedded Software Development Tools: Host and Target machines, Linker/Locators for Embedded Software, Getting Embedded Software into the Target System; Debugging Techniques: Testing on Host Machine, Using Laboratory Tools, An Example System.

TEXT BOOKS :

1. Embedded System Design – A Unifies Hardware/Software introduction - Frank Vahid, Tony D. Givargis, John Wiley, 2002.
2. Computers and Components, Wayne Wolf, Elseveir.

REFERENCES :

1. Embedded Systems, Raj Kamal, TMH.
2. An Embedded Software Primer, David E. Simon, Pearson Education.

**Syllabus for B. Tech. IV Year II semester
Computer Science and Engineering
SHELL PROGRAMMING & SCRIPTING LANGUAGES
(PROFESSIONAL ELECTIVE – III)**

Code: 101IT07

L	T	P/D	C
4	-	-	4

Unit I:

Introduction to Unix:- Architecture of Unix, Features of Unix , Unix utilities – process utilities, disk utilities, networking commands, text processing utilities and backup utilities. Introduction to unix file system, vi editor, file handling utilities, security by file permissions.

Unit II : Working with the Bash Shell :

Introduction, Shell responsibilities, pipes and input redirection, output redirection, here documents, running a shell script, shell as a programming language, shell metacharacters, filename substitution, shell variables, command substitution, shell commands, the environment, quoting, test command, control structures, arithmetic in shell, Shell script examples, functions, debugging shell scripts.

Unit III: Introduction to PERL and Scripting

Scripts and Programs, Origin of Scripting, Scripting Today, Characteristics of Scripting Languages, Uses for Scripting Languages, Web Scripting, and the universe of Scripting Languages. PERL – Names and Values, Variables, Scalar Expressions, Control Structures, arrays, list, hashes, strings, pattern and regular expressions, subroutines.

Unit IV : Advanced PERL

Finer points of looping, pack and unpack, file system, eval, data structures, packages, modules, objects, interfacing to the operating system, creating internet ware applications, dirty hands internet programming, security issues.

Unit V : PYTHON

Introduction to python language, python-syntax, statements, functions, Built-in-functions and Methods, Modules in python, Exception Handling, Integrated Web Applications in python --- Building Small, Efficient python web Systems, Web Application Framework.

Unit VI : PHP Basics

PHP Basics – Features, Embedding PHP Code in your Web pages, Outputting the data to the browser, Datatypes, Variables, Constants, expressions, string interpolation, control Structures. Function, Creating a Function, Function Libraries, Arrays, Strings and Regular Expressions.

TEXT BOOKS :

1. Your Unix the ultimate guide, Sumitabha Das, TMH. 2nd Edition.
2. The World of Scripting Languages, David Barron, Wiley Publications.
3. The Practical Programming Python, O'Reilly Publications.

REFERENCES :

1. Unix and shell Programming Behrouz A. Forouzan, Richard F. Gilberg.Thomson
2. Perl by Example, E.Quigley, Pearson Education.
3. Programming Perl, Larry Wall, T.Christiansen and J.Orwant, O'Reilly, SPD.
4. PHP and MySQL by Example, E.Quigley, Prentice Hall (Pearson).
5. Perl Power, J.P.Flynt, Cengaghe Learning.
6. PHP Programming solutions, V.Vaswani, TMH.
7. Beginning PHP and MySQL, 3rd Edition, Jason Gilmore, Apress Publications.

Syllabus for B. Tech. IV Year II semester
IMAGE PROCESSING (PROFESSIONAL ELECTIVE – III)

Code:101IT12

L	T	P/D	C
4	-	-	4

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

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

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

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 .

UNIT – V

Image Compression and Morphology : Fundamentals, image compression models, error-free compression, lossy predictive coding, image compression standards, Morphological Image Processing : Preliminaries, dilation, erosion, open and closing, hit or miss transformation

UNIT – VI

Image Segmentation and Recognition : Detection of discontinuous, edge linking and boundary detection, thresholding, region–based segmentation, Patterns and patterns classes, recognition based on decision–theoretic methods, matching, optimum statistical classifiers

TEXT BOOK :

1. Digital Image Processing, Rafeal C.Gonzalez, Richard E.Woods, Third Edition, Pearson Education/PHI.

REFERENCE BOOKS :

1. Image Processing, Analysis, and Machine Vision, Milan Sonka, Vaclav Hlavac and Roger Boyle, Second Edition, Thomson Learning.
2. Introduction to DIP with Matlab, Alasdair McAndrew, Thomson Course Tech.
3. Computer Vision and Image Processing, Adrian Low, Second Edition, B.S.Publications
4. Digital Image Processing, William K. Prat, Wily Third Edition
5. DIP and Analysis, B. Chanda, D. Datta Majumder, Prentice Hall of India, 2003

**Syllabus for B. Tech. IV Year II semester
Computer Science and Engineering
MOBILE COMPUTING**

Code:101CS16	L	T	P/D	C
	4	-	-	4

UNIT - I

Introduction to Mobile Communications and Computing: Mobile Computing (MC): Introduction to MC, novel applications, limitations, introduction to mobile architecture - UMTS, GSM.

Architecture 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

Mobile Ad hoc Networks (MANETs): Overview, Properties of a MANET, spectrum of MANET applications, routing algorithms.

Database: Hoarding techniques, caching invalidation mechanisms, client server computing with adaptation, data delivery mechanisms

UNIT - VI

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), introduction to mobile operating systems- Android, javaOS(J2ME), syambian.

TEXT BOOKS

1. Jochen Schiller, "Mobile Communications", *Addison-Wesley*. (Chapters 1, 2, 3, 4, 7, 8 and 9). Second edition, 2004.
2. Stojmenovic and Cacute, "Handbook of Wireless Networks and Mobile Computing", *Wiley*, 2002, ISBN 0471419028. (Chapters 6, 11, 15, 17, 18, 19, 26 and 27)

REFERENCES

1. Reza Behravanfar, "Mobile Computing Principles: Designing and Developing Mobile Applications with UML and XML", ISBN: 0521817331, Cambridge University Press, October 2004,
2. Adelstein, Frank, [Gupta, Sandeep KS](#), [Richard III. Golden](#), [Schwiebert, Loren](#), "Fundamentals of Mobile and Pervasive Computing", ISBN: 0071412379, McGraw-Hill Professional, 2005.
3. Hansmann, Merk, Nicklous, Stober, "Principles of Mobile Computing", *Springer*, second edition, 2003.
4. Martyn Mallick, "Mobile and Wireless Design Essentials", Wiley *DreamTech*, 2003
5. A. Tanenbaum "Computer Networks", 4th edition.

**Syllabus for B. Tech. IV Year II semester
Computer Science and Engineering
PROJECT**

Code: 101CS84

L	T	P/D	C
-	-	-	10

Out of total 200 marks for project work (in the final year second semester), 50 marks shall be for Internal Evaluation and 150 marks for the External Evaluation at the end of the Semester.

External Evaluation of the project (viva-voce) shall be conducted by a committee appointed by the chief superintendent. The committee consists of an external examiner, HoD, a senior faculty member and internal guide.

The pattern of Internal Evaluation is as follows:

Division of marks for internal assessment – 50 marks

- Progress of Project work and the corresponding interim report as evaluated by internal guides at the end of 5 weeks : 05 Marks
- Seminar at the end of 5 weeks : 05 Marks
- Progress of Project work as evaluated by guides at the end of 10 weeks : 05 Marks
- Seminar at the end of 10 weeks : 05 Marks
- Evaluation by the Guides (at the end of 15 weeks) : 10 Marks
- Project Report : 05 Marks
- Final presentation and defense of the project : 15 Marks

If the project is conducted internally the marks supposed to be given by external guide will be given by internal guide himself.

Division of Marks for External Evaluation – 150 Marks

Pattern of External Evaluation for Project

- Final Project Report : 30 Marks
- Presentation : 20 Marks
- Demonstration / Defense of Project :100 Marks

**Syllabus for B. Tech. IV Year II semester
Computer Science and Engineering
COMPREHENSIVE VIVA - III**

Code: 101CS85

L	T	P/D	C
-	-	-	2

There shall be a Comprehensive Viva-Voce in IV year II Semester. The Comprehensive Viva-Voce will be conducted by a Committee consisting of an external examiner, Head of the Department and two Senior Faculty members of the Department. The Comprehensive Viva-Voce is aimed to assess the students' understanding in various subjects he/she studied during the B.Tech. course of study up to IV Year. The Comprehensive Viva-Voce is valued for 50 marks by the Committee. There are no internal marks for the Comprehensive Viva-Voce.

**Syllabus for B. Tech. IV Year II semester
Computer Science and Engineering
TECHNICAL SEMINAR**

Code: 101CS86

L	T	P/D	C
-	-	-	2

There shall be a technical seminar evaluated for 25 marks in fourth year second semester.

The evaluation is purely internal and will be conducted as follows:

Preliminary Report on progress of the work and viva 05 marks

Final report 05 marks

Presentation and Defence before a departmental committee consisting of Head, a senior faculty and supervisor 15 marks
