

S V University College of Engineering: Tirupati – 517502
6-year B.Tech-M.Tech Dual Degree Programme
CHOICE BASED CREDIT SYSTEM
SYLLABUS
(who are admitted from the academic year 2014-15)

I SEMESTER

MAT01: Engineering Mathematics – I
Basic Course

Instructions Hours / Week : 5

Credits : 4

Common to all branches and with effect from 2010-11

Unit – 1

Differential Equations: Linear differential equations of second and higher order with constant coefficients - particular integrals - homogeneous differential equations with variable coefficients - method of parameters - simulation equations.

Unit – 2

Laplace Transforms I: Laplace transforms of standard functions - inverse transforms - transforms of derivatives and integrals - derivatives of transforms - integrals of transforms.

Unit – 3

Laplace Transforms II: Transforms of periodic functions - convolution theorem - applications to solution of ordinary differential equations.

Unit – 4

Calculus: Roll's and Mean value theorems - Taylor's and Maclaurin's series - maxima and minima for functions of two variables - Infinite series - Convergence Tests series of positive terms - comparison, Ratio tests - Alternating series - Leibnitz's rule - Absolute and conditional convergence.

Unit – 5

Multiple Integrals: Curve tracing (both Cartesian and polar coordinate) - Evaluations of double and Triple integrals - change of order of integrations - change of variables of integrations - simple applications to areas and volumes.

Text Books:

B S Grewal, Higher Engineering Mathematics, 40th Edition, Khanna Publications, 2007.
M K Venkataraman, Engineering Mathematics, National Publishing Company, Chennai.
B V Ramana, Higher Engineering Mathematics, 6th Reprint, Tata McGraw-Hill, 2008.
Bali and Iyengar, Engineering Mathematics, 6th Edition, Laxmi Publications, 2006.

ENT – 01: English
Basic Course

Instructions Hours / Week : 5

Credits : 4

Common to all branches and with effect from 2010-11

Unit – 1

Listening and Telephone Skills: types, tips for effective listening and activities, basics of telephone communication – listening for tone, mood, attitude and activities.

Unit – 2

Writing Skills: report writing, email drafting etiquette, agenda and writing minutes for meetings.

Unit – 3

Career and Soft Skills: Applying for jobs, cover letters, resume writing and effective profiling, interviews and group discussion. Intrapersonal skills, problem – solving skills and Negotiation skills.

Unit – 4

Grammar: articles, prepositions, tenses, voice, degrees of comparison and types of sentences, reported speech, idioms and phrases.

Unit – 5

Short Stories:

A Horseman in the Sky - Ambrose Bierce
The Model Millionaire – Oscar Wilde
The Postmaster – Rabindranath Tagore
The Gift of the Magi – O. Henry
The Quality – John Galsworthy
The Ant and The Grasshopper – W. S. Maugham
A Book of Modern Short Stories – Ed. G. Kumara Pillai (Macmillan)
The Doll's House – Katherine Mansfield
The Gateman's Gift – R. K. Narayan

Text Books:

Course Team of Bharathiar University, Communication Skills- A Multi-Skill Course, Macmillan Publishers India Limited, 2010.
 G Kumara Pillai (Ed), A Book of Modern Short Stories, Macmillan Publishers India Limited, 2001.
 David Green, Structure and Composition in English, Macmillan Publishers India Limited.

CST01 INTRODUCTION TO INFORMATION COMMUNICATION TECHNOLOGY

Instructions Hours / Week : 3

Credits : 2

Common to all branches and with effect from 2010-11

UNIT I

Basic Structure of Computers - Computer Types, Functional Units, Basic Operational Concepts, Bus Structures, Software, Performance, Multiprocessors and Multicomputer, and Historical Perspective.

Generation of Programming Languages - Machine Language, Assembly Language, High-level Programming Languages, Fourth Generation Languages, Fifth Generation Languages.

UNIT II

Introduction to Semiconductor Memories : SRAM, DRAM, SDRAM, ROM, PROM, EEPROM, Flash Memory and Cache Memory. Introduction to Secondary Storage Devices - Magnetic Hard Disks, Optical Systems and Magnetic Tape Systems. Introduction to Computer Peripherals - Input Devices, Output Devices, Serial Communication Links and Standard I/O Interfaces: PCI, SCSI and USB.

UNIT III

Discrete Components of Computer - Mother Board, Cabinet, Memory, Processor and Peripherals; Configuring a Computer System. Computer Networks - History of Networks, Types of Networks - LAN, MAN, WAN, Intranet, Internet, Extranet, Network Topologies. Networking Components- Transmission Media, NIC, Hubs, Switches, Bridges, Routers, Gateways, Modems.

UNIT IV

Introduction to OSI Reference Model. Introduction to TCP/IP - Layers, IP, ARP, RARP, ICMP, TCP, UDP, DNS, Email, FTP, TFTP, WWW, HTTP and Telnet.

UNIT V

Introduction to Web Technology- Dynamic Web Pages, Active Web Pages and XML.

Text Books:

1. Hamacher C, Vranesic Z, and Zaky S, Computer Organization, 5th Edition, McGraw-Hill, 2002.
2. Godbole A S, and Kahate A, Web Technologies : TCP/IP to Internet Application, Architectures, Tata McGraw-Hill, 2003.
3. Norton P, Introduction to Computers, 6th Edition, Tata McGraw-Hill, 2006.

CST02 : Computer Programming in C

Basic course

Instructions Hours / Week : 3

Credits : 2

(Common to all branches and with effect from 2010-11)

UNIT I

Number Systems - Decimal, Binary, Octal and Hexadecimal. Integer Representation - sign and magnitude, 1's complement 2's complement and excess code. Floating-point Representation - single and double precision standards, Character Codes - ASCII, EBCDIC and Unicode. Problem Solving Steps - Problem Understanding, Formulating a Mathematical Model, Development of Algorithm, Representation of Algorithm - Flow chart and Pseudo code, Coding, Testing and Debugging.

UNIT II

History of C Programming Language, Form of a C Program - Comments, Preprocessor statement, Function header statement, Variable declaration statement and Executable statement. C Character Set, C Tokens - Constants, identifiers, Operators, Punctuations, and Keywords. Basic Data Types, Modifiers, Identifiers, Variables, C Scopes, Type Qualifiers, Storage Class Specifiers, Variable Initializations, and Constants. Console I/O - Reading and writing characters, Formatted console I/O. Operators - Assignment, Arithmetic, Relational, Logical, Bitwise, Ternary, Address, Indirection, sizeof, Dot, Arrow, and Parentheses. Expressions - Precedence of operators and associativity. Category of Statements - Selection, Iteration, Jump, Label, Expression and Block.

UNIT III

Functions - Declaration, Prototype definition, calling by value and address, Standard Library Functions, Recursive Functions. Arrays and strings - Declaration, Initialization, Reading and Writing, Accessing, and Passing as a parameter to functions, Multidimensional arrays, String functions.

UNIT IV

Pointers - pointer expressions, pointer and arrays, multiple indirection, initializing pointers, pointers to functions, Dynamic memory allocation functions. Structures - declaration, initialization, accessing, array of structures and passing structures to functions, structure pointers, arrays and structures within structures, Unions, Bit-fields, typedef, and enumerations.

UNIT V

Files - I/O and processing operations on Text and binary files. Preprocessor directives

PHT01 : Engineering Physics

Basic Course

Instructions Hours / Week : 5

Credits : 4

(Common to all branches and with effect from 2010-11)

Unit – 1

Crystallography: Unit cell - Bravais lattice - Crystal systems – Crystal packing – Close packed structures – NaCl, ZnS and Diamond – Miller indices – Bragg's spectrometer and Crystal structure determination – Defects in crystal structure – Point defects and line defects.

Unit – 2

Wave Mechanics: Wave – Particle duality – de Broglie Concept of Matter Waves – Properties of matter waves – Davisson and Germer Experiment – G.P. Thomson Experiment – Heisenberg's Uncertainty Principle – Schrodinger's Time Independent and Time dependent wave equation – significance of wave function – electrons in infinite square potential well – probability densities and energy levels.

Unit – 3

Band Theory of solids: classical free electron theory of metals – success and failures – quantum free electron theory – Fermi factor – electron in periodic potential – Bloch theorem – Kronig – Penney model – distinction between metals, insulators and semiconductors – intrinsic and extrinsic semiconductors – significance of Fermi level – Hall effect.

Unit – 4

Lasers: Introduction – spontaneous and stimulated emission – population inversion – types of lasers – ruby laser – He-Ne laser – semiconductor lasers – applications of lasers. Ultrasonics: Introduction – production of ultrasonic waves by magnetostriction and piezoelectric effect – detection and applications of ultrasonic waves.

Unit – 5

NanoPhysics: Introduction to nanomaterials – characteristics of C⁶⁰ (Zero dimensional), carbon nanotubes (One dimensional) and graphene (Two dimensional) – Optical properties – quantum Method – gas condensation – vacuum deposition – applications of nanomaterials.

Text Books:

R.K. Gaur and S.L. Gupta "Engineering Physics" Sultan and Chand Pub., New Delhi.

S.P. Basava Raju "A Detailed text Book of Engineering Physics" Sole Distributors, Subhash stores Book Corner, Bangalore.

Hitendra K. Malik and A.K. Singh "Engineering Physics" Tata McGraw Hill Education Pvt. Ltd., New Delhi.

G. Senthil Kumar, "Engineering Physics" VRH Publishers Pvt. Ltd, Hyderabad.

CET01 : ENVIRONMENTAL SCIENCE

Basic course

Instructions Hours / Week : 5

Credits : 4

(Common to all branches and with effect from 2010-11)

UNIT I

Introduction: Definition, Scope and Importance of Environmental Sciences, Present global issues Natural resources management: Forest resources – use and over exploitation, Mining and Dams, their effects on Forest and Tribal people. Water resources-Use and over utilization of surface and ground water, Floods, Droughts, Water logging and Salinity, Water conflicts. Energy resources - Energy needs renewable and Non Renewable Energy sources, use of alternate Energy sources, Impact of Energy use on Environment. Land resources – Land as a resource, land degradation, Man induced landslides, soil erosion and desertification. Mineral resources – Use and overexploitation, Environmental effects of extracting and using mineral resources, case studies. Food resources – World food problems, changes caused agriculture and overgrazing, effects of modern agriculture, fertilizer, water logging, salinity, case studies.

UNIT-II

Ecosystems: Introduction, characteristic features, structure and functions of Ecosystem – Forest, Grass land, Desert, Aquatic. Biodiversity and its Conservation: Introduction, Biogeographical classification of India, Value of Biodiversity- Consumptive and Productive use, Social, Ethical, aesthetic and option values, Bio-geographical classification of India- India as a mega diversity Habitat, Threats to Biodiversity- Hot spots, Habitat Loss, Poaching of Wildlife, Loss of species, seeds, etc., In-situ and Ex-situ conservation of Biodiversity.

UNIT III

Environmental Pollution and Global effects: Causes, effects and control measures of Air pollution, Indoor Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution. Solid waste management: Urban, Industrial, nuclear and e-waste management. Pollution case studies Disaster management : Floods, earth quakes and control measures of urban and industrial wastes.

UNIT IV

Population growth and Environment: Environmental Impact Assessment, Epidemic diseases, HIV/AIDS, Avian Flu, Water Borne Diseases. Environmental Acts: Water (Prevention and control of pollution) act, air (prevention and control of pollution) act, Environmental Protection Act, Forest conservation act, water act, Air act, Wild Life Protection Act, Public Liability Act, Insurance Act

UNIT V

Social issues and the Environment: Effects of human activities on the Quality of Environment: Urbanization, Transportation, Industrialization, Green revolution, Water scarcity and Ground water depletion. Information technology and Environment: Role of information technology in environmental sciences.

Content beyond the syllabus:

Ecosystem: Solar Radiation, Productivity, Food Chains and Food Webs, Metabolism and Size of Individuals, Carrying Capacity, Complexity, Sustainability, Net energy, Energy Futures, Money Learning Resources

Text Books:

1. Anubha Kaushik & C P Kaushik, Environmental studies, New age international Publishers, 2008
2. AnjaneyuluY, *Introduction to Environmental sciences*. Hyderabad: B S Publications .
3. Anjireddy.M, *Environmental science & Technology*. Hyderabad: BS Publications.
4. B. Joseph, *Environmental Studies*. New Delh: Tata McGraw- Hill, 2005.
5. P. V. G. Rao, *Principles of Environmental Science. & Engg*. New Delhi: Prentice-Hall of India 2006.
6. R. G. Santosh Kumar Garg and o. R. Garg, *Ecological and Environmental Studies*. New Delhi: Khanna Publishers, 2006.
7. K. J. R. Nagendran, *Essentials of Environmental Studies*: Pearson Education publishers, 2005.
8. O. E. P. a. B. G. W., *Fundamentals of Ecology*: Thomson Brooks/Cole, 2005
9. M Chandra Sekhar, Environmental Science, Hi-Tech Publishers, 2004
10. Keerthinarayana and Daniel Yesudian, Principles of Environmentsl Sciences and Engineering, Hi- Tech Publishers, 2005

Reference Books:

1. A. K. Dee, *Environmental Chemistry*: New Age India. 2. B. Erach: Mapin Publishing.

CSP01- Computer Programming Lab

Basic course

Instructions Hours / Week : 4

Credits : 2

(Common to all branches and with effect from 2010-11)

List of Lab Exercises:

Write a C program to compute the product of the given list of numbers.

Write C program to find the sum of the digits of the given number.

Write a recursive C program to find factorial n.

Write a C program to find the LCM of the given 3 numbers.

Write a C program to find all prime numbers less than n.

Write a C program to print the multiplication table for a given number.

Write a C program to find the GCD of the given 2 numbers.

Write a C program to check the given number is Armstrong number or not. (Hint: $153 = 1^3 + 5^3 + 3^3$)

Write a C program to generate Fibonacci series for a given number. (Hint: 0 1 1 2 3 5 8 13 21 34 ...)

Write a C program to print number pyramid. Hint: 1 121 12321

Write a C program to find the lucky number of a person. (Read date of birth ad sum up the digits in date, month and year)

Write a C program to find the given number is palindrome or not.

Write a C program to convert the given temperature Celsius to Fahrenheit. (Hint: $100^{\circ}\text{C} \rightarrow 212\text{F}$)

Write a C program to calculate the Simple Interest for a given P,N,R (Hint: $SI = (P \cdot N \cdot R) / 100$ $A = P + SI$)

Write a C program to search an element in the given list.

Write a C program to print the given number in words. (Hint: 123 \rightarrow one two three)

Write a recursive C program to find sum of first n natural numbers. (Hint: $sum = 1 + 2 + 3 + 4 + 5$)

Write a C program to print Pascal triangle for given height.

Hint: 1

1

1 2 1

1 3 3 1

1 4 6 4 1

Write a C program to print the minimum and maximum numbers in a given list.

Using a do-while construct ,develop a sequence of instructions that reads a character string from key board ad after pressing the enter key the character string is displayed again .

Write a program to convert 16 bit binary number to its equivalent 5 digit packed BCD number

Write a program to sort the given 8 bit signed numbers in ascending order

Write a program to find the largest number in the given array of 8-bit unsigned numbers

Write a program to find the count of positive numbers ad negative numbers in a given array of signed 16 -bit numbers

Write a program to convert 4 digit packed BCD to binary

Write a program to delete a character from a string

Write a program to reverse the given string

Write a program to compare two strings for equality

Write a C-program to count number of characters, spaces, words ad lines in given file.

Write a C program to read name of the student, roll number and marks obtained in a subjects from keyboard ad print name of the student, roll number, marks in 5 subjects, and total marks by using structures concept

Text Book:

1. Balagurusamy, *Programming in ANSI C* 4ed.: TMH, 2009.

Reference Books:

1. B. Gottfried, *Programming with C (Schaum's Outlines)* Tata Mcgraw-Hill.
2. Kernighan and Ritchie, *The C programming language*: Prentice Hall.
3. Venugopal, *et al.*, *Programming with C*: TMH.

ENP – 01:English Communication Skills Lab**Basic Course****Instructions : 4 hr/week****Credits: 2****Assessment:20+20+60**

At least twenty exercises covering the topics: Stress, Introduction, Accent, Intonation, English vs English and Important Skills using Computer-Aided Packages.

Text Book:

Barry Tomalin and Suhashini Thomas, *International English for Call Centres*, McMillan Publishers, India Limited, 2009.

MAT02 : Engineering Mathematics – II**Basic Course****Instructions Hours / Week : 5****Credits : 4****(Common to all branches and with effect from 2010-11)****Unit – 1**

Matrices: rank of a matrix-solution of system of linear equations-eigen values,vectors-cayley-hamilton theorem-quadratic forms-diagonalization.

Unit – 2

Vector Calculus: gradient, divergence, curl of a vector and related properties-line, surface, volume integrals-green's, stokes's and gauss divergence theorems and its applications.

Unit – 3

Fourier Series: fourier series-even and odd functions, periodic functions-half range sine and cosine series-harmonic analysis.

Unit – 4

Special Functions I: gamma and beta functions-series solutions of differential equations-ordinary points.

Unit – 5

Special Functions II: Bessel function-recurrence formulae-generating function for $J_n(X)$ -lengender polynomials-recurrence formulae-generating function for $P_n(X)$ -rodrigue's formula-orthogonality of lengender polynomials.

Text Books:

- B S Grewal, *Higher Engineering Mathematics*, 40th Edition, Khanna Publications, 2007.
 M K Venkataraman, *Engineering Mathematics*, National Publishing Company, Chennai.
 B V Ramana, *Higher Engineering Mathematics*, 6th Reprint, Tata McGraw-Hill, 2008.
 Bali and Iyengar, *Engineering Mathematics*, 6th Edition, Laxmi Publications, 2006.

MAT04: Probability and Statistics**Instructions Hours / Week : 5****Credits : 4****(Common to all branches and with effect from 2010-11)****Probability and Statistics MAT04****Unit – 1**

Probability: Introduction, axiomatic approach, conditional probability, baye's theorem, stochastic process, random variables, discrete and continuous distributions, expectation, variance, moments, moments generating functions.

Unit – 2

Distributions: binomial, poisson, normal, uniform, exponential and gamma. Properties and applications.

Unit – 3

Estimator: estimation of parameters by method of moments and maximum likelihood-testing of hypothesis-small sample tests-t-test, f-test and chi-square test.

Unit – 4

Correlation: curve fitting by method of least squares-linear, quadratic and exponential fitting-correlation-rank correlation-regression analysis-multiple correlation.

Unit – 5

Quality Control: concept of quality of a manufactured product-causes of variation-principles of shewart control charts-X-chart, R-chart, p-chart, np-chart and C-chart.

Text Books:

S P Gupta, Statistical Methods, 38th Edition, Sultan Chand & Sons Educational Publishers, 2009.

Y K V Iyengar et al, Probability and Statistics 2nd Edition, S. Chand & Company Ltd, 2010.

S C Gupta and V K Kapur, Fundamentals of Applied Statistics, 3rd Edition, Sultan Chand & Sons Educational Publishers.

CST03 OBJECT ORIENTED PROGRAMMING

Basic course

Instructions Hours / Week : 3

Credits : 2

(Common to all branches and with effect from 2010-11)

UNIT I

Object-oriented Programming Paradigm, Viewing the World - Agents, Responsibility, Messages and Methods; Classes and Instances; Class Hierarchies; Method Binding, Overriding and Exceptions. Computation as simulation. Coping with Complexity- Nonlinear Behavior of Complexity, Abstract Mechanisms: Procedures, Block Scoping, Modules, ADT, Message Passing, Inheritance, Polymorphism and Genericity, Reusable Software.

UNIT II

Unified Modeling Language (UML) Notation for Classes, Attributes and Operations. Class Relationships - Association, Generalization / Specialization, Composition and Aggregation. Object-Interaction Diagrams.

UNIT III

Object-Oriented Features of C++ I : C++ Stream Input / Output, Classes, Constructors, Destructors, Friend Functions, Function Overloading, Operator Overloading.

UNIT IV

Object-Oriented Features of C++ II : Inheritance, Virtual Functions and Polymorphism, Templates, Exception Handling, File Processing.

UNIT V

Introduction to MS Windows Programming using C++ and MFC.

Text Books:

- 1 Budd T, An Introduction to Object-Oriented Programming, 3rd edition, Pearson Education, 2002.
- 2 Jones M P, Fundamental of Object-Oriented Design in UML, Addison-Wesley, 1999.
- 3 Dietel H M, Dietel P J, C++: How to Program, 3rd edition, Pearson Education, 2000.
- 4 Hansen H, Nitty Gritty Windows programming with C++, Addison-Wesley, 2001.
- 5 Malik D S, C++ Programming: Program Design Including Data Structures, Cengage Learning, 2004.

CTS04 DATA STRUCTURES

Basic course

Instructions Hours / Week : 3

Credits : 2

(Common to all branches and with effect from 2010-11)

UNIT I

Definitions of Data structures, Storage Structures and File Structures. Primitive and Nonprimitive Data Structures, Linear and Nonlinear Data Structures. Performance Analysis, Asymptotic Notation and Performance Measurement.

UNIT II

Linear Lists - ADT, Array Representation, Linked Representation and Applications. Stacks - ADT, Array Representation, Linked Representation and Applications. Queues - ADT, Array Representation, Linked Representation and Applications.

UNIT III

Binary Trees - Definition and Properties, ADT, Array Representation, Linked Representation, and Applications. Heap- Definition and Applications. Binary Search Trees - Definition, ADT, Implementation and Applications. Introduction to Balanced Search Trees - AVL Trees, Red-Black Trees, and Splay Trees.

UNIT IV

Graphs - Definition and Properties, Modeling Problems as Graphs, ADT, Representations, Breadth First Search and Depth First Search. Introduction to Algorithms for Solving Problems: Minimum Spanning Tree, Single Source Shortest Paths, All-Pairs Shortest Paths, and Maximum Flow.

UNIT V

Introduction to Internal and External Sorting Methods. External Searching -Concepts of Simple Indexing, Multilevel Indexing, B- Trees, B+ Trees, Static Hashing, Collision Resolution Techniques, Packing Density, Bucket Size and Extendible Hashing.

Text Books:

1. Sahni S, Data Structures, Algorithms and Applications in C++, 2nd Edition, UniversitiesPress, 2005.
2. Tremblay J P and Sorenson P G, Introduction to Data Structures with Applications, 2nd Edition, McGraw-Hill, 1984.
3. Cormen T H, Leiserson C E, Stein C, and Rivest R L, Introduction to Algorithms, 2nd Edition, Prentice Hall of India, 2007.
4. Folk M J, Riccardi G, and Zoellick B, File Structures-An Object-Oriented Approach with C++, Pearson Education, 3rd edition, 2002.
5. Malik D S, Data Structures using C++, Cengage Learning, 2003.

CYT01 : Engineering Chemistry

Basic Course

Instructions Hours / Week : 5

Credits : 4

(Common to all branches and with effect from 2010-11)

Unit – 1

Colloids: types of colloidal solutions – multi molecular, macro molecular and associated colloids – preparation and properties of colloidal system – characteristics of colloidal system – coagulation of sols – stability of colloids – protective colloids – emulsion – gels – applications of colloids.

Unit – 2

Electro Chemistry and Corrosion: electrode potential – reference electrodes – hydrogen, calomel and glass electrode – PH and its determination – polarization – batteries – fuel cells – aluminium air battery – solar battery – lead acid storage cell. Corrosion: types of corrosion – factors influencing corrosion – theories of corrosion – prevention of corrosion – cathodic protection – metallic coatings – hot dipping, spraying, cementation, cladding and electro plating.

Unit – 3

Water Treatment: effect of water on rocks and minerals – hardness of water – disadvantages of hard water – boiler feed water – scale and sludge formation in boilers – caustic embrittlement – boiler corrosion – priming and foaming – softening methods – lime soda, zeolite and ion exchange process – drinking water – chemical analysis of water – hardness, alkalinity, chloride, sulphate and dissolved oxygen.

Unit – 4

Fuels and Combustion: introduction – classification of fuels – calorific value and its determination – bomb calorimeter – boy's gas calorimeter – theoretical calculation of calorific value of fuel – coal – analysis of coal – metallurgical coke – petroleum – refining of petroleum – synthetic petrol – combustion – mass analysis from volume analysis and vice versa – analysis of flue gas – petrochemicals.

Unit – 5

High Polymers: Nomenclature of polymers – types of polymerization – plastics – classification of plastics – moulding constituents of plastics – preparation, properties and applications of polythene, nylon, Teflon, ure-formaldehyde and bakelite – rubbers – vulcanization of rubber – compounding of rubber – synthetic rubbers – buna-N, thiocol and silicon rubbers – polymers in medicine and surgery.

Text Books:

Engineering Chemistry: PC Jain & M Jain – Dhanpat rai publishing company, New Delhi.

Engineering Chemistry: BK Sharma Engineering Chemistry: SS Dhara

Engineering Chemistry: Puri & Sharma-Vishal Publishing Company, Jalandhar

MET 01 - ENGINEERING GRAPHICS

Instructions Hours / Week : 5

Credits : 4

(Common to all branches and with effect from 2010-11)

Course Content:

UNIT – I

CURVES USED IN ENGINEERING PRACTICES

Conics – Construction of Ellipse, Parabola and Hyperbola by eccentricity method. Ellipse- Concentric circles and Oblong methods, Rectangular Hyperbola

PROJECTIONS OF POINTS

Principals of Projections, First and Third angle projections. Projections of points.

UNIT – II

PROJECTIONS OF LINES

Projections of straight lines, Lines inclined to one plane and parallel to the other. Lines inclined to both planes. True length and True inclinations. Location of Traces.

UNIT-III

PROJECTIONS OF PLANE SURFACES AND SOLIDS:

Projection of polygonal surfaces and circular lamina inclined to both the planes.

Projections of right regular solids – Projections of simple solids such as Prisms, Pyramids, Cylinders and Cones with their axes perpendicular to any one of the principle planes and inclined to the other.

UNIT - IV

SECTIONS OF SOLIDS

Sections of above solids in simple vertical position resting on their base, by cutting planes inclined to one reference plane and perpendicular to the other – True shape of sections.

ISOMETRIC PROJECTIONS

Principles of Isometric projections – Isometric scale – Isometric projections and views of planes and simple solids.

UNIT – V

ORTHOGRAPHIC PROJECTIONS

Conversion of pictorial views into orthographic views of simple objects.

Text Books:

Bhatt ND and V M Panchal, Engineering Drawing Revised Edition, Charotar publications, 2010.

Dhananjaya A Jolhe, Engineering Drawing with an introduction to Auto CAD, Tata Mc- Graw Hill – 2009.

Gautam Pohit, Gautam Gosh – machine Drawing with auto cad – Peason publications.

A text book of engineering Drawing , SCITECH Publicaitons (1999) – KL Narayana & P Kannaiah.

Engineering Drawing & Graphics, New age International Publishers – K. Venugopal.

CSP02- Data Structures Lab

Basic Course

Instructions Hours / Week : 4

Credits : 2

(Common to all branches and with effect from 2010-11)

- (1) Write a program to delete specific element from an array and rearrange the elements.
- (2) Write a program to insert element at a specified position in an array.
- (3) Write a program to search for a specified element in an array.
- (4) Write a program to merge two arrays into a third one and display the contents of all 3 arrays.
- (5) Write a program to enter integer elements and sort them in ascending and descending order.
- (6) Write a program to store elements in stack.
- (7) Write a program to store elements in stack and delete specified element.
- (8) Write a program to demonstrate push and pop operations.
- (9) Write a program to create a class stack and define the member functions push and pop.
- (10) Write a program to implement queue using array.
- (11) Write a program to perform insertion and deletion operation and show the front and rear values.
- (12) Write a program to insertion and deletion operation in circular queue and display the elements.
- (13) Write a program to create a list insert an element at specified location.
- (14) Write a program to create a integer elements delete the specific element display the list.
- (15) Write a program to sort the list.
- (16) Write a program to create two array list of integers sort and store the elements in the third list.
- (17) Write a program that accepts a number as input in English language format such as seven eighty six(786) and prints the decimal form of it.
- (18) A Square matrix is called Symmetric if for all values of i and j $a[i][j]=a[j][i]$. Write a program which verifies whether a given 5x5 matrix is symmetric or not.
- (19) There are 2 arrays A & B, A contains 25 elements where B contains 30 elements. Write a function to create an array C that contains only those elements that are common to A and B.
- (20) Write a program which counts number of words, lines and characters in a given text.
- (21) There are two linked lists A & B containing the following data
A : 3,7,10,15,16,9,22,17,32
B : 16,2,9,13,37,8,10,1,28
Write a program that contains any those elements that are common on linked lists A & B.
A linked list D that contains all elements of A as well as B ensuring that there is no repetition of elements.
- (22) Write a program to maintain a doubly linked circular list.
- (23) A linked list contains some positive numbers and some negative numbers. Using this linked list write a program to create two more linked lists one contains all positive numbers and the other contains all negative numbers.
- (24) Write a program to build a sparse matrix as an array write functions to check if the sparse matrix is a square, diagonal, lower triangle, upper triangle, tri-diagonal elements.
- (25) Transform the following infix expression to their prefix & postfix expressions
 $A*(B+D)/E-F*(G+H/K)$

- (26) Transform the following prefix to infix
+A-BC
- (27) Transform the following postfix to infix
ABC+-
- (28) Write a program to copy one queue to another when the queue is implemented as linked list.
- (29) Write a program that finds height of binary tree.
- (30) Write a program that counts the no. of nodes and number of leaf nodes in a binary tree.
- (31) Write a program that implements non-recursive form of in-order, preorder and post- order.
- (32) Write a program that traverses a binary tree level by level from left toward right.

MEP – 01 : WORKSHOP PRACTICE

Basic Course

Instructions Hours / Week : 4

Credits : 2

(Common to all branches and with effect from 2010-11)

At least four models from each of carpentry and fitting trades.

At least two models from electrical wiring trade.

Demonstration of machining, foundry, welding and tin smithy.

At least four exercises covering identification of discrete components of computer and peripherals and, networking components; hardware trouble shooting and software installation.