MATS UNIVERSITY

ARANG, RAIPUR (C.G.)

Scheme of Teaching & Examination

VI - Semester

S.N.	code	Subject	Periods per week			Scheme of marks		Total Credit
			L	T	P	ESE	IM	
1.	DP610	Power Engineering	3	0	-	70	30	3
2.	DP611	Refrigeration & Air conditioning	3	1	-	70	30	4
3.	DP612X	Professional Elective- II	3	0	-	70	30	3
4.	DP613X	Open Elective	3	0	-	70	30	3
6.	DP614	Refrigeration & Air conditioning Lab	-	-	2	30	20	1
7.	DP615	Project Work	-	-	15	30	20	10
		Total	**12**	**1**	**17**	**540**	**260**	**24**

L – Lecture, T – Tutorial, ESE – End Semester Examination,
P – Practical, IM – Internal Marks (Include Class Test & Teacher's Assessments)

Professional Elective:

DP6121	Alternative Energy sources and Management
DP6122	Material Handling System
DP6123	Industrial Fluid Power
DP6124	Production Technology
DP6125	Measurement and Control

Open Elective:

DP6131	Entrepreneurship Development
DP6132	Disaster Management
DP6133	Information Technology

DP6134	Energy studies
DP6135	Computer Programming

SIXTH SEMESTER
SUBJECT- POWER ENGINEERING
CODE- DP610

UNIT I

I.C. Engine

Power Cycles - Carnot, Otto, Diesel, Dual, Brayton Cycle, representation on P-V, T-S diagram and Simple numerical on Otto cycle only, Classification of I.C. Engines, Two stroke and four stroke Engines, Construction and working, comparison, valve timing Diagram, Brief description of I.C. Engine combustion (SI & CI), scavenging, pre-ignition, detonation, supercharging, turbo charging, simple Carburetor, M.P.F.I., fuel injection pump List of fuel, lubricant additives and their advantages.

UNIT II

I.C. Engine Testing and Pollution Control

Engine Testing - I.P., B.P. Mechanical, Thermal relative and volumetric efficiency, BSFC, Heat Balance sheet, Morse Test, Motoring test, Pollution Control , Bharat stage I, II, III norms.

UNIT III

AIR COMPRESSER

Introduction, uses of compressed air, Classification of air compressors, Compressor capacity, Free Air Delivered, Swept volume, Reciprocating air compressor, Construction and working of single stage and two stage compressor, Efficiency: - Volumetric , Isothermal & Mechanical, Rotary Compressor, Construction and working of screw, lobe, vane, centrifugal compressors.

UNIT IV

Gas Turbine

Classification and applications of gas turbine. Constant volume and constant pressure gas turbines, Closed cycle and open cycle gas turbines and their comparison., Methods to improve thermal efficiency of gas turbine- Regeneration, inter- cooling, reheating using T- Ø diagram,.

UNIT V

Jet Propulsion

Jet Propulsion , Principles of turbojet, turbo propeller, Ram jet, Rocket propulsion, Solid propellants and liquid propellants, components of liquid propellants rocket engine.

Text Books

Thermal Engineering By P.L. Ballany - Khanna Publisher's
Thermal Engineering – Vol-I & II By R.K.Kapoor, Tata McGraw Hill
Thermodynamics and heat Engines - Vol-I, By R Yadav, Central Book Depot, Allahabad

References :

Engineering Thermodynamics- by P.K.Nag, TMH
A Course in Thermodynamics and Heat Engines- by Kothanandran, Khajuria and arrora

SIXTH SEMESTER
SUBJECT- REFRIGERATION AND AIRCONDTIONING
CODE- DP611

UNIT – I

Introduction

Introduction to Refrigeration. Methods of refrigeration as Ice refrigeration, steam jet refrigeration, Concept of heat pump, Refrigerator, Concept of COP. Refrigerating effect,Units of refrigeration . Reversed Carnot Cycle and its representation on PV & TS diagram. **Vapour Compression Cycle -** VCC -Principle, components, representation on PV, TS & PH diagrams. Wet /Dry –compression-Reasons for not using Wet /Dry compression. Actual VCC, calculation of COP, Effect of superheating & under-cooling. Multistage vapour compression cycle, need for multistage compression system, cascade refrigeration & its application.

UNIT – II

Vapour Absorption System

Principle /components &working of Ammonia vapour absorption system, Lithium Bromide absorption system, Electrolux Refrigerators , Comparision with vapour compression system **Refrigerants** -Types of refrigerants as primary / secondary . Properties of the Commonly used refrigerants such as – Co2, Ammonia So2 , Freon 11, Freon 12 , Freon 22, Freon 500 ,503 502. & eco- friendly efrigerants. Concept of Ozone layer and its destruction. Selection of refrigerants for particular application with reasons.

UNIT– III

Air Conditioning & Psychrometric Processes

Definition, Necessity of Air conditioning. Concept of body comfort. Properties of air as DBT , WBT, DPT, Air as mixture of different gases & water vapour Daltons law of partial pressures, Concept of Humidity of air, absolute humidity, relative Humidity, Psychrometers and their types , Enthalpy of air, Sp. Volume of air, DPT of moist air, Psychrometric charts ,& tables , Psychrometric processes such as sensible heating & cooling , latent heat of air , latent heating & cooling , heating & humidification , cooling & dehumidification , evaporative cooling , sensible heat factor , By-pass factor ,apparatus dew point ,[representation on psychrometric charts]

UNIT– IV

Cooling Load Calculation

Concept of heat load, Heat sources as outdoor , walls , roofs in filtration & indoor sources , types of cooling loads like—glass , walls , roofs , ventilation , people, electrical equipment, motors etc. Calculations of total heating & cooling load estimation & determination of refrigeration capacity.

UNIT–V

Air Distribution Systems

Elements of air distribution system such as types of fans, Ducts, Duct system as –graduate trunk, loop perimeter, Extended Platinum, Over head trunk, over head radial duct systems, Selection & Losses in duct systems. Air distribution outlets supply outlets, return outlets, sealing diffusers, grills , resistors, fixed /adjustable louvers , low /high wall outlets , floor baseboard & sealing outlets .

Air Conditioning Systems- Window air conditioning unit. Construction, Working, type of refrigeration system used, capacity. Split air conditioners construction , working ,Type of refrigeration system used , capacity Package / Summer / Winter & Year – round air Conditioner systems construction , working ,type of refrigeration system used capacity

TEXT BOOKS

1. Refrigeration & Air Conditioning – Ahmadid, Amean - PHI
2. Refrigeration and Air Conditioning –C. P. Arora - TMH.

REFERENCE BOOKS

1. Refrigeration and Air Conditioning – Manohar Prasad – Newage International Pub
2. Refrigeration and Air Conditioning – Arora&Domkundwar – DhanpatRai& Sons
3. Refrigeration and Air Conditioning – P.L. Ballaney – Khanna Pub.
4. Refrigeration and Air Conditioning – W.F. Stooker

SIXTH SEMESTER

SUBJECT- ALTERNATIVE ENERGY SOURCES AND MANAGEMENT

CODE- DP6121

UNIT – I

Non-Conventional Energy Conversion

Classical sources of energy crisis and search for alternative sources of energy. Solar energy, earth sun angles ,resolution, solar measurement, collection of solar energy, flat plate and focusing collector analysis, calculations and same design parameters. Applications of solar energy .Introduction to Photovoltaic cell energy conversion techniques. Derivation for collector efficiency for flat plate collector.

UNIT – II

Bio-Mass & Wind Energy

Gasifiers, Gobar Gas plant, types of applications, Biomass conversion technologies, biogas Generation. Basic principles of wind energy conversion, wind energy estimation, site selection consideration, basic components of wind energy conversion system, classification, advantages & disadvantages of WECS.

UNIT – III

Improved Energy Utilization & New Alternatives

Fuels cell technology, wave energy conversion, tidal energy conversion, OTEC.Principle of MHD power system, types of MHD system, advantages, materials for MHD system.Geothermal energy, nature of geothermal fields, Geothermal sources, prime movers for geothermal energy ,advantages, disadvantages of Geothermal energy over other energy forms, its application. High pressure boiler Modification in Boiler, High Pressure Steam generators – La-Mont, Benson, Velox and Schmidt Hartmann Boilers. application of hydrogen as a fuel – a substitute as energy alternatives.

UNIT – IV

Energy Conservation & Management:-,Global and Indian energy market,Energy scenario in various sectors and Indian economy,Need and importance of energy conservation and Concept of Payback period, Return on investment (ROI), Life cycle cost, Sankey diagrams, specific energy consumption.

UNIT – V

Energy Conservation Techniques- Distribution of energy consumption,Principles of energy conservation.Energy audit,Types of audit,Methods of energy conservation,Cogeneration and its application,Combined cycle system,Concept of energy management,Study of different energy management techniques like Analysis of input,Reuse and recycling of waste,Energy education, Conservative technique and energy audit

TEXT BOOKS

1. Fundamentals of Compressible Flow with Aircraft and Rocket Propulsion – S.M. Yahya – New Age InternationalPublishers

2. Gas Dynamics & Space Propulsion – N. Shanmugam, M. Palani – Anuradha Agencies

3. Non-Conventional Energy Sources - G.D. Rai – Khanna Publishers

REFERENCE BOOKS

1. Fundamental of Compressible Fluid Dynamics – P. Balachandran – PHI

2. Gas Turbine Theory & Jet Propulsion – J.K. Jain – Khanna Publishers

3. Solar Energy – Garg & Prakash – TMH Pub.

4. Non Conventional Energy Sources – D.S. Chauhan – New Age International Pub.
5. Solar Energy, R Sukhatm

SIXTH SEMESTER
SUBJECT- MATERIAL HANDLING SYSTEM
CODE- DP6122

UNIT – I
Types of interplant transporting facility, principal groups of material handling equipments, choice of material handling equipment, hoisting equipment, screw type, hydraulic and pneumatic conveyors, general characteristics of hoisting machines, surface and overhead equipments, general characteristics of surface and overhead equipments and their applications. Introduction to control of hoisting equipments.

UNIT – II
Flexible hoisting appliances like ropes and chains, welded load chains, roller chains,selection of chains hemp rope and steel wire rope, selection of ropes, fastening of chains and ropes , different types of load suspension appliances, fixed and movable pulleys, different types of pulley systems, multiple pulley systems . Chain and rope sheaves and sprockets.

UNIT – III
Load handling attachments, standard forged hook, hook weights, hook bearings, cross piece and casing of hook, crane grab for unit and piece loads, carrier beams and clamps, load platforms and side dump buckets, electric lifting magnets, grabbing attachments for loose materials, crane attachments for handling liquid materials.

UNIT – IV
Arresting gear, ratchet type arresting gear, roller ratchet, shoe brakes and its different types like electromagnetic, double shoe type, thruster operated, controller brakes, shoe brakes, thermal calculations of shoe brakes and life of linings, safety handles, load operated constant force and variable force brakes general theory of band brakes, its types and construction.

UNIT – V
Different drives of hoisting gears like individual and common motor drive for several mechanisms, traveling gear, traveling mechanisms for moving trolleys and cranes on runway rails, mechanisms for trackless, rubber-tyred and crawler cranes motor propelled trolley hoists and trolleys, rails and traveling wheels, slewing, jib and luffing gears. Operation of hoisting gear during transient motion, selecting the motor rating and determining braking torque for hoisting mechanisms, drive efficiency calculations, selecting the motor rating and determining braking torque for traveling mechanisms, slewing mechanisms, jib and luffing mechanisms . (Elementary treatment)

TEXT BOOK
1. Materials Handling Equipment – N. Rudenko , Envee Publishers, New Delhi

2. Materials Handling Equipment – M.P. Alexandrov. Mie publications, Maskow

SIXTH SEMESTER
SUBJECT- INDUSTRIAL FLUID POWER
CODE- DP6123

UNIT-I

Introduction to oil hydraulic systems

Practical applications of hydraulic systems. General layout of oil hydraulic systems. Merits and limitations of oil hydraulic systems. Components of Hydraulic systems
Pumps – Vane pump, gear pump, Gerotor pump, screw pump, piston pump

UNIT-II

Valves – Construction, working and symbols of Pressure control valves – pressure relief valve, pressure reducing,pressure unloading Direction control valves – Poppet valve, spool valve, 3/2, 4/2 D.C. valves,Sequence valves. Flow control valves – pressure compensated, non pressure compensated flow control valve.

UNIT-III

Actuators- Construction, working and symbols of Rotary Actuators -
Hydraulic motors Linear Actuators – Cylinders - single acting, double acting.Accessories – Pipes, Hoses, fittings, Oil filters, Seals and gaskets, Accumulators. (Types, construction, working principle and symbols of all components)

UNIT-IV

Hydraulic Circuits-Meter in, Meter out circuits,Bleed off circuit Sequencing circuitHydraulic circuits for Milling machine, Shaper machine, Motion synchronization circuit. Introduction to pneumatic Systems Applications of pneumatic system General layout of pneumatic system Merits and limitations of pneumatic systems

UNIT-V

Components of pneumatic system Compressor – Reciprocating & Rotary compressors.
Control Valves – Pressure regulating valves, Flow Control valves, Direction Control Valves Actuators – Rotary - Air motors, Types, construction, working principle Linear- Cylinders- Types, construction &working principle Accessories – Pipes, Hoses, Fittings, FRL unit (Types, construction, working principle and symbols of all components) Pneumatic Circuits Speed control circuits. Sequencing circuits.

Text Books:

,Industrial Hydraulics by Pippenger Hicks ,McGraw Hill International
Oil Hydraulic system by Majumdar S.R Principle and ,Tata McGraw Hill
Maintenance,Pneumatics Systems by Majumdar ,Tata McGraw Hill,

Reference books :

Industrial fluid power BY Charles Hedges, Womack Educational, Publications
Industrial hydraulic by Peter Rhoner Prentice Hall Publications

SIXTH SEMESTER
SUBJECT- PRODUCTION TECHNOLOGY
CODE- DP6124

UNIT-I Production Management

Definition, objectives, scope, benefits, functions of production management, place of production management in an organization, types of production system, Product life cycle, product design and development, production cycle.

UNIT-II Sales Forecasting

Purposes, methods – Delphi, linear regression, economic indicators, time-series analysis, adjustment for seasonal variations, moving average, exponential smoothing.

UNIT-III Production Planning and Control

Functions, Organization, Master Scheduling, Aggregate planning and strategies ,Materials requirement planning, product structure tree, Routing, Loading Scheduling – forward and backward, Dispatching – priority rules, Sequencing, Johnson's algorithm for n jobs and two machines, Gantt's chart, Bar chart, Flow process chart. **Materials Handling**-Principles of materials handling, unit load, Types of materials handling equipment, Relation between materials handling and plant layout.

UNIT – IV Material Management

Objectives and functions of materials management, Organization of materials management. Objectives of purchase deptt.purchase responsibilities and organization, types of purchasing, purchase procedures, Import and Export. **Stores Keeping-** Stores management, functions of stores, classification of materials, standardization of materials, identification and maintenance of layout of stores, physical control of materials, pricing of stores,

UNIT – V Quality Control

Difference between inspection and quality control, acceptance sampling, procedure's risk and consumer's risk, operating characteristic curve for single sampling plan, AOQL Quality of conformance, quality of design, economics of quality, SQC charts for variables and attributes. Introduction toJIT manufacturing, kanban system.

TEXT BOOKS

1. Production and operation Management – By P. Ramamurty – New Age International Pub., 2005
2. Production and operation Management – By R. Mayer – TMH
3. Quality Planning and Analysis, Juran and Gryna

REFERENCE BOOKS

1. Industrial Engineering & Production Management – MartandTelsang – S. Chand & Co., 2004
2. Production and operations Management by – Adam and Ebert – PHI – 6th Edn., 2003
3. Production planning and Control – By Samuel Eilon, NavneetPrakashan Ltd., Bombay

SIXTH SEMESTER
SUBJECT- MEASUREMENT AND CONTROL
CODE- DP6125

UNIT - I

Generalized Measurement System

Introduction - Introduction to measurement and measuring instruments, Generalized measuring system and functional elements, units of measurement, static and dynamic performance characteristics of measurement devices, calibration, concept of error, sources of error, statistical analysis of errors sensors and Transducers – Types of sensors, type of transducers and their characteristics.

UNIT - II

Measurement

Measurement of displacement and angular velocity. Measurement of pressure: Gravitational direct acting, elastic and indirect type pressure transducers. Measurement of very low pressure –Mcleod gauge and Pirani gauge.

Measurement of Strain

Type of strain gauges and their working, strain gauge circuits, Mcleod guage, Pirani guage, temperature compensation. Strain rosettes. Measurement of force and torque. Measurement of temperature by thermometers, bimetallic, thermocouples, thermistors and pyrometers-total radiation and optical pyrometry.

UNIT- III

Measurement of flow

Obstruction meters, variable head meters, hot wire and magnetic meters, ultrasonic flow meters. Vibration and noise measurement .

UNIT- IV

Metrology

Standards of measurement. Linear and angular measurement devices and systems limit gauges, gauge blocks. Measurement of geometric forms like straightness, flatness, roundness and circularity, principles and application of optical projectors, tool makers, microscope,Autocollimator s etc.

UNIT- V

Metrology & INTERFEROMETRY

Principle and use of interferometry. Comparators, Measurement of screw threads and gears. Surface texture measurement.

TEXT BOOKS

1. Mechanical Measurements and Control – D.S. Kumar – S.K. Kataria & Sons

2. Mechanical Measurements – G. Beckwith Thomas G. – Pearson Education

REFERENCES BOOKS

1. Measurement Systems, Application Design – E.O. Deoblein - McGraw Hill

2. Engineering Metrology – K.J. Hume - MacDonald and Company

3. Engineering Metrology – I.C. Gupta - Dhanpat Rai & Sons

4. Mechanical & Industrial Measurements – R.K. Jain – Khanna Publishers

SIXTH SEMESTER
SUBJECT- ENTREPRENEURSHIP DEVELOPMENT
CODE- DP6131

UNIT I:
Entrepreneurial Development
Definition of entrepreneurship, Characteristics of entrepreneurs, Factors influencing trepreneurship, Need for promotion of entrepreneurship and small business , Entrepreneurial Environment, Environmental analysis. Government policies for setting up new small enterprises, Opportunities in service industries.
Forms of Business Organization - Forms of ownership , Sole Proprietorship , Partnership Cooperative society ,Joint – stock company , Private Limited Companies , Public Limited Companies

UNIT-II
Institutional support to SSI
Institutional set up , Industries centres, Industrial estates Institutional support at National level , Institutional support at State level, Commercial banks and financial institutions
Planning a SSI - What is planning? Types of planning , Importance of planning , Steps in planning , Steps in planning a SSI , Technical dimensions for setting up an enterprise

UNIT-III
Management of Small Business Firm
Functional areas of small business firm ,Fundamentals of Management , Managerial effectiveness , Essential data for effective control of small business Resource management , Office management , Employees Welfare & safety , Factory rules and Labour Laws related to SSIs, Sales Tax and Income Tax laws related to SSIs.
Project selection, Formulation & Appraisal Project selection & formulation , Scope of project report , Content & Format of Project report , Need of Project Appraisal , Steps of Project Appraisal

UNIT – IV: Problems of Small industries Power shortages, Project planning, Finance, Raw material, Production constraints, Marketing Personal constraints, Regulations

UNIT – V: SUGGESTED INSTRUCTIONAL STRATEGIES:
Lecture Method. Industrial visits. Simulation Role play, Interaction with successful entrepreneurs, Demonstration. Games

TEXT BOOKS
Starting your own Business, A step-by-step Blue print for the First-time Entrepreneur - Stephen C. Harper, Mc Craw-Hill
Harward Business Review on Entrepreneurship - Harvard Business School Press

REFERENCES BOOKS

Entrepreneurship : Strategies & Resources - Abrams Grant Pass, Oregon: Oasis Press
The Business Planning Guide - David H. Bangs Upstart Publishing Company, In Chicag

SIXTH SEMESTER
SUBJECT- DISASTER MANAGEMENT
CODE- DP6132

UNIT-I:

INTRODUCTION TO DISASTER

Understanding the Concepts and definitions of Disaster, Hazard, Vulnerability, Risk, Capacity – Disaster and Development, and disaster management

UNIT-II:

CONSEQUENCES AND CONTROL OF DISASTERS

Types, Trends, Causes, Consequences and Control of Disasters Geological Disasters (earthquakes, landslides, tsunami, mining); Hydro-Meteorological Disasters (floods, cyclones, lightning, thunder-storms, hail storms, avalanches, droughts, cold and heat waves); Biological Disasters (epidemics, pest attacks, forest fire); Technological Disasters (chemical, industrial, radiological, nuclear) and Manmade Disasters (building collapse, rural and urban fire, road and rail accidents, nuclear, radiological, chemicals and biological disasters); Global Disaster Trends – Emerging Risks of Disasters – Climate Change and Urban Disasters

UNIT- III:

DISASTER MANAGEMENT CYCLE AND FRAMEWORK

Disaster Management Cycle – Paradigm Shift in Disaster Management Pre-Disaster – Risk Assessment and Analysis, Risk Mapping, zonation and Microzonation, Prevention and Mitigation of Disasters, Early Warning System; Preparedness, Capacity Development; Awareness During Disaster – Evacuation – Disaster Communication – Search and Rescue – Emergency Operation Centre – Incident Command System – Relief and Rehabilitation – Post-disaster – Damage and Needs Assessment, Restoration of Critical Infrastructure – Early Recovery – Reconstruction and Redevelopment; IDNDR, Yokohama Strategy, Hyogo Framework of Action

UNIT-IV:

DISASTER MANAGEMENT IN INDIA

Disaster Profile of India – Mega Disasters of India and Lessons Learnt Disaster Management Act 2005 – Institutional and Financial Mechanism National Policy on Disaster Management, National Guidelines and Plans on Disaster Management; Role of Government (local, state and national),Non-Government and Inter-Governmental Agencies

UNIT-V:

APPLICATIONS OF SCIENCE AND TECHNOLOGY FOR DISASTER MANAGEMENT & MITIGATION

Geo-informatics in Disaster Management (RS, GIS, GPS and RS) Disaster Communication System (Early Warning and Its Dissemination) 12 30 Land Use Planning and Development Regulations Disaster Safe

Designs and Constructions Structural and Non Structural Mitigation of Disasters S&T Institutions for Disaster Management in India Gas Disaster, Gujarat Earth Quake, Orissa Super-cyclone, south India Tsunami, Bihar floods, PlagueSurat, Landslide in North East, Heat waves of AP& Orissa, 278 Cold waves in

Reference Books:

1 Coppola D P, 2007. Introduction to International Disaster Management, Elsevier Science (B/H), London.

2. Manual on natural disaster management in India, M C Gupta, NIDM, New Delhi

3. An overview on natural & man-made disasters and their reduction, R K Bhandani, CSIR, New Delhi

4. World Disasters Report, 2009. International Federation of Red Cross and Red Crescent, Switzerland

5. Encyclopedia of disaster management, Vol I, II and IIIL Disaster management policy and administration, S L Goyal, Deep & Deep, New Delhi, 2006

6. Encyclopedia of Disasters – Environmental Catastrophes and Human Tragedies, Vol. 1 & 2,Angus M. Gunn, Greenwood Press, 2008 7 Disasters in India Studies of grim reality, Anu Kapur & others, 2005, 283 pages, Rawat Publishers, Jaipur

SIXTH SEMESTER
SUBJECT- INFORMATION TECHNOLOGY
CODE- DP6133

Unit -1

Fundamentals Of Computer Introduction Components of PC The system Unit Front part of system Unit Back part of system Unit CPU Memory of computer Monitor Mouse, Keyboard, Disk, Printer, Scanner, Modem, Video, Sound cards, Speakers

Unit – 3

GUI Based Editing, Spreadsheets, Tables & Presentation Application Using MS Office 2000 & Open Office.Org Menus Opening of menus, Toolbars: standard toolbars, formatting toolbars & closing of menus Quitting Document, Editing & designing your document Spreadsheets

Working & Manipulating data with Excel Changing the layout Working with simple graphs & Presentation Working With PowerPoint and Presentation

Unit – 4

Introduction To Internet What is Internet Equipment Required for Internet connection Sending &receiving Emails Browsing the WWW Creating own Email Account Internet chatting. Introduction to Windows 2000/Xp Working with window Desktop, Components of window Menu bar option starting window Getting familiar with desktop

Moving from one window to other Reverting windows to its previous size Opening task bar buttons into a windows creating shortcut of program Quitting windows

Unit – 5

Usage of Computer System in various Domains Computer application in Offices, books publication, data analysis ,accounting , investment, inventory control, graphics, database management, Instrumentation, Airline and railway ticket reservation, robotics, artificial intelligence, military, banks, design and research work, real-time, point of sale terminals, financial transaction terminals.

Unit – 6

Information technology for benefits of community Impact of computer on society Social responsibilities Applications of IT Impact of IT Ethics and information technology Future with information technology

Text Books:

Comdex Computer Course Kit by Vikas Gupta Dreamtech Publisher

Information Technology for management by Henry Lucas ,Tata McGraw Hills Publisher

Computer Fundamentals Architecture and Organization by B.Ram ,New Age International Publisher

SIXTH SEMESTER
SUBJECT- ENERGY STUDIES
CODE- DP6134

UNIT-I:
ENERGY SCENARIO AND ENERGY POLICY
Global Energy Scenario, Indian Energy Scenario, Energy Policy, Basics of Thermodynamics

UNIT-II
ENERGY CONVERSION SYSTEMS-I
Classification of Energy Sources, Thermal and Mechanical Energy, Thermal Energy & Mechanical Utility Systems, Basics of Mechanical Engineering (Energy Related), Co-generation,Tri-generation & Waste Energy Recovery

UNIT-III
ENERGY CONVERSION SYSTEMS-II
: Basics of Electrical Engineering (Energy Related), Electrical Energy Sources, Electrical Energy & Mechanical Utility Systems, Energy Audit Instruments, Energy Measurement & Verification

UNIT-IV
RENEWABLE ENERGY SYSTEMS-I
Solar Energy, Biomass, Biomethanation, Wind Energy.

Reference Books:

1. Direct Energy Conversion : W.R.Corliss
2. Aspects of Energy Conversion : I.M.Blair and B.O.Jones
3. Principles of Energy Conversion : A.W.Culp (McGrawHill International
4. Principles of Energy Conversion : A.W. Culp.
5. Direct Energy Conversion : M.A. Kettani
6. Energy Conversion systems : Begamudre, Rakoshdas
7.Biomass Renegerable Energy – D.O.hall and R.P. Overeed (John Wiley and Sons, New york, 1987) 12
8. Biomass for energy in the developing countries – D.O.Hall, G.W.barnard and P.A.Moss (Pergamon Press Ltd. 1982)
9. Thermo chemical processing of Biomass, Bridgurater A V
10. Energy Management: W.R.Murphy, G.Mckay (Butterworths).
11. Energy Management Principles: C.B.Smith (Pergamon Press).
12. Efficient Use of Energy : I.G.C.Dryden (Butterworth Scientific)
13. Energy Economics -A.V.Desai (Wieley Eastern)

SIXTH SEMESTER

SUBJECT- COMPUTER PROGRAMMING

CODE- DP6135

UNIT - I

Algorithm / pseudo code, flowchart, program development steps, structure of C program, A Simple C program, identifiers, basic data types and sizes, Constants, variables, arithmetic, relational and logical operators, increment and decrement operators, conditional operator, bit-wise operators, assignment operators, expressions, type conversions, conditional expressions, precedence and order of evaluation.

UNIT – II

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

UNIT – III

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

UNIT – IV

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

UNIT – V

Derived types- structures- declaration, definition and initialization of structures, accessing structures, nested structures, arrays of structures, structures and functions, pointers to structures, self referential structures, unions, typedef, bitfields, C program examples.
Input and output – concept of a file, text files and binary files, streams, standard I/o, Formatted I/o, file I/o operations, error handling, C program examples.

TEXT BOOKS :

1. Computer science, A structured programming approach using C, B.A. Forouzan and R.F. Gilberg, Third edition, Thomson.
2. DataStructures Using C – A.S.Tanenbaum, Y. Langsam, and M.J. Augenstein, PHI/Pearson education.

REFERENCES :

1. C& Data structures – P. Padmanabham, B.S. Publications.
2. The C Programming Language, B.W. Kernighan, Dennis M.Ritchie,
PHI/Pearson Education
3. C Programming with problem solving, J.A. Jones & K. Harrow,
dreamtech Press
4. Programming in C – Stephen G. Kochan, III Edition, Pearson Eductaion.
5. Data Structures and Program Design in C, R.Kruse, C.L. Tondo, BP Leung, Shashi M, Second Edition, Pearson Education

SIXTH SEMESTER

SUBJECT- REFRIGERATION & AIR CONDITIONING LAB

CODE- DP614

Following are the Experiments include in the syllabus of Refrigeration and Air Conditioning

1) Study of Domestic or Household Refrigerator
2) Study of Refrigeration Compressor
3) Study of Leak Detection, Evaluation and Charging of Refrigerants procedure
4) Study of Refrigerating Controls
5) Trial on Refrigeration Test Rig
6) Trial on Air Conditioning Test Rig
7) Trial on Mechanical Heat Pump
8) Trial on Ice Plant Test Rig
9) Technical report on visit to Refrigeration and Air Conditioning establishments.