I-Year
OBJECTIVES: Mathematics is the backbone of all Engineering disciplines. Mathematics-I is common to All Branches except BT. Mathematics-I provides all the basic requirements for application of Mathematics to the Engineers. At the end of the course, the students will be able to apply the concepts of (i) Integration over two and three dimensions, (ii) Vector field and Vector integration theorems, (iii) Matrix theory, in their fields of study.

UNIT-I

Eigen values and eigenvectors: Eigen values and eigen vectors of a matrix and their properties. Modal and spectral matrices. Condition number of a matrix. Cayley-Hamilton theorem (without proof) and its application to find the inverse and powers of a matrix. Diagonalisation of a matrix.

UNIT-II

UNIT-III
Functions of a single and several variables: Rolle’s theorem, Lagrange’s mean value theorem, Cauchy’s mean value theorem, generalized mean value theorem (all theorems without proof). Radius, center and circle of curvature. Evolutes and envelopes.

Functional dependence Jacobian-Maxima and minima of functions of two variables with and without constraints.
UNIT-IV

Applications of Integration: Representation of curves and surfaces in cartesian, parametric and polar co-ordinates. Integral representation of lengths, areas, volumes and surface areas of revolution.

Double integrals: Evaluation of double integrals, changing the order of integration, changes of variables, evaluation of plane areas by double integration.

Triple integrals: Evaluation of triple integrals, evaluation using cylindrical and spherical polar co-ordinates, evaluation of the volume of a solid using triple integration.

UNIT-V


Text Books


Reference Books

1. Schaum's outline series on Linear Algebra.

2. Introduction to Linear Algebra. Gilbert Strang.
OBJECTIVES: (1) To express algorithms and draw flowcharts in a language independent manner, thus exemplifying the professional ethics
(2) To provide the skills necessary for the effective application of computation and computer programming in engineering applications
(3) To understand the concepts of C-programming language such as branching, loops, functions, input/output, arithmetic rules, arrays, pointers and files

L:4,T:1,Credits:4 Total Marks:100 (Int:25,Ext:75)

UNIT-I

UNIT-II
Control Flow: Statements and Blocks, if, switch statements, Loops: while, do-while, for, break and continue, go to and Labels.

Arrays and Strings: Introduction, One-dimensional arrays, Declaring and initializing Arrays, Multidimensional arrays, Strings, String Handling Functions.

UNIT-III
Functions: Introduction, Function Definition, Function Declaration, Return values and their Types, Function Calls, Categories of Functions, nesting of Functions, Recursion, Passing arrays to Functions, Storage Classes.


UNIT-IV
Pointers: Pointers and Addresses, Pointers and function Arguments, Pointers and arrays, Address Arithmetic, Character pointers and Functions, Pointer Arrays, Pointers to Structures, Pointers to Pointers, Command Line Arguments.

Files: Introduction, Types of Files, File Access Functions, I/O on Files, Random Access to Files, Error Handling.
UNIT-V

Sorting: Bubble sort, Merge sort, Insertion Sort, Selection Sort, Quick Sort.

Searching: Linear Search, Binary Search.

Introduction to Data Structures: Basics of Linear and Non-Linear Data structures.

Text Books


Reference Books


2. C& Data structures-P.Padmanabham, B.S. Publications.


ENGLISH PHYSICS

OBJECTIVES: (1) To equip the student the nature and concept of various solids and to gain the knowledge of various properties of materials. (2) To make the student learn the classification of materials based on band theory of solids and the electrical and magnetic properties of various materials. (3) To gain knowledge about the various application of lasers and fiber optics and to gain familiarity with the latest developments and trends in nano technology.

L:3, T:1, P:0; Credits: 3 Total Marks: 100 (Int:25, Ext:75)

UNIT-I
Crystal Structure: Cohesive energy of a solid, Calculation of Cohesive Energy of Ionic crystal, Seven Crystal Systems, Atomic Radius, Co-ordination Number and Packing Factor of SC, BCC, FCC.

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


UNIT-II
Electron Theory of Metals: Classical free electron theory, derivation of ohm's law, Mean free path, relaxation time and drift velocity, failures of quantum free electron theory, Fermi-Dirac distribution, Fermi energy, electron scattering and origin of electrical resistance.


UNIT-III


UNIT-IV


UNIT-V

Text Books
2. Engineering Physics: S.O. Pillai, Newage International.

Reference Books
OBJECTIVES: At the end of the programme the student is expected to

1. Know the Fundamental Principles of Electrical and Electronics

2. Understand and apply the Basics of Diodes, Transistors, resistors, Inductors, Capacitors etc and apply them to understand various circuits.

L:3, T:1, Credits:3 Total Marks: 100 (Int:25, Ext:75)

UNIT-I

Single Phase AC Circuits- R.M.S. and Average values, Form Factor, steady state analysis of series, Parallel and Series parallel Combinations of R, L and C with Sinusoidal excitation, concept of reactance, Impedance, Susceptance and Admittance phase and phase difference, Concept of Power Factor, j-notation, complex and Polar forms of representation.

UNIT-II
Resonance and Network Theorems: Resonance series resonance and parallel resonance circuits, concept of bandwidth and Q factor, Locus Diagrams for RL, RC and RLC Combinations for Various Parameters.

Network Theorems: Thevenin’s, Norton’s, Maximum Power Transfer, Superposition, Reciprocity, Tellegen’s, Millman’s and Compensation theorems For DC and AC excitations.

UNIT-III
Rectifiers and Filters: The P-N junction as a rectifier- A Half Wave Rectifier, Ripple Factor, Full Wave Rectifier, Bridge Rectifier, Harmonic components in RectifierCircuits, FiltersInductorFilters, CapacitorFilters, L-sectionFilters,Ø-section Filters.

UNIT-IV

Transistor Biasing And Stabilization: Operating point, DC & AC load lines, Biasing-Fixed Bias, Emitter Feedback Bias, Collector to Emitter feedback bias, Voltage divider bias, Bias stability, Stabilization against variations in V And â,Bias Compensation using Diodes and Transistors.

Transistor Configurations: BJT modeling, Hybrid model, Determination of h-parameters from transistor characteristics, Analysis of CE, CB and CC configurations using h-parameters, Comparison of CE, CB and CC configurations.

UNIT-V
Junction field Effect transistor & Special Purpose Devices

Special Purpose Devices: Breakdown Mechanisms in Semi Conductor Diodes, Zener diode characteristics, Use of Zener diode as simple regulator Principle of Operation and Characteristics of Tunnel Diode (with the help of Energy band diagram) and Varactor Diode, Principle of Operation of SCR.

Text Books


Reference Books

1. Introduction to Electronic Devices and Circuits- Rober T.Paynter, Pearson Education.


6. Network Theory by Sudhakar, Shyam Mohan Palli, TMH.
ENGLISH

OBJECTIVES: (1) to improve English language proficiency of the students with an emphasis on LSRW skills (2) to equip the students study the academic courses with better perspective through the theoretical and practical components of the designed syllabus.

UNIT-I
1. Sir C.V.Raman: Subhasree Desikhan, from “Enjoying Everyday English”.
2. Mother Teresa: From, “Inspiring Speeches and Lives”.

UNIT-II
1. The Connoisseur: Nergis Dalal, from “Enjoying Everyday English”.
2. Sam Pitroda: From “Inspiring Speeches and Lives”.

UNIT-III
1. The Cuddlore Experience: Anu George, from “Enjoying Everyday English”.
2. Amartya Kumar Sen: From “Inspiring Speeches and Lives”.

UNIT-IV
1. Bubbling Well Road: Rudyard Kipling, from “Enjoying Everyday English”.
2. I Have a Dream: Martin Luther King Jr., from “Inspiring Speeches and Lives”.

UNIT-V
Exercises on
1. Reading and writing Skills
2. Reading Comprehension
3. Situational Dialogues
4. Letter Writing
5. Essay writing

Practice exercises on remedial grammar covering

1. Common Errors in English
2. Course-Verb Agreement
3. Use of Articles
4. Use of Prepositions
5. Tense and Aspect

Vocabulary Development

1. Synonyms & Antonyms
2. One-Word Substitutes
3. Prefixes & Suffixes
4. Idioms and Phrases
5. Pairs of Words Often Confused
COMPUTER PROGRAMMING AND DATA STRUCTURE LAB

OBJECTIVES: (1) To introduce the fundamentals of C programming language and develop the skills for solving problems (2) To develop the proficiency in writing programs in a procedural programming language (3) To use the concepts of searching and sorting for solving real-time problems

L:0, T:0, P:6; Credits: 3 Total Marks: 75 (Int: 25, Ext: 50)

Task-I

a) Write a C program to find the sum of individual digits of a positive integer.

b) A Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence. Write a C program to generate the first n terms of the sequence.

c) Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.

Task-II

a) Write a C program to calculate the following Sum:
   \[ \text{Sum} = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \frac{x^8}{8!} - \frac{x^{10}}{10!} \]

b) Write a C program to find the roots of a quadratic equation using if-else.

Task-III

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

Task-IV

a) The total distance travelled by a vehicle in 't' seconds is given by distance
   \[ S = ut + \frac{1}{2}at^2 \] where 'u' and 'a' are the initial velocity (m/sec.) and acceleration (m/sec^2). Write a C program to find the distance travelled by a vehicle at
regular intervals of time given the values of 'u' and 'a'. The program should provide the flexibility to the user to select his own time intervals and repeat the calculations for different values of 'u' and 'a'.

b) Write a C program, which takes two integer operands and one operator form the user, performs the operation and then prints the result. (Consider the operators +, -, *, /, % and use Switch Statement)

Task-V

a) Write a C program to find both the largest and smallest number in a list of integers.

b) Write a C program that uses functions to perform the following:
   i) Addition of Two Matrices
   ii) Multiplication of Two Matrices

Task-VI

a) Write a C program that uses functions to perform the following operations:
   i) To insert a sub-string into given main string to a given position.
   ii) To delete n Characters from a given position in a given string.

b) Write a C program to determine if the given string is a palindrome or not?

Task-VII

a) Write a C program that displays the position or index in the string S where the string T begins, or -1 if S doesn't contain T.

b) Write a C program to count the lines, words and characters in a given text.

Task-VIII

a) Write a C program to generate Pascal’s triangle.

b) Write a C program to construct a pyramid of numbers.

Task-IX

a) Write a C program to read in two numbers, x and n, and then compute the sum of this geometric progression: 1 + x + x^2 + x^3 + ……….. + x^n. For example: if n is 3 and x is 5, then the program computes 1 + 5 + 25 + 125. Print x, n, the sum, perform err or checking. For example, the formula does not make sense for
negative exponents (), if \( n \) is less than 0. Have your program to print an error message find"0, without computing the sum.

b) Write a C program that uses functions to perform the following operations:
   i) Addition of two complex numbers
   ii) Multiplication of two complex numbers

(Note: represent complex number using a structure.)

Task-X

a) Write a C Program to display the contents of a file.
b) Write a C Program merging of two files in a single file. c) Write a C Program to append data into a file.

Task-XI

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

Task-XII

a) Write a C Program to Search for a given element using Linear & Binary Search Techniques.
b) Write a C Program to Sort a given list of integers using Bubble Sort Technique.

Task-XIII

a) Write a C Program to Sort a given list of integers using Merge Sort Technique.
b) Write a C Program to Sort a given list of integers using Insertion Sort Technique.

Task-XIV

a) Write a C Program to Sort a given list of integers using Quick Sort Technique.
b) Write a C Program to Sort a given list of integers using Selection Sort Technique.
OBJECTIVES: (1) To enable the student to draw the relevance between the theoretical knowledge and to imply it in a practical manner with respect to analyze various electronic circuits and its components.(2) To analyze the behavior and characteristics of various materials for its optimum utilization.

LIST OF EXPERIMENTS

1. Measurements using Multi meter.
2. Measurement of voltage and Frequency using CRO.
4. Determination of Dielectric constant.
5. Energy gap of a semiconductor
6. Study of magnetic field along the axis of a circular coil.
7. Study of Hall Voltage
11. Air gap losses in optical fiber
12. Characteristics of LASER diode
ENGINEERING WORK SHOP

OBJECTIVES: At the end of the programme the student is expected to

1. Know the various trades applicable to industries.
2. Hands on experience for common trades.

L:0,T:0,P:3; Credits:2 Total Marks:75 (Int:25,Ext:50)

TRADES FOR PRACTICE

1. Carpentry
2. Fitting
3. TinSmithy and Development of jobs carried out and soldering.
4. HouseWiring

DEMONSTRATION

5. Black Smithy-
6. Foundry
7. Welding
8. Plumbing
9. Power tools

Text Books

OBJECTIVES: Mathematics is the backbone of all Engineering disciplines. Mathematics-II is common to All Branches except BT. At the end of the course; the students will be able to

(i) Understand and apply the methods of solving the differential equations directly or using Laplace transforms,

(ii) Solve linear and some nonlinear partial differential equations,

(iii) Understand the basic of Fourier series and its representation.

UNIT-I
First order ordinary differential equations: Formation of ODE. Solution of separable, homogeneous, exact, linear and Bernoulli linear equations

Applications to Newton's law of cooling, Law of natural growth and decay, orthogonal trajectories and geometrical applications.

UNIT-II
Second and higher order ODE with constant coefficients: Solution of second and higher order linear homogeneous differential equations. Non-homogeneous differential equations with RHS term of the type F(x)=eax,sinax,cosax,xn,eaxV(x),xnV(x). Method of variation of parameters-Applications to bending of beams, electrical circuits, simple harmonic motion.

UNIT-III
Laplace transform and its application to ordinary differential equations:
Laplace transform of standard functions-inverse Laplace transform-First shifting theorem, Transform of derivatives and integrals-Unit step function-Second shifting theorem-Differentiation and integration of transforms-Dirac's delta function.

Convolution theorem-Periodic function- Application of Laplace transforms to ordinary differential equations
UNIT-IV
Fourier series: Fourier series on the interval \((-\pi, \pi)\): Determination of coefficients, Fourier series of even and odd functions, convergence. Fourier series on an arbitrary interval. Half-range Fourier cosine and sine series using even and odd extensions.

UNIT-V
Partial differential equations: Formation of partial differential equations by eliminating arbitrary constants or arbitrary functions. Solutions of first order linear (Lagrange) equation. Solution of nonlinear first order equations (four standard types). Solution using separation of variables. Application to heat equation (one dimension), wave equation (one dimension) and Laplace equation (two dimensions).

Text Books


Reference Books

1. Schaum's outline series on Vector Analysis; Laplace Transforms; Differential Equations.
OBJECTIVES: Mathematics is the backbone of all Engineering disciplines. Mathematics III is common to all branches except BT. The course is numerical solution of problems in various fields. At the end of the course, the students will be able to solve numerically various problems in (i) nonlinear algebraic equations, (ii) systems of linear algebraic equations, (iii) integration, and (iv) initial and boundary value problems in ODE.

L:4, T:1, Credits: 4 Total Marks: 100 (Int: 25, Ext: 75)

UNIT-I


UNIT-II

UNIT-III
Interpolation 2 (Interpolation for non-uniform data & Splines): Lagrange and Newton's divided difference formulas for unevenly spaced data. Splines: Cubic splines and B-splines.

UNIT-IV
Curve fitting (Method of least squares), Numerical differentiation and numerical integration: Curve fitting: Fitting a first degree (linear) and second degree (parabola), exponential, power curves for a data by the Method of least squares. Numerical differentiation using the Newton's forward and backward difference formulas.

Numerical integration: Trapezoidal and Simpson's $1/3$rd rules. Gauss-Legendre one point, two point and three point rules for integration.
UNIT-V


Numerical solution of Boundary Value Problems in ODE: Finite difference methods for solving second order linear ODE.

Text Books


Reference Books


OBJECTIVES: At end of the course, the student should be able to understand the

1. Role of polymers and nano materials in engineering applications.
2. Role of chemistry (conducting polymers) in the energy production.
3. Material behavior for application in environmental applications.
4. Basic concepts of application of materials in all fields of engineering.

UNIT-I

Electrochemistry: Concept of Conductance- Specific, Equivalent and molar conductance and ionic conductance, electrolytic cells- Galvanic Cells, Potentiometric titrations - strong acid vs strong base, electrochemical series Concentration Cells

Corrosion causes and effects of corrosion, theories of corrosion Chemical, Electrochemical corrosion, Factors affecting corrosion, control methods Cathodic protection, sacrificial anode, impressed current cathode. Surface coating methods of application on metals- hot dipping, galvanizing, tinning, cladding, electroplating, Paints constituents and their functions.

UNIT-II

Water Technology: Introduction, Hardness: Causes, expression of hardness units
types of hardness, estimation of temporary & permanent hardness of water complexometric method , Boiler troubles Scale & sludge formation, caustic embrittlement, priming & foaming, Softening of water - Internal and external treatment , Ion exchange process and Numerical problems, Desalination of brackish water-Reverse osmosis, electrodialysis.

UNIT-III

Polymer Technology: Types of Polymerization, Plastics: Thermoplastic resins & Thermoset resins. Compounding & fabrication of plastics, preparation, properties and engineering applications of polyethylene, PVC, polystyrene, Teflon, Bakelite,

UNIT-IV
Energy sources: Concept and classification of fuels - solid, liquid, gaseous, fuels, Solid fuels coal analysis proximate and ultimate analysis and their significance, Liquid fuels petroleum, refining of petroleum definition of cracking and its significance, knocking-octane number, cetane number, synthetic petrol Bergius and Fischer Tropsech's process method, Gaseous fuels natural gas, LPG, CNG, Calorific value of fuel HCV, LCV, Introduction to biodiesel, problems.

UNIT-V
Engineering Materials
Cement: Composition and manufacture of Portland cement, setting & hardening of cement.

Lubricants: Definition and classification, theories of lubricants, properties - Cloud point, pour point, flash and fire point, Viscosity.

Refractories: Classification, Characteristics of a good refractory and failure mechanism of refractory materials.


Text Books

Reference Books
UNIT-I

UNIT-II
Natural Resources: Definition, Occurrence, Classification of resources, Important natural resources for human society, Utilization-positive and negative effects of water resources, Mineral resources, Forest resources, Energy resources, Land resources. Role of individuals in conservation of important natural resources.

UNIT-III
Environmental Pollution: Definition, Classification of Pollution, Type of Pollution and Pollutants. Causes, effects and control of Air Pollution, Water Pollution, Soil Pollution, Marine Pollution, Noise Pollution, Thermal Pollution and Nuclear Pollution.

UNIT-IV
Environmental Problems and Management Policies: Natural Disasters-Types, causes and effects; Global warming, Climate change-ElNino-LaNina, Ozone layer- location, role and degradation; deforestation and desertification.

Management: Technological solutions, Preventive methods, control techniques; Green Belt development, Rain water harvesting, Renewable and alternate resources.

UNIT-V
National Policy on Environment protection and Sustainability: Air (Pollution and prevention) act 1981; Water (Pollution and prevention) Act 1974; Pollution Act 1977; Forest Conservation Act; Wild life Protection Act; Municipal solid waste management and handling Act; Biomedical waste management and handling
Act; Hazardous waste management and handling rules. Role of IT in environment, environmental ethics, environmental economics.

**Sustainable development:** Cause and Threats to sustainability; strategies for achieving sustainable development; Concept of Green building and Clean Development Mechanism (CDM).

**Text Books**


**Reference Book**

ENGINEERING GRAPHICS

OBJECTIVES: At the end of the course the student is expected to

1. Learn the fundamental concepts of Engineering Graphics.
2. Drafting Practice for Geometrical Drawing and Projections.
3. Introduction to Auto CAD.

UNIT-I
Introduction to Engineering Drawing: Principles of Engineering Graphics and their significance Drawing Instruments and their Use Conventions in Drawing Lettering BIS Conventions. Curves used in Engineering Practice & their

Constructions: (a) Conic Sections, (b) Cycloid, Epicycloid and Hypocycloid, (c) Involute. (d) Scales: Different types of scales. Plain Scale, Diagonal Scale & Vernier Scale.

UNIT-II
Drawing of Projections or Views of Orthographic Projection in First Angle Projection only:

Principles of Orthographic Projections Conventions First and Third Angle Projections. Projections of Points and Lines inclined to planes, True lengths, traces. Projections of regular Planes: inclined to both planes.

UNIT-III
Projections of Solids: Projections of Regular Solid inclined to both planes.

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

UNIT-IV
Transformation of Projections: Conversion of Isometric Views to Orthographic Views Conventions.

UNIT-V
Introduction to Computer Aided Drafting Generation of points, lines, curves, polygons, simple solids and their dimensioning.

Text Books

Reference Books
2. Engineering Drawing - Johle, Tata Macgraw Hill.
IT WORKSHOP

L: 0, T: 0, P: 3  Total Marks: 75(Int: 25, Ext: 50)

PC Hardware: Introduces the students to a personal computer and its basic peripherals, the process of assembling a personal computer, installation of system Software like MS Windows, Linux and the required device drivers. In addition hardware and software level trouble shooting process, tips and tricks would be covered. The students should work on working PC to disassemble and assemble to working condition and install Windows and Linux on the same PC. Students are suggested to work similar tasks in the Laptop scenario wherever possible.

Internet & World Wide Web module introduces the different ways of looking the PC onto the internet from home and work place and effectively usage of the internet. Usage of web browsers, email, news groups and discussion forums would be covered. In addition, awareness of cyber hygiene, i.e., protecting the personal computer from getting infected with the viruses, worms and other cyber attacks would be introduced. Productivity tools module would enable the students in crafting professional word documents, spread sheets and slide presentations.

PC Hardware

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

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

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

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

Task-5: Hardware Troubleshooting: Students have to be given a PC which does not boot due to improper assembly or defective peripherals. They should identify the problem and fix it to get the computer back to working condition. The work done should be verified by the instructor and followed up with a Viva.

Task-6: Software Trouble shooting: Students have to be given a malfunctioning CPU due to system software problems. They should identify the problem and fix it to get the computer back to working condition. The work done should be verified by the instructor and followed up with a Viva.

Internet & World Wide Web

Task-7: Orientation & Connectivity Boot Camp: Students should get connected to their Local Area Network and access the Internet. In the process they configure the TCP/IP setting. Finally students should demonstrate, to the instructor, how to access the websites and email. If there is no internet connectivity preparations need to be made by the instructors to simulate the WWW on the LAN.

Task-8: Web Browsers, Surfing the Web: Students customize their web browsers with the LAN proxy settings, bookmarks, search tool bars and pop up blockers. Also, plug-ins like Macromedia Flash and JRE for applets should be configured.

Task-9: Search Engines & Netiquette: Students should know what search engines are and how to use this arch engines. A few topics would be given to the students for which they need to search on Google. This should be demonstrated to the instructors by the student.

Task-10: Cyber Hygiene: Students would be exposed to the various threats on the internet and would be asked to configure their computer to be safe on the internet. They need to first install antivirus software, configure their personal firewall and windows update on their computer. Then they need to customize their browsers to block pop ups, block active x downloads to avoid viruses and/or worms.
Productivity Tools

**Task-11:** introducing features of professional word documents like opening, closing, editing, saving, printing, and text formatting.

**Task-12:** students would be exposed to create word documents with images, tables, formulas, and with additional word processing features.

**Task-13:** introducing features of professional spread sheets like opening, closing, editing, saving, printing, and text formatting.

**Task-14:** students would be exposed to compile spread sheets using formulas, different number formats, text formats and conditional formatting.

**Task-15:** introducing features of professional slide presentations like opening, closing, editing, saving, printing, and text formatting.

**Task-16:** students would be exposed to create slide presentations with tables, different views of slide presentations, master slides, and custom animations.

Reference Books

1. Introduction to Information Technology, ITL Education Solutions Limited, Pearson Education.

2. Introduction to Computers, Peter Norton, 6/e McGraw Hill.

3. Upgrading and Repairing, PC's 18th e, Scott Muller QUE, Pearson Education.

4. Comdex Information Technology Course tool kit Vikas Gupta, WILEY Dreamtech.


6. PCHardware and A+ Handbook Kate J. Chase PHI (Microsoft).
OBJECTIVES: At end of the course, the student should be able to understand

1. The characteristics and preparation of rubber.
2. The characteristics and nature of lubricating oils.
3. The hard water analysis process.
4. Basic concepts of analysis and application of materials in all fieldsof engineering.

L:0,T:0,P:3 Credits:3 Total Marks: 75 (Int:25,Ext:50)

LIST OF EXPERIMENTS

1. Conductometry: Conductometric titrations of strong acid verses strong base.
2. Potentiometry: Potentiometric titration of strong acid verses strong base.
3. Lubricants: Determination of viscosity of a sample oil by Redwood viscometerI.
4. Lubricants: Determination of surface tension of lubricants by stalagmometer.
7. Complexometry: Estimation of copper by using standard EDTA solution.
OBJECTIVES: To expose the students to a variety of self-instructional, learner-friendly modes of language learning.

(i) 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 GRE, TOEFL, GMAT etc.

(ii) To enable them better pronunciation through stress on word accent, into nation, and rhythm.

(iii) To train students to use language effectively to face interviews, group discussions, public speaking etc.

(iv) To initiate them into greater use of the computer in resume preparation, report writing, format-making etc.

TotalMarks:75(Int:25,Ext:50)

SYLLABUS: The following course content is prescribed for the English Language.

Laboratory sessions

(i) Introduction to the sounds of English-Vowels, Diphthongs & Consonants.

(ii) Situational Dialogues/Role-play.

(iii) 'Just A Minute' Sessions (JAM).

(iv) Describing Objects/Situations/People.

(v) Information Transfer. 
(vi) Debate.

(vii) Telephone Skills. 
(viii) Giving Directions.

Suggested Software:

(i) Cambridge Advanced Learners' English Dictionary with CD.

(ii) The Rosetta Stone English Library.
(iii) Clarity Pronunciation Power-Part 1.
(iv) Mastering English in Vocabulary, Grammar, Spelling, and Composition.
(v) Dorling Kindersley series of Grammar, Punctuation, Composition etc.
(vi) Language in use, Foundation Books Pvt Ltd with CD.
(viii) Learning to speak English-4 CDs.
(ix) Vocabulary in Use, Michael McCarthy, Felicity O'Den, Cambridge.
(x) Murphy's English Grammar, Cambridge with CD.
(xi) English in Mind, Herbert Puchta and Jeff Stranks with Meredith Levy, Cambridge

**Books (to be located with in the lab in addition to the CDS of the text book which are loaded on the systems):**


4. A Foundation English Course for under graduates (Practice exercises on skills) Paul Gunashekar, Shyamala Kumar Das Sachil Mahadevan, Oxford University Press.

5. Improve Your Writing, V. N. Arora & Lakshmi Chandra, Oxford University Press.


7. English Conversation for Indian Students, Y. V. Yardi, Orient Longman.


10. A handbook of Standard English and Indian Usage, J.Sethi Prentice Hall.


12. English Conversation Practice Spoken English, Grant Taylor, Tata McGraw Hill

13. English Conversation Practice Spoken English, Jayashree Balan, Vijay NicoleImprints Pvt.Ltd

14. How to Prepare for Group Discussion and Interview, V.SasiKumar, PV Dhamija, Tata McGraw Hill
