

# **SWAMI VIVEKANAND UNIVERSITY, SIRONJA, SAGAR (M.P.)**



## **SYLLABUS**

**For**

**DIPLOMA IN ENGINEERING (3 YEARS)  
COMPUTER SCIENCE**

**Course Code : DCSE**

Department of Computer Science & Engg.

Faculty of Engineering

Duration of Course : 3 Years

Examination Mode : Semester

Examination System : Grading

Swami Vivekanand University, Sironja Sagar (M.P.)

2014-2015



Semester-I

**Communication Skills (DCSE-0101)**

Paper / Subject Code	Title of the Paper / Subject	Credit Allotted			Total Credit	Distribution of Marks										Duration of Theory Exam
		L	T	P		Theory					Practical			Grand Total (H=D+G)		
						End Sem.		Internal		Total (D= A +B+C)	End Sem.		Internal		Total (G= E+F)	
						Max (A)	Min	TW (B)	MST (C)		Max (E)	Min				
DCSE-0101	Communication Skills	3	1	-	4	70	22	10	20	100	-	-	-	-	100	3 Hrs

**UNIT – I**

**Marks :14**

**COMMUNICATION PROCESS AND ITS NEEDS**

How to make communication effective, Barriers in communication, Removal of barriers. Grammar and vocabulary for correct English usage. Determiners, Prepositions, Auxiliary verbs and subject- Verb agreement, Rewrite as directed ( change voice, correct form of verbs/ tenses), Vocabulary – Oneword substitution, words often misused and wrongly spelt.

**Marks :14**

**UNIT – II**

**PASSAGES OF COMPREHENSION**

Prescribed passages (six from existing syllabus), Language of Science, Desalination or Desalting Process, Safety Practices, Non-conventional Sources of Energy, Our Environment, Entrepreneurship, Writing summary, moral and characterization of any one story from the book prescribed.

**Marks :14**

**UNIT – III**

**BUSINESS COMMUNICATION**

Principles of effective business correspondence Its parts, mechanics, styles and forms., Application for job, Bio-Data and C.V., Letter of Enquiry, Placing order, Complaint

**Marks :14**

**UNIT – IV**

**COMPOSITION & TRANSLATION**

Writing paragraphs of 150 words on topics of general interest i.e. pollution, ragging college, importance of computers, importance of communication skill, importance of science and technology etc., Translation (Hindi to English and vice- versa).

**Marks :14**

**UNIT – V**

**UNSEEN PASSAGES & PRECIS WRITING**

Answer the questions based on the passage. Give suitable title, Writing Précis.



**Reference Books**

1. English Conversation Practice, Grant Taylor.
2. Practical English Grammar, - Thomson & Martinet.
3. Communication Skills for Technical Students Book– I, Book – II, M/S Somaiya Publication, Bombay.
4. Living English Structure, S. Allen.
5. English Grammar, Usage, and Composition, Tickoo & Subramanian, S. Chand & Co. Standard Allen Longman.
6. Essentials of Business Communication, Dr. Rajendra Pal & J.S. Korlahalli S.Chand & Sons, New Delhi.
7. Effective Business Communication, M.V. Rodriques, Concept Pub. Co. New Delhi.
8. Communication for Business, Shirely Taylor, Longman, England.
9. Communication for Engineers and Professors, P. Prasad, S.K.Kataria and sons publications, New Delhi.
10. Technical English Book-II, Somaya Publications, New Delhi.



**Physics (DCSE-0102)**

Paper / Subject Code	Title of the Paper / Subject	Credit Allotted			Total Credit	Distribution of Marks										Duration of Theory Exam	
		L	T	P		Theory					Practical						Grand Total (H= D+G)
						End Sem.		Internal		Total (D= A +B+C)	End Sem.		Internal		Total (G= E+F)		
						Max (A)	Min	TW (B)	MST (C)		Max (E)	Min	LW (F)				
DCSE-0102	Physics	3	1	2	6	70	22	10	20	100	30	09	20	50	150	3 Hrs	

**UNIT – I**

**Marks :14**

**UNITS & MEASUREMENT:** Fundamental and derived units, Scalar and vector, Basic requirements to represent vector, Symbols, abbreviation, and proclution, Linear measurement by vernier calipers, screw gauge and spherometer Angular measurement by angular vernier, **MOTION:** Motion and its type, Linear motion (laws and equation), Circular motion, Angular velocity and relation with linear velocity, Centripetal acceleration, Centripetal and Centrifugal forces Rotatory motion, Axis of rotation, Moment of Inertia, Radius of gyration, Kinetic energy of rotation, Numerical Problems and solution on the topic.

**UNIT – II**

**Marks :14**

**MOLECULAR PHENOMENON OF SOLIDS, LIQUIDS AND GASES:** Postulates Of Molecular Kinetic Theory of Structure of Matter, Brownian motion, Kinetic and Potential energy of molecules, Kinetic theory of gases, Postulates, Calculation of pressure by Kinetic theory, Prove of different gases law by Kinetic theory. **PROPERTIES OF MATTER:** Elasticity: Meaning, definition, stress, stain, Hook's law and elastic limit, Surface Tension : Meaning, definition, molecular forces, cohesive and adhesive forces, surface energy, capillary rise and capillary rise method. Viscosity : Meaning, definition, stream line and turbulent flow, critical velocity, Stock's law. Numerical problems and solution on the topic.

**UNIT – III**

**Marks :14**

**HEAT:** Heat and temperature, concept of heat as molecular motion, Transmission of heat, study state and variable state. Concept of heat capacity, specific heat and latent heat. Calorimeter and its uses, Thermodynamics , Relation between heat and work, Mechanical equivalent of heat, First law of thermodynamics and its application, Second law of thermodynamics and its application. Carnot cycle, Numerical problems and solution on the topic. Heating effect of current and thermoelectricity: Heating effect of electric current: Joule's law, work energy and power in electric circuit, calculation of electric energy. Thermo electricity, See back effect and thermoelectric power. Neutral temperature, emperature of inversion and relation between them, Thermo electric thermometer and thermo couples. Numerical problems and solution on the topic.

**UNIT – IV**

**Marks :14**

**SOUND:** Production of sound waves( Longitudinal and transverse waves), Progressive and stationary waves, Basic knowledge of refraction , reflection, interference and diffraction. Ultrasonic, Audible range, Production of ultrasonic, properties and uses, **OPTICS AND OPTICAL INSTRUMENTS:** Refraction, critical angle and total internal reflection, refraction, through lenses and problems, Power of lenses, Spherical and chromatic aberrations, Simple and compound microscope, telescope and derivation for their magnifying power, Numerical problems and solution on the topic.



**UNIT – V**

**Marks :14**

**ELECTROSTATICS AND ELECTROMAGNETIC INDUCTION:** Coulomb's law, Electric field intensity, potential. Capacity, principle of capacitor, types of capacitor, combination of capacitors, Electromagnetic Induction: Faraday's law, Lenz's law, Self and mutual inductance, Transformer and electric motor, Induction coil. **MODERN PHYSICS, BASIC ELECTRONICS:** Photoelectric effect, threshold frequency, Einstein- equation, Photo electric cells, Radioactivity : decay constant, Half life, mean life, Properties of nucleus, nuclear mass, mass defect, Production of x-rays, properties and its uses, Thermal emission, semiconductors, Types of semiconductors, Explanation of conductor, semiconductor and insulators on the basis of band theory, P-N junction, diode as rectifier.

**Reference Books**

1. Applied Physics Vol. 1 & 2, Saxena and Prabhakar.
2. Physics, - Titi Publication.
3. Physics Vol. 1 &2, Halliday and Resnic R.
4. Engineering Physics, - Gaur and Gupta.
5. Principle of Physics, Brij Lal & Subramanyan.
6. Physics for Technical Education, LS Zednov.

**List of Experiments**

1. Refractive index of prism ( I-d ) curve
2. Refractive index of prism ( spectrometer )
3. Focal length of a convex lens by u-v method
4. Focal length of a convex lens by displacement method
5. Verification of Ohm's law
6. To find out unknown resistance by meter bridge
7. To find out internal radius of hollow tube by vernier calipers.
8. To find out volume of given cylinder by screw gauge.
9. Surface tension by Capillary rise method.
10. Coefficient of viscosity
11. Coefficient of Thermal conductivity by searl's method.
12. Verification of Newton's cooling law.



## Chemistry (DCSE-0103)

Paper / Subject Code	Title of the Paper / Subject	Credit Allotted			Total Credit	Distribution of Marks										Duration of Theory Exam	
		L	T	P		Theory					Practical						Grand Total (H= D+G)
						End Sem.		Internal		Total (D= A +B+C)	End Sem.		Internal		Total (G= E+F)		
						Max (A)	Min	TW (B)	MST (C)		Max (E)	Min	LW (F)				
DCSE-0103	Chemistry	3	1	2	6	70	22	10	20	100	30	09	20	50	150	3 Hrs	

### UNIT – I

**Marks :14**

**ATOMIC STRUCTURE AND RADIOACTIVITY :** Discovery of electron, proton, neutron and nucleus. Rutherford's and Bohr's model of atom. Bohr-Bury scheme of filling the electrons in various orbits. Idea of s,p,d,f orbital. Alpha, Gamma and Beta rays, theory of radio activity, Group displacement law, half life period, numerical problems on half life period, fission and fusion.

**SURFACE CHEMISTRY AND ITS APPLICATION:** True solution, colloidal solution and suspension, lyophobic and lyophilic colloids, optical and electrical properties of colloids, coagulation, coagulants, idea about gels and emulsions.

**ELECTROCHEMISTRY:** Electrolysis, Faraday's laws of electrolysis, Numerical problems on Faraday's Law, electroplating of copper and nickel.

**COLLIGATIVE PROPERTIES:** Osmosis & osmotic pressure, Relative vapour pressure and Raoult's law. Internal energy (enthalpy) Entropy, Entropy function free energy, Effect of change in temperature catalysis.

### UNIT – II

**Marks :14**

**CHEMICAL BONDING AND CATALYSIS:** Bonding: Nature of bonds- Electrovalent, Covalent, coordinate and hydrogen bond. Catalysis : Types, theory characteristic, positive, negative, auto and induced catalyst. Catalytic Promoter, and catalytic inhibitors. Industrial Application of catalysis.

**WATER:** Sources of water, types of water, hardness of water, its causes, types and removal, Boiler feed water, harmful - effects of hard water in boiler. Municipal water supply. Numerical on soda lime process. Determination of hardness of water by O. Hender's, EDTA and soap solution method.

### UNIT – III

**Marks :14**

**METALS AND ALLOYS :** Physical and chemical properties of metals, copper, iron, aluminum, tin, nickel. General principles of metallurgy, minerals/ ores, ore dressing, roasting, smelting, blast-furnace, fluxes, purification. Explanation of alloying purposes, methods of alloying, composition and uses of alloy like brass, bronze, duralium, German silver, gun metal, solder, stainless steel, casting and bearing alloy. Ionization, pH value corrosion and protection: Arrhenius theory of ionization, factors affecting ionization. pH meaning (numerical), Buffer solutions and Buffer actions, choice of indicator (acidimetry and alkalimetry). Explanation of corrosion, types of corrosion, factors affecting corrosion, corrosion control (protection against corrosion), metal and organic coating for corrosion control.



**UNIT – IV**

**Marks :14**

**GLASS, CEMENT AND REFRACTORY:** Glass: Basic raw materials for glass, composition and manufacture of glass, varieties of glass and annealing of glass, Cement : Constituting compounds in cement, Composition of Portland Cement, its manufacture, setting and hardening of cement. Refractories : Meaning, characteristics , use of common refractory materials.

**HIGH POLYMERS, RUBBER AND INSULATORS:** Polymerization and condensation, classification of plastics, Compounding and Moulding constituents of plastics. Preparation Properties and uses of PVC, polyethene, polystyrene, polyamides, polyesters , Bakelite. Synthetic fibers - nylon, rayon, decron, and polyesters. Definition characteristics , classification and properties of insulators. Glass, wool and thermocole. Idea about rubber and vulcanization .

**UNIT – V**

**Marks :14**

**LUBRICANTS, PAINTS AND VARNISHES:** Lubricants: Meaning , type and theory of lubricants, properties of a good lubricants, Flash, and fire point and cloud point, emulsification number, viscosity. Paints and Varnishes : Meaning, ingredients and characteristics of good paints and varnishes, their engineering applications.

**FUELS, FIRE EXTINGUISHERS AND EXPLOSIVES :** Classification of fuel, gross and net calorific value, Determination of a solid fuel by bomb calorimeter , octane and octane number. Proximate analysis of fuel, its utility, crude petroleum, products of fractional distillation . Fire extinguishers - Description and use. Explosives - Meaning, types, characteristic and use of explosives. Name Dynamite, lead azide, T.N.T., Picric acid, R.D.X. Pollution and control: Introduction and chemical toxicology, air and water pollution, control of air and water pollution. Harmful effect of different gases like carbon mono-oxide, carbon dioxide, sulphur dioxide, nitric oxide, nitrous and lead.

**Reference Books**

1. Physical Chemistry, Bahl and Tuli
2. Inorganic Chemistry, Satyaprakash
3. Modern Text Book of Applied Chemistry, Dr. G. C. Saxena, Jain Prakashan, Indore
4. Applied Chemistry, Dr. G. C. Saxena, Deepak Prakashan, Gwalior
5. Applied Chemistry, Shrivastava & Singhal, Pbs Publication, Bhopal
6. Engineering Chemistry, Uppal
7. Engineering Chemistry, – Rao And Agarwal
8. Engineering Chemistry, P.C. Jain
9. Polymer Chemistry, O.P. Mishra
10. Applied Chemistry, H.N. Sahni, Deepak Prakash

**List of Experiments**

1. To identify one Anion and Cation in a given sample.
2. Determination of flash point and fire point of a given sample of oil by Abel's apparatus.
3. Determination of viscosity by Red Wood Viscometer no. 1 and no.2.
4. Redoximetry Titration :
  - a. Percentage of Iron in given sample of alloy.
  - b. Determination of strength of ferrous ammonium sulphate.
  - c. Determination of strength of anhydrous ferrous sulphate and ferrous sulphate.
5. Determination of hardness of water by :
  - a. EDTA Method and Soap Solution Method
6. Determination of solid content in the given sample of water.
7. Determination of percentage of moisture in the given sample of coal by proximate analysis.



**Mathematics (DCSE-0104)**

Paper / Subject Code	Title of the Paper / Subject	Credit Allotted			Total Credit	Distribution of Marks										Duration of Theory Exam
		L	T	P		Theory					Practical			Grand Total (H= D+G)		
						End Sem.		Internal		Total (D= A +B+C)	End Sem.		Internal		Total (G= E+F)	
						Max (A)	Min	TW (B)	MST (C)		Max (E)	Min				
DCSE-0104	Mathematics	3	1	-	4	70	22	10	20	100	-	-	-	-	100	3 Hrs

**UNIT – I**

**Marks :16**

**ALGEBRA:** Permutation- Meaning of factorial n, Permutation of 'n' dissimilar thing taken 'r' at a time. Combination of n dissimilar things taken 'r' at a time, Binomial Theorem, Statement of the theorem for positive integer General Term, Middle term, Constant term, Partial Fractions, Define a proper-improper fraction, Break a fraction into partial fraction whose denominator contains Linear, Repeated linear and Non repeated quadratic factors. Determinant, Concept & principles of determinants, Properties of determinant, Simple examples. Complex Numbers, Algebra of Complex

**UNIT – II**

**Marks :16**

**TRIGONOMETRY :** Allied angles. Trigonometrical ratios of sum and difference of angles, (Only statement), Sum and difference of trigonometric ratios (C-D formula), Multiple angles (Only double angle and half angle), Properties of triangle (without proof).  
**MATRIX :** Definition of Matrix. Types of Matrix. Row, Column, Square, Unit, Upper and lower triangular, Symmetric & Skew Symmetric, Singular and non Singular Matrices. Adjoint of a Matrix. Inverse of a Matrix.

**UNIT – III**

**Marks :16**

**CO-ORDINATE GEOMETRY :** Co-ordinate System : Cartesian and Polar. Distance, Division, Area of a triangle. Locus of a point and its equation. Slope of St. Line, Angle between two St. lines. Parallel and perpendicular St. lines. Standard and general equation of St. line. Point of intersection of two st lines.  
**STATISTICS :** Measures of Central tendency (Mean, Mode, Median), Measures of Dispersion (Mean deviation, standard deviation).

**UNIT – IV**

**Marks :16**

**DIFFERENTIAL CALCULUS :** Define constant, variable, function. Value of the function. Concept of limit of a function. Definition and concept of differential coefficient as a limit. Standard results. Derivatives of sum, difference, product, quotient of two functions. Diff coeff. of function of a function. Diff. coeff. of implicit function. Logarithmic Differentiation. Differential coeff. of Parametric function.

**UNIT – V**

**Marks :16**

**INTEGRAL CALCULUS :** Definition as a inverse process of differentiation, Standard Results (including inverse function), Methods of Integration, Substitution, Integration by parts, Breaking up into partial fraction, Concept of Definite Integral.  
**VECTOR ALGEBRA :** Concept of Vector and Scalar Quantities. Different types of vectors. Addition and subtraction of vectors. Components of a vector, Multiplication of two vectors: Scalar Product, Vector Product, Applications (Work done, power & reactive power).





**Reference Books**

1. Differential Calculus, Gorakh Prasad.
2. Integral Calculus, Gorakh Prasad.
3. Co-ordinate Geometry, S.L. Loni.
4. Engineering Mathematics, Dr. S.K. Chouksey & Manoj Singh.
5. Mathematical Statistics, Ray and Sharma.
6. Higher Engineering Mathematics, B.S. Grewal.



Semester-II

**Applied Mechanics (DCSE-0201)**

Paper / Subject Code	Title of the Paper / Subject	Credit Allotted			Total Credit	Distribution of Marks										Duration of Theory Exam	
		L	T	P		Theory					Practical						Grand Total (H= D+G)
						End Sem.		Internal		Total (D= A +B+C)	End Sem.		Internal	Total (G= E+F)			
						Max (A)	Min	TW (B)	MST (C)		Max (E)	Min			LW (F)		
DCSE-0201	Applied Mechanics	3	1	2	6	70	22	10	20	100	30	09	20	50	150	3 Hrs	

**UNIT – I**

**Marks :14**

**COMPOSITION AND RESOLUTION OF FORCES**

Definition , Effect, characteristics of force, System of Forces, Principle of Transmissibility of Forces, Concept of Resultant Force, Law of –Parallelogram of Forces, Triangle of Forces, Polygon of Forces, Determination of Resultant of two or more concurrent forces ( analytically and graphically)

**PARALLEL FORCES AND COUPLES**

Classification of Parallel Forces, Methods of finding resultant Force of parallel forces- analytically & graphically, Position of resultant force of parallel forces- Definition, Classification and characteristics of a force Couple, moment of couple

**UNIT – II**

**Marks :14**

**MOMENTS AND THEIR APPLICATIONS**

Definition, Types and law of moment-Varignon’s Principle of moment and its applications Lever and its Applications. Types of supports and determination of support reactions of a simply supported beam subjected to point load and uniformly distributed load (UDL).

**EQUILIBRIUM OF FORCES**

Equilibrium of a system of concurrent forces, Conditions and types of Equilibrium Lami’s Theorem and its applications.

**UNIT – III**

**Marks :14**

**CENTRE OF GRAVITY**

Difference between Centroid and Center of Gravity (CG), Centroid of standard plane figures and CG of simple solid bodies, Method of finding out Centroid of composite plane laminas and cut sections, Method of finding out CG of Composite solid bodies.

**FRICTION**

Concept and types of friction, Limiting Friction, coefficient of friction, angle of friction, angle of repose, Laws of friction ( Static and Kinetic), Analysis of equilibrium of Bodies resting on Horizontal and inclined Plane, Utility / Nuisance value of friction.

**UNIT – IV**

**Marks :14**

**SIMPLE LIFTING MECHINES**

Concept of lifting Machines, Definition of Mechanical Advantage, Velocity Ratio and Efficiency of Machines and their relation Reversibility of Machines and condition for self locking machine, Law of Machines, Maximum mechanical advantage and maximum efficiency of machine, Friction in machine ( In terms of Load and effort), Calculation of M.A., V.R. and efficiency of following machines, Simple wheel and axle Differential wheel and axle Single purchase crab Double purchase crab Simple screw jack, Different System of simple pulley blocks.



### **MOTION OF A PARTICLE**

Definition of speed, velocity, acceleration, uniform velocity, uniform acceleration and variable acceleration, Motion under constant acceleration/ retardation ( equations of motion) Motion under force of gravity, Concept of relative velocity, Definition of projectile, velocity of projection , angle of projection, time of flight, maximum height, horizontal range and their determination, Definition of angular velocity, angular acceleration and angular displacement, Relation between linear and angular velocity of a particle moving in a circular path, Motion of rotation under constant angular acceleration.

### **UNIT – V**

**Marks :14**

#### **LAWS OF MOTION**

Newton's Laws of motion and their applications.

#### **WORK, POWER AND ENERGY**

Definition unit and graphical representation of work, Definition and unit of power and types of engine power and efficiency of an engine. Definition and concept of Impulse, Definition, unit and types of energies, Total energy of a body falling under gravity.

### **Reference Books**

1. A text book of Applied Mechanics – R.S. Khurmi , S.C. Chand & Co. , New Delhi
2. Applied Mechanics – I.B. Prasad, Khanna Publishers, New Delhi
3. Applied Mechanics ( Hindi) – R.S. Jog, Anand Publishers, Gwalior Applied

### **List of Experiments**

1. Verification of laws of parallelogram of forces.
2. Verification of laws of polygon of forces
3. Verification of laws of moments
4. Determination of forces in the members of Jib Crane
5. Determination of Centroid of plane lamina by graphical method
6. Determination of coefficient of friction for surfaces of different materials on horizontal plane
7. Determination of coefficient of friction for surfaces of different materials on an inclined plane Determination of mechanical advantage, velocity ratio and efficiency of the following lifting machines.
8. Simple wheel and axle Differential wheel axle Single purchase crab Double purchase crab Simple pulley block Simple screw jack
9. Measurement of B.H.P. of an engine using rope break dynamometer



**Environmental Engineering and Safety (DCSE-0202)**

Paper / Subject Code	Title of the Paper / Subject	Credit Allotted			Total Credit	Distribution of Marks									Duration of Theory Exam	
		L	T	P		Theory			Practical			Grand Total (H= D+G)				
						End Sem.		Internal	End Sem.		Internal		Total (G= E+F)			
						Max (A)	Min	TW (B)	MST (C)	Max (E)	Min			LW (F)		
DCSE-0202	Environment Engineering and Safety	3	1	-	4	70	22	10	20	100	-	-	-	-	100	3 Hrs

**UNIT – I**

**Marks :14**

**INTRODUCTION TO ENVIRONMENT.**

The Biosphere, biotic and abiotic, An aquatic ecosystem, Types of pollution, Impact of human being on environment, Impact of environment on human being, Basic approach to improve environmental qualities, Roll of an environmental engineer.

**AIR POLLUTION SOURCES AND EFFECTS.**

Standard definition of air pollution, Composition of natural air, Names of air pollutants, Classification of air pollutants, primary and secondary pollutants, Classification of source of air pollutants on different bases, Definition of different types of aerosols, Effect of air pollution on: human health, material properties, vegetation, Major toxic metals and their effects, Major environmental phenomenon e.g., acid rain, global warming, green house effect, ozone layer depletion, Air quality standards, Brief description of air pollution laws.

**UNIT – II**

**Marks :14**

**METEOROLOGICAL ASPECTS OF AIR POLLUTANT DISPERSION.**

Meteorological parameters influencing air pollution, Environmental laps rate, temperature inversion, atmospheric stability and adiabatic loss rate, Turbulence, topographical effects, Plume behavior, looping, coning, fanning fumigation, lofting , trapping.

**AIR POLLUTION CONTROL METHODS AND EQUIPMENTS.**

Natural purification processes of air,Artificial purification methods of air, Brief description of following control equipments along with sketch e.g, gravitation settling chamber, cyclone, scrubber, bag house filter, electrostatic precipitator, Brief description of following processes for the control of gaseous pollutants e. g., absorption, adsorption, condensation, combustion etc.

**UNIT – III**

**Marks :14**

**WATER POLLUTION SOURCES AND CLASSIFICATION.**

Water resources, Uses of water, Classification of water,Origin, composition and characteristics of domestic waste water as well as industrial waste water, Biochemical oxygen demand, Water pollution laws and standards, Uses of waste water,Classification of waste water, Chemical oxygen demand.

**WASTE WATER TREATMENT METHOD.**

basic processes of water treatment. Meaning of primary, secondary and tertiary treatment.Flow chart of a simple effluent treatment plant, Theory of industrial waste treatment,Volume reduction, neutralization and proportioning.



**UNIT – IV**

**Marks :14**

**SOLID WASTE MANAGEMENT.**

Sources and classification of solid waste, Public health aspects, Disposal methods – open dumping , sanitary , land fill. Incineration , composting, Potential methods of disposal, Recovery and recycling of paper, glass, metal and plastic.

**NOISE POLLUTION AND CONTROL.**

Sources of noise pollution, Units of Noise pollution measurement, Allowable limits for different areas, Problems of noise pollution and measures to control it, Noise pollution control devices brief discussion.

**UNIT – V**

**Marks :14**

**SAFETY PRACTICES**

Responsibility of employees and employers regarding health and safety, Fire hazards ,prevention and precautions, Industrial hazards prevention and protection, Protection from air and noise pollution.

**Reference Books**

1. Environmental pollution control Engineering by C.S. Rao.
2. Air pollution and control by Seth.
3. Air pollution by M.N Rao.

**List of Experiments**

**GROUP A AIR POLLUTION** ( Any one experiment may be selected from this group)

1. Air monitoring and determination of SPM , CO, Nox, SO<sub>2</sub> with high volume sampler.
2. Monitoring of stack gases and determination of SPM , CO, Nox, SO<sub>2</sub> with slack monitoring kit.

**GROUP B NOISE POLLUTION**

3. Determination of sound pollution in (a) Auditorium (b) Factories (c) Busy roads (d) Theatre (e) TV rooms ( select any three situations)

**GROUP C INDUSTRIAL WASTE WATER** (Any Two experiment may be selected from this group)

4. Determination of BOD/COD ratio in industrial waste water.
5. Determination of Ph and alkalinity/ acidity in industrial waste water.
6. Determination of solids in industrial

**GROUP D POLLUTION STANDARDS**(Any Two experiment may be selected from this group)

7. Study of drinking water standards.
8. Study of effluent standards for water disposal.
9. Study of air pollution standards.



**Introduction to Computers (DCSE-0203)**

Paper / Subject Code	Title of the Paper / Subject	Credit Allotted			Total Credit	Distribution of Marks										Duration of Theory Exam
		L	T	P		Theory					Practical			Grand Total (H=D+G)		
						End Sem.		Internal		Total (D= A +B+C)	End Sem.		Total (G= E+F)			
						Max (A)	Min	TW (B)	MST (C)		Max (E)	Min			LW (F)	
DCSE-0203	Introduction to Computers	3	1	2	6	70	22	10	20	100	30	09	20	50	150	3 Hrs

**UNIT – I**

**Marks :14**

**INTRODUCTION TO COMPUTERS**

Basic Concepts-Generations of Computers Overview of computer Systems Classifications of Computers Characteristics of Computers Applications of Computers. Numbers System & Codes-Decimal, Binary, Octal, Hexadecimal Conversions from one system to other Binary Coded Decimal & ASCII Code. Computer Hardware: Input Devices-Keyboards, Mouse, Trackball, Joystick, Scanner, OMR OCR Bar-Code Reader, MICR, Digitizer, Card Reader, Voice Recognition, Web Cam, Video Cameras, Etc. Output Devices-Monitors, Printers : Dot matrix, Inkjet & Laser, Plotters, Commuter, Output Micro Film (COM), Multimedia Projector, Speech Synthesizer, Dumb, Smart & Intelligent Terminal.Storage Devices

**UNIT – II**

**Marks :14**

Primary and Secondary Storage- Characteristics and Limitation, Floppy, Hard disk, CD ROM DVD, Disk Cartridge. Microprocessor-Registers, Arithmetic Unit, Control Unit, Buses, Instruction Set, Processor Speed.,Memory Concepts. Concept of Memory-Unit of Memory, Types of Memory, RAM,ROM, PROM, EPROM, EEPROM, Cache Memory. Computer Software-System Software Vs Application Software, Operating System Programs, Language Processor, Assembler, Compiler & Interpreter,Application Software, Types of Application Software and their examples., High Level Language, Low Level Language, Assembly Language. Multimedia-Basics of Multimedia,Components- Text, Graphics, Animation, Audio, Images & Video. Multimedia Applications.

**UNIT – III**

**Marks :14**

**OPERATING SYSTEM**

Overview of DOS- Internal Commands, External Commands. Windows Operating System-Overview of different versions of Windows Characteristics and Facilities of Windows, Terminologies of Windows – Desktop, Icon, Menu etc. Components of Desktop. Working with Files and Folders. Windows Utilities and Accessories – Notepad, WordPad, Paintbrush, Windows Explorer, Calculator. Introduction to Linux- An overview of Linux, Basic Linux elements System, Features Software, Features File structure, Linux H/W & S/W requirements.

**UNIT – IV**

**Marks :14**

**WORD PROCESSING**

Saving, Closing, Opening of documents, Selecting text Editing text, Finding and replacing text\ Printing documents, Merge Documents. Character and paragraph Formatting, Page Design and layout. Spell Check, Creating Tables and Charts. Handling Graphics

**SPREADSHEET PACKAGE**

Spreadsheet concept – Need, advantage, Terminology like cell, row, column etc. Working with Spreadsheet– Creating, Saving, Editing and printing, Entering data – Entering number, text, date, time etc. Selecting cells – Cut, copy, paste date, Editing Worksheet data. Formatting – Text and Cells, Applying border shading, background patterns, conditional formats, positioning cells,



formatting numbers, text, Date, time. Creating formulas- Entering, Editing, Using Functions, Controlling calculations. Working with Charts- Creating charts, Adding & changing text, changing the view and display, types of charts. Presentation Software: Introduction Presentation design tools Presentation terminologies, Creating, Opening and Saving Presentation. Working with different views Creating and Organizing slides, Adding and Formatting text in slides Formatting paragraphsm Adding drawings and objects Creating special effects Working with table and charts Printing Presentation.

## **UNIT – V**

**Marks :14**

### **DATABASE**

Introduction – need, Characteristics and terminologies of database, Types of database – relational, Hierarchical and Network. Basic entities – Tables, records, Data types, Data, Validation and constraints, keys relation between tables. Query – Select, Insert, Update, Delete. Forms – Creating forms, Forms controls Report Designer- Customize formats, grouping reports. Computer Communication & Networks: Information Networks- The Technology of Workgroup Computing, Types of network, Network topology.Network components. Data Communication-Introduction to Data Communication,Types of Data,Transmission media. Internet and E-mail-Internet Basics, Websites- Applications, terminologies, naming conventions., Web Browsers-Types, Navigation and tools, E-mail – concept, terminologies, mailing services provider, advantages comparison with Conventional mailing. Search engine – concept, search engine websites, searching methods.

### **Text Books**

1. S . Jaiswal, A First Course in Computers, Golgotha Publication
2. Slotnick, Butterfield, Colantonio and Kopetzky, Computers & Application, C.C. Health & Company
3. Ron Mansfield, The Complete Guide to Microsoft Office Professional, Sybex /BPB Asian Edition
4. Hardware Bible, BPB Publication
5. Learning Windows in 24 Hours, Sam Techmedia

### **Reference Books**

1. Suresh K. Basandra, Computers Today, Galgotia Publication
2. Norton Peter, Inside IBM PC
3. Computer Hardware, Osborne Series
4. Hardware Bible, BPB Publication
5. Learning Windows in 24 Hours, Sam Techmedia
6. Chapman, Understanding windows, BPB Publication



### **List of Experiments**

1. Study of various components of computer like CPU, keyboard, mouse, monitor, printer, CVT and storage devices.
2. Internal and external commands of DOS.
3. Using Windows operating system, study of desktop, control panel, accessories and settings.
4. File management in windows explorer, Study of WordPad, NotePad, PaintBrush, Calculator etc. Study of Linux operating system.
5. Study of MS-word – opening and saving of documents, formatting, editing and spell check, find and replace, printing, merging. Creating Table, Charts and Graphics.
6. Study of Spreadsheet – creating, saving, editing and printing. Entering data, selecting cells, formatting text, applying border shades and backgrounds, creating formulas, creating charts.
7. Study of Power Point – creating, opening, editing and saving of slides. Adding and formatting text, creating, animations, working with images and special effects. Printing presentation.
8. Study of MSAccess– creating, saving, editing and printing of tables. Managing relationships, writing queries e.g. SELECT, UPDATE, DELETE, INSERT. Forms designing and report printing.
9. Study of Web Browser and mailing programs.





**Engineering Drawing (DCSE-0204)**

Paper / Subject Code	Title of the Paper / Subject	Credit Allotted			Total Credit	Distribution of Marks										Duration of Theory Exam
		L	T	P		Theory					Practical			Grand Total (H=D+G)		
						End Sem.		Internal		Total (D= A +B+C)	End Sem.		Internal		Total (G= E+F)	
						Max (A)	Min	TW (B)	MST (C)		Max (E)	Min				
DCSE-0204	Engineering Drawing	3	1	-	4	70	22	10	20	100	-	-	-	-	100	3 Hrs

**UNIT – I**

**Marks :14**

**INTRODUCTION TO DRAWING INSTRUMENTS:**

Introduction of drawing instruments, materials and their uses, Applications of minidrafter Applications of compass and divider Applications of French curves and spline Pencils grades and their uses, Designation and sizes of drawing sheet and drawing board.

**PLANNING AND LAYOUT OF DRAWING SHEET:**

Planning of drawing sheet as per I.S.: 696-1972 (SP 46: 1988). This should include- Margin, Title Block, Zoning, Revision panel, Folding marks, Numbering of sheet.

**CONVENTIONAL REPRESENTATION:**

Conventional representation of the following as per BIS practice. Common Engineering materials Electrical installations and fittings – Main switches, (lighting and power), socket outlets (3 pin 5AMP, 3pin15AMP), bell, buzzer, loud speaker, Aerial, ceiling fan, exhaust fan, Bracket fan, fan regulator, battery and earth point.

Electronics components- Diode: Zener, varactor, Scotty, step recovery, light emitting diode (LED), PNP and NPN transistors, resistance, capacitor, Inductors (fixed and variable both), IC (8pin and 14pin), SCR, TRIAC, DIAC, UJT, FET, MOSFET, LOGIC GATES.

Sanitary fittings- showerhead, wall lavatory basin, corner Lavatory basin, urinal stall, kitchen sink, Indian type WC, Water closets (Asian pan, urissapan, Anglo-Indian, European)

Building -single and double swing doors and windows.

Mechanical components- Internal and external threads, slotted head, Square end and flat, radial arms and ribs, serrated shaft, splined shaft, Chain wheel, bearing, straight and diamond knurling, Compression and tension spring, leaf spring (with and without eye), Spur and helical gear.

**LINES, LETTERING AND DIMENSIONING:**

Introduction of type of lines and their applications, Single stroke vertical, inclined letters (capital and lowercase) And numerals. Dimensioning: Elements of dimensioning- dimension line, extension line, arrowhead And leader line. Dimensioning system – Aligned and unidirectional. Dimensioning of Arcs and Circles. Angular Dimensioning. Dimension of counter sunk and counter bore.

**UNIT – II**

**Marks :14**

**GEOMETRICAL CONSTRUCTIONS AND ENGINEERING CURVES**

Divide a line into any number of equal parts by parallel line method, Bisecting of line and angle. Construction of triangles and polygons Introduction of conic sections (curves), Construction of Ellipse by Eccentricity and Concentric circles methods, Construction of Parabola by Eccentricity and Rectangle methods, Construction of Hyperbola by Eccentricity method, Construction of Cycloid, Construction of Involute of circle and polygon, Construction of Archimedian Spiral of any number of convolutions.

**SCALES:**

Introduction of scales and their applications, Concept of reducing, enlarging and full size scale Classification of scales – plain, diagonal, vernier, Scale of chord and comparative scales Definition of R.F. Construction of plain and diagonal scales.



**UNIT – III**

**Marks :14**

**THEORY OF PROJECTION AND PROJECTION OF POINTS, LINES AND PLANES**

Definition of various term associated with theory of projection- Planes of projection, Quadrants, first & third angle projection method, Projection of points in all the four quadrants. Projection of lines parallel to HP and VP both, perpendicular to one plane and parallel to other, Inclined to one plane and parallel to other, knowledge of projection of line inclined to both the plane, (No practice required).

Projection of planes – Perpendicular to HP and VP both, Perpendicular to one plane and parallel to other, Inclined to one plane and perpendicular to other, Knowledge of projection of plane inclined to both the planes.

**UNIT – IV**

**Marks :14**

**PROJECTIONS OF SOLIDS:**

Projection of cylinder, cone, prism and pyramid. Under the conditions :- Axis parallel to HP and VP, Axis perpendicular to HP and parallel to VP, Axis perpendicular to VP and parallel to HP, Axis inclined to HP and parallel to VP, Axis inclined to VP and parallel to HP, Axis inclined to both HP and VP.

**SECTION OF SOLIDS AND DEVELOPMENT OF SURFACES:**

Section of cone, cylinder, prism and pyramid (Solid resting on its base in the HP i.e. the Axis perpendicular to HP and parallel to VP) in the cases:- Section plane parallel to HP and perpendicular to VP, Section plane parallel to VP and perpendicular to HP, Section plane inclined to HP and perpendicular to VP, Section plane inclined to VP and perpendicular to HP. Drawing True shape of section.

Introduction to development of lateral surface of solids- Cone, Cylinder, Prism and Pyramids (Simple and truncated). Under the condition – solid resting on its base in the HP and axis perpendicular to HP and parallel to VP. Development of funnel and elbow.

**INTERSECTION OF SURFACES**

Intersection of following cases – Cylinder to cylinder and Prism to prism (With their axis intersecting and perpendicular to each other.)

**UNIT – V**

**Marks :14**

**ORTHOGRAPHIC PROJECTIONS & FREE HAND SKETCHING:**

Principles of orthographic projections- Identification of necessary views and superfluous view Selection of front view. Preparation of necessary orthographic views of simple objects From given pictorial views. Dimensioning of orthographic views as per standard practice. Free hand sketches of simple objects (Using Pencil, Eraser & Paper only)

**ISOMETRIC VIEWS**

Concept of isometric projection and isometric view (Isometric Drawing), Construction of isometric scale, Construction of isometric view of polygon and circle, Construction of isometric view of cone, cylinder, prism and pyramids, Construction of isometric view of simple objects from given orthographic views.



**Text Books**

1. ENGINEERING DRAWING – N.D. Bhatt
2. ENGINEERING DRAWING – R.K. Dhawan
3. ENGINEERING DRAWING – P.S.Gill

**Reference Books**

1. ENGINEERING DRAWING – P.S.Gill
2. SP: 46-1988 Bureau of Indian standard
3. PRINCIPLES OF ELECTRONICS - Malvino



## Workshop Practics (DCSE-0205)

Paper / Subject Code	Title of the Paper / Subject	Credit Allotted			Total Credit	Distribution of Marks										Duration of Theory Exam	
		L	T	P		Theory					Practical						Grand Total (H=D+G)
						End Sem.		Internal		Total (D= A +B+C)	End Sem.		Internal	Total (G= E+F)			
						Max (A)	Min	TW (B)	MST (C)		Max (E)	Min			LW (F)		
DCSE-0205	Workshop Practice	-	-	4	4	-	-	-	-	-	60	18	40	100	100	-	

### PURPOSE

To provide the students with hands on experience on different trades of engineering like fitting, carpentry, smithy, welding and sheet metal.

### INSTRUCTIONAL OBJECTIVES

To familiarize with

1. The basics of tools and equipments used in fitting, carpentry, sheet metal, welding and smithy.
2. The production of simple models in the above trades.

### Text Books

1. Gopal, T.V., Kumar, T., and Murali, G., A first course on workshop practice – Theory, practice and work book, Suma Publications, 2005.

### Reference Books

1. Kannaiah,P. & Narayanan,K.C. Manual on Workshop Practice, Scitech Publications, Chennai, 1999.
2. Venkatachalapathy, V.S. , First year Engineering Workshop Practice, Ramalinga Publications, Madurai, 1999.

### List of Experiments

1. EMPHASIS TO BE LAID ON REAL LIFE APPLICATIONS WHEN FRAMING THE EXERCISES.
2. FITTING Tools & Equipments – Practice in Filing and Drilling. Making Vee Joints, Square, dovetail joints, Key Making.
3. CARPENTARY Tools and Equipments- Planning practice. Making Half Lap, dovetail, Mortise & Tenon joints, a mini model of a single door window frame.
4. SHEET METAL Tools and equipments - Fabrication of a small cabinet, Rectangular Hopper, etc.
5. WELDING Tools and equipments - Arc welding of butt joint, Lap Joint, Tee Fillet.Demonstration of Gas welding, TIG & MIG.
6. SMITHY Tools and Equipments –Making simple parts like hexagonal headed bolt, chisel.



Semester-III

**Mathematics-II (DCSE-0301)**

Paper / Subject Code	Title of the Paper / Subject	Credit Allotted			Total Credit	Distribution of Marks										Duration of Theory Exam
		L	T	P		Theory					Practical			Grand Total (H=D+G)		
						End Sem.		Internal		Total (D=A+B+C)	End Sem.		Internal		Total (G=E+F)	
						Max (A)	Min	TW (B)	MST (C)		Max (E)	Min				
DCSE-0301	Mathematics-II	3	1	-	4	70	22	20	10	100	-	-	-	-	100	3 Hrs

**UNIT- I**

**Marks : 14**

Fourier Series: Introduction of Fourier series , Fourier series for Discontinuous functions, Fourier series for even and odd function, Half range series Fourier Transform: Definition and properties of Fourier transform, Sine and Cosine transform.

**UNIT- II**

**Marks : 14**

Laplace Transform: Introduction of Laplace Transform, Laplace Transform of elementary functions, properties of Laplace Transform, Change of scale property, second shifting property, Laplace transform of the derivative, Inverse Laplace transform & its properties.

**UNIT- III**

**Marks : 14**

Second Order linear differential equation with variable coefficients : Methods one integral is known, removal of first derivative, changing of independent variable and variation of parameter, Solution by Series Method

**UNIT- IV**

**Marks : 14**

Linear and Non Linear partial differential equation of first order: Formulation of partial differential equations, solution of equation by direct integration, Linear partial differential equation of second and higher order: Linear homogeneous and Non homogeneous partial diff. equation of nth order with constant coefficients. Separation of variable method for the solution of wave and heat equations.

**UNIT- V**

**Marks : 14**

Vector Calculus: Differentiation of vectors, scalar and vector point function, geometrical meaning of Gradient, unit normal vector and directional derivative, physical interpretation of divergence and Curl, Green's, Stoke's and Gauss divergence theorem.

**Reference Books**

- 1 Advanced Engineering Mathematics by Erwin Kreyszig, Wiley India
- 2 Higher Engineering Mathematics by BS Grewal, Khanna Publication
- 3 Advance Engineering Mathematics by D.G.Guffy
- 4 Mathematics for Engineers by S.Arumungam, SCITECH Publication
- 5 Engineering Mathematics by S S Sastri. P.H.I.



**Computer Programming using C (DCSE-0302)**

Paper / Subject Code	Title of the Paper / Subject	Credit Allotted			Total Credit	Distribution of Marks										Duration of Theory Exam	
		L	T	P		Theory					Practical						Grand Total (H= D+G)
						End Sem.		Internal		Total (D= A +B+C)	End Sem.		Internal		Total (G= E+F)		
						Max (A)	Min	TW (B)	MST (C)		Max (E)	Min	LW (F)				
DCSE -0302	Computer Programming using C	3	1	2	6	70	22	20	10	100	30	9	20	50	150	3 Hrs	

**UNIT- I**

**Marks : 14**

Variable, concept of binding, type checking, strong typing type compatibility, named constants, variable initialization. Sequence control with Expressions, Conditional Statements, Loops.

**UNIT- II**

**Marks : 14**

Data types: Introduction, primitive, character, user defined, array, associative, record, union, pointer and reference types, design and implementation uses related to these types.

**UNIT- III**

**Marks : 14**

Subprograms and Blocks: Fundamentals of sub-programs, Scope and lifetime of variable, static and dynamic scope, Design issues of subprograms.

**UNIT- IV**

**Marks : 14**

Operations, local referencing environments, parameter passing methods, overloaded sub-programs, generic subprograms, design issues for functions overloaded operators, co routines.

**UNIT- V**

**Marks : 14**

Abstract Data types: Abstractions and encapsulation, introductions to data abstraction, Static and Stack-Based Storage management. heap based storage management. Garbage Collection, File handling in C.



### **Reference Books**

1. COMPUTERS TODAY, BY S.K BASANDRA, GALGOTIA PUBLICATIONS. □□□
- 2 □ FUNDAMENTALS OF INFORMATION TECHNOLOGY ALEXIS
- 3 LEON & MATHEWS LEON, , VIKAS PUBLISHING □
- 4 DOS QUICK REFERENCE RAJEEV MATHUR, , GALGOTIA □PUBLICATIONS□

### **List of Experiments:**

- 1 WAP to illustrate Arithmetic expressions.
- 2 WAP to illustrate Arrays.
3. WAP to illustrate functions.
- 4 WAP to illustrate constructor & Destructor.
5. WAP to illustrate Object and classes.
6. WAP to illustrate Operator overloading.
- 7WAP to illustrate Function overloading.
8. WAP to illustrate Derived classes & Inheritance.



**DIGITAL ELECTRONICS (DCSE-0303)**

Paper / Subject Code	Title of the Paper / Subject	Credit Allotted			Total Credit	Distribution of Marks										Duration of Theory Exam
		L	T	P		Theory					Practical			Grand Total (H= D+G)		
						End Sem.		Internal		Total (D= A +B+C)	End Sem.		Internal		Total (G= E+F)	
						Max (A)	Min	TW (B)	MST (C)		Max (E)	Min				
DCSE -0303	Digital Electronics	3	1	2	6	70	22	20	10	100	30	9	20	50	150	3 Hrs

**UNIT- I**

**Marks : 14**

Number systems & codes, Binary arithmetic , Boolean algebra and switching function. Minimization of switching function, Concept of prime implicant , Karnaugh map method, Quine & McCluskey's method, Cases with don't care terms, Multiple output switching function.

**UNIT- II**

**Marks : 14**

Introduction to logic gates, Universal gate, Half adder, Half subtractor, Full adder, Full subtractor circuits, Series & parallel addition , BCD adders, Look-ahead carry generator.

**UNIT- III**

**Marks : 14**

Linear wave shaping circuits, Bistable, Monostable & Astable multivibrator, Schmitt trigger circuits & Schmitt-Nand gates. Logic families : RTL, DTL, All types of TTL circuits , ECL, I2L , PMOS, NMOS & CMOS logic, Gated flip-flops and gated multivibrator , Interfacing between TTL to MOS.

**UNIT- IV**

**Marks : 14**

Decoders, Encoders, Multiplexers, Demultiplexers, Introduction to various semiconductor memories & designing with ROM and PLA. Introduction to Shift Registers, Counters, Synchronous & asynchronous counters, Designing of Combinational circuits like code converters.

**UNIT- V**

**Marks : 14**

Introduction of Analog to Digital & Digital to Analog converters, sample & hold circuits and V-F converters.

**Reference Books**

1. .M. Mano; "Digital Logic & Computer Design"; PHI.
2. Malvino & Leach; "Digital Principles & Applications"; TMH
3. W.H. Gothman; "Digital Electronics"; PHI.
4. Millman & Taub; "Pulse, Digital & Switching Waveforms"; TMH
5. Jain RP; Modern digital Electronics; TMH
6. R.J. Tocci, "Digital Systems Principles & Applications".





**List of Experiments**

- 1 To study and test of operation of all logic gates for various IC's
2. Verification of Demorgan's theorem.
3. To construct of half adder and full adder
4. To construct of half subtractor and full subtractor circuits
5. Verification of versatility of NAND gate.
6. Verification of versatility of NOR gate.
7. Designing and verification of property of full adder.
8. Design a Multiplexer/ Demultiplexer.



**ELECTRONIC DEVICES (DCSE-0304)**

Paper / Subject Code	Title of the Paper / Subject	Credit Allotted			Total Credit	Distribution of Marks										Duration of Theory Exam	
		L	T	P		Theory					Practical						Grand Total (H= D+G)
						End Sem.		Internal		Total (D= A +B+C)	End Sem.		Internal		Total (G= E+F)		
						Max (A)	Min	TW (B)	MST (C)		Max (E)	Min	LW (F)				
DCSE -0304	Electronic Devices	3	1	2	6	70	22	20	10	100	30	9	20	50	150	3 Hrs	

**UNIT- I**

**Marks : 14**

Semiconductor device, theory of P-N junction, temperature dependence and break down characteristics, junction capacitances. Zener diode, Varactor diode, PIN diode, LED, Photo diode, Transistors BJT, FET, MOSFET, types, working principal, characteristics, and region of operation, load line biasing method.

**UNIT- II**

**Marks :14**

Feedback amplifier, negative feedback, voltage-series, voltage-shunt, current series and current shunt feedback, Sinusoidal oscillators, L-C (Hartley-Colpitts) oscillators, RC phase shift, Wien bridge, and Crystal oscillators. Power amplifiers.

**UNIT- III**

**Marks : 14**

Switching characteristics of diode and transistor, turn ON, OFF time, reverse recovery time, transistor as switch, Multivibrators, Bistable, Monostable, Astable multivibrators. Clippers and clamping, Differential amplifier.

**UNIT- IV**

**Marks : 14**

Operational amplifier characteristics, slew rate, full power bandwidth, offset voltage, bias current, application, inverting, non inverting amplifier, summer, averager, differentiator, integrator, differential amplifier, instrumentation amplifier, log and antilog amplifier, voltage to current and current to voltage converters.

**UNIT- V**

**Marks : 14**

Regulated power supplies., Series and shunt regulators, current limiting circuits, Introduction to IC voltage regulators, fixed and adjustable switching regulators.



**Reference Books**

1. Milliman Hallkias - Integrated Electronics; TMH Pub.
2. Gayakwad; OP-amp and linear Integrated Circuits; Pearson Education
3. Salivahanan; Electronic devices and circuits; TMH
4. Salivahanan; Linear Integrated Circuits; TMH-
5. Miliman Gabel; Micro electronics , TMH
6. RobertBoylestad & Nashetsky; Electronics Devices and circuit Theory; Pearson Ed.

**List of Experiments**

- 1 Diode and Transistor characteristics
2. Transistor Applications (Amplifier and switching)
3. OP-Amp and its Applications
4. 555 timer and its Applications
5. Multivibrators, Bistable, Monostable, Astable multivibarators



**ENGLISH COMMUNICATION (DCSE-0305)**

Paper / Subject Code	Title of the Paper / Subject	Credit Allotted			Total Credit	Distribution of Marks										Duration of Theory Exam	
		L	T	P		Theory					Practical						Grand Total (H= D+G)
						End Sem.		Internal		Total (D= A +B+C)	End Sem.		Internal	Total (G= E+F)			
						Max (A)	Min	TW (B)	MST (C)		Max (E)	Min			LW (F)		
DCSE -0305	English Communication	3	1	-	4	70	22	20	10	100	-	-	-	-	100	3 Hrs	

**UNIT- I**

**Marks : 14**

Linguistic techniques, Modern usages, Reading comprehension, Oral presentation, Audition Communication, Processes of Communication, Verbal and Non Verbal Communication.

**UNIT- II**

**Marks : 14**

Writing of definitions of Engineering terms, Objects, Processes and Principles (Listening) Topics of General Interest, Reproduction from business, daily life, travel, health, buying and selling, company structure, systems etc

**UNIT- III**

**Marks : 14**

Applications, Enquiry, Calling quotations, Tenders, Order and Complaint.

**UNIT- IV**

**Marks : 14**

Precise Writing, Noting and drafting, Technical Description of simple engineering objects and processes (writing), precise writing, Slogan writing.

**UNIT- V**

**Marks : 14**

Writing Technical reports of the type of observation report, Survey report, Report of trouble, Laboratory Report and Project Report on the subjects of engineering Vocabulary, Presentations, Conversation – Telephone media, socializing, cultural events, debates, speech.

**Reference Books**

1. ENGLISH GRAMMAR BY W.S.ALLEN INTERMEDIATE
2. ENGLISH GRAMMAR BY RAYMOND WILLIAMS



**COMPUTER PROGRAMMING (DCSE-0306)**

Paper / Subject Code	Title of the Paper / Subject	Credit Allotted			Total Credit	Distribution of Marks									Grand Total (H= D+G)	Duration of Theory Exam
		L	T	P		Theory					Practical					
						End Sem.		Internal		Total (D= A +B+C)	End Sem.		Internal	Total (G= E+F)		
						Ma x (A)	Min	T W (B)	MS T (C)		Ma x (E)	Min				
DCSE -0306	Computer Programming	-	-	2	2	-	-	-	-	-	30	9	20	50	50	-

**List of Experiments(Expandable as guided by teacher)**

1. WAP to illustrate Arithmetic expressions
2. WAP to illustrate Arrays.
3. WAP to illustrate , inheritance
- 4 WAP to illustrate constructor & Destructor
5. WAP to illustrate Object and classes.
6. WAP to illustrate Operator overloading
7. WAP to illustrate Function overloading

**Reference Books**

1. FUNDAMENTALS OF INFORMATION TECHNOLOGY ALEXIS
- 2 LEON & MATHEWS LEON, , VIKAS PUBLISHING



**FUNDAMENTALS OF COMPUTERS & INFORMATION TECHNOLOGY (DCSE-0401)**

Paper / Subject Code	Title of the Paper / Subject	Credit Allotted			Total Credit	Distribution of Marks										Duration of Theory Exam
		L	T	P		Theory					Practical			Grand Total (H=D+G)		
						End Sem.		Internal		Total (D= A +B+C)	End Sem.		Internal		Total (G= E+F)	
						Max (A)	Min	TW (B)	MST (C)		Max (E)	Min				
DCSE-0401	Fundamentals of Computers & Information Technology	-	-	2	2	-	-	-	-	-	30	9	20	50	50	-

**UNIT- I**

**Marks14**

Brief History of Development of Computers, Computer System Concepts, Computer System Characteristics, Capabilities and Limitations, Types of Computers, Basic Components of a Computer System - Control Unit, ALU, Input/output Functions and Characteristics, Memory RAM, ROM, EPROM, PROM and other types of Memory

**UNIT- II**

**Marks : 14**

Input/ Output & Storage Units - Keyboard, Mouse, Trackball, Joystick, Digitizing tablet, scanners, Digital Camera, MICR, OCR, OMR, Barcode Reader, Voice Recognition, Light pen, Touch Screen, Monitors - Characteristics and types of monitor , Size, Resolution, Refresh, Dot Pitch, Video Standard - VGA, SVGA, XGA.

**UNIT- III**

**Marks : 14**

Printers and its Types - Dot Matrix, Inkjet, Laser, Plotter, Sound Card and Speakers, Storage Fundamentals - Primary Vs Secondary data Storage, Various Storage Devices - Hard Disk Drives, Floppy Disks ,Optical Disks, Flash Drives

**UNIT- IV**

**Marks : 14**

Use of Communication and IT, Communication Process, Communication Types- Simplex, Half Duplex, Full Duplex, Serial and Parallel Communication, Types of Network - LAN, WAN, MAN , Internet, Topologies of LAN - Ring, Bus, Star, Mesh and Tree Topologies, World Wide Web and its Applications and Internet Services.

**UNIT- V**

**Marks :14**

Software and its Need, Types of Software - System Software, Application Software, System Software - Operating System, Utility Program, Programming Languages, Assemblers, Compilers and Interpreter, Programming Languages- Machine, Assembly, High Level, 4GL.



**Reference Books**

1. Computers today, by s.k basandra, galgotia publications.
- 2 fundamentals of information technology alexis

**List of Experiments**

- 1 Study and Practice of MS windows – Folder related operations, My-Computer, window explorer, Control Panel,
- 2 Creation and editing of Text files using MS- word.
- 3 Creation and operating of spreadsheet using MS-Excel.
- 4 Creation and editing power-point slides using MS- power point
- 5 Creation and manipulation of database table using SQL in MS-Access.



**Discrete Structures (DCSE-402)**

Course code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		MST (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g)		
						Max (a)	Min (b)			Max (e)	Min (f)				
DCSE-402	Discrete Structures	3	1	-	4	70	22	20	100	-	-	-	-	100	3 hr

**UNIT- I**

**Marks : 14**

Set Theory, Relation, Function, and Theorem Proving Techniques: Set Theory: Definition of sets, countable and uncountable sets, Venn Diagrams, proofs of some general identities on sets Relation: Definition, types of relation, composition of relations, Pictorial representation of relation, Equivalence relation, Partial ordering relation, Job-Scheduling problem Function: Definition, type of functions, one to one, into and onto function, inverse function, composition of functions, recursively defined functions, pigeonhole principle. Theorem proving Techniques: Mathematical induction, Proof by contradiction.

**UNIT- II**

**Marks : 14**

Algebraic Structures: Definition, Properties, types: Semi Groups, Monoid, Groups, Abelian group, properties of groups, Subgroup, cyclic groups, Cosets, factor group, Permutation groups, Normal subgroup, Homomorphism and isomorphism of Groups, example and standard results, Rings and Fields: definition and standard results.

**UNIT- III**

**Marks : 14**

Propositional Logic: Proposition, First order logic, Basic logical operation, truth tables, tautologies, Contradictions, Algebra of Proposition, logical implications, logical equivalence, predicates, Normal Forms, Universal and existential quantifiers. Introduction to finite state machine Finite state machines as models of physical system equivalence machines, Finite state machines as language recognizers.

**UNIT- IV**

**Marks : 14**

Graph Theory: Introduction and basic terminology of graphs, Planer graphs, Multigraphs and weighted graphs, Isomorphic graphs, Paths, Cycles and connectivity, Shortest path in weighted graph, Introduction to Eulerian paths and circuits, Hamiltonian paths and circuits, Graph coloring, chromatic number, Isomorphism and Homomorphism of graphs.



**UNIT- V****Marks : 14**

Posets, Hasse Diagram and Lattices: Introduction, ordered set, Hasse diagram of partially, ordered set, isomorphic ordered set, well ordered set, properties of Lattices, bounded and complemented lattices. Combinatorics: Introduction, Permutation and combination.

**Reference Books**

1. C.L.Liu, "Elements of Discrete Mathematics" Tata Mc Graw-Hill Edition.
2. Trembley, J.P & Manohar; "Discrete Mathematical Structure with Application CS", McGraw Hill.
3. Kenneth H. Rosen, "Discrete Mathematics and its applications", McGraw Hill.
4. Lipschutz; Discrete mathematics (Schaum); TMH
5. Deo, Narsingh, "Graph Theory With application to Engineering and Computer.Science.", PHI.
6. Krishnamurthy V; "Combinatorics Theory & Application", East-West Press Pvt. Ltd., New Delhi.
7. S k Sarkar " Discrete Mathematics", S. Chand Pub



**Computer Organization (DCSE-403)**

Course code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i=)	Duration of Exam
		L	T	P	C	Theory		MST (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g)		
						Max (a)	Min (b)			Max (e)	Min (f)				
DCSE-403	Computer Organization	3	1	2	6	70	22	20	100	30	09	20	50	150	3 hr

**UNIT- I**

**Marks : 14**

**Computer Basics and CPU:** Von Newman model, various subsystems, CPU, Memory, I/O, System Bus, CPU and Memory registers, Program Counter, Accumulator, Instruction register, Micro operations, Register Transfer Language, Instruction Fetch, decode and execution, data movement and manipulation, Instruction formats and addressing modes of basic computer. 8085 microprocessor organization

**UNIT- II**

**Marks : 14**

**Control Unit Organization:** Hardwired control unit, Micro and nano programmed control unit, Control Memory, Address Sequencing, Micro Instruction formats, Micro program sequencer, Microprogramming, Arithmetic and Logic Unit: Arithmetic Processor, Addition, subtraction, multiplication and division, Floating point and decimal arithmetic and arithmetic units, design of arithmetic unit.

**UNIT- III**

**Marks : 14**

**Input Output Organization:** Modes of data transfer – program controlled, interrupt driven and direct memory access, Interrupt structures, I/O Interface, Asynchronous data transfer, I/O processor, 8085 I/O structure, 8085 instruction set and basic programming. Data transfer – Serial / parallel, synchronous/asynchronous, simplex/half duplex and full duplex.

**UNIT- IV**

**Marks : 14**

**Memory organization:** Memory Maps, Memory Hierarchy, Cache Memory - Organization and mappings. Associative memory, Virtual memory, Memory Management Hardware

**UNIT- V**

**Marks : 14**

**Multiprocessors:** Pipeline and Vector processing, Instruction and arithmetic pipelines, Vector and array processors, Interconnection structure and inter-processor communication.

## **Reference Books**

1. Morris Mano: Computer System Architecture, PHI.
2. Tanenbaum: Structured Computer Organization, Pearson Education
3. J P Hayes, Computer Architecture and Organisations, Mc- Graw Hills, New Delhi
4. Gaonkar: Microprocessor Architecture, Programming, Applications with 8085; Penram Int.
5. William Stallings: Computer Organization and Architecture, PHI
6. ISRD group; Computer Organization; TMH
7. Carter; Computer Architecture (Schaum); TMH
8. Carl Hamacher: Computer Organization, TMH



**Object Oriented Technology (DCSE-404)**

Course code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		MST (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
DCSE-404	Object Oriented Technology	3	1	2	6	70	22	20	100	30	09	20	50	150	3 hr

**UNIT- I**

**Marks : 14**

Abstract data types, Objects and classes, Attributes and Methods, Objects as software units, Encapsulation and Information hiding, Objects instantiations and interactions, Object lifetime, Static and dynamic objects, global and local objects, Metaclass, Modeling the real world

**UNIT- II**

**Marks : 14**

Relationships between classes, Association of objects, Types of Association, Recursive Association, Multiplicities, Navigability, Named association, Aggregation of objects. Types of Aggregation, Delegation, Modeling Association and Aggregation.

**UNIT- III**

**Marks : 14**

Inheritance and Polymorphism, Types of polymorphism, Static and dynamic polymorphism, Operator and Method overloading, Inherited methods, Redefined methods, the protected interface, Abstract methods and classes, Public and protected properties, Private operations, Disinheritance, Multiple inheritance.

**UNIT- IV**

**Marks : 14**

Container Classes, Container types, typical functions and iterator methods, Heterogeneous containers, Persistent objects, stream, and files, Object oriented programming languages.

**UNIT- V**

**Marks : 14**

C++/Java as Object-oriented programming language.

### **Reference Books**

1. David Parsons; Object oriented programming with C++; BPB publication
2. Object oriented programming in C++ by Robert Lafore: Galgotia.

### **List of experiments**

Programming assignments may be given to students so that they can better understand the concepts of object oriented programming such as objects, classes, class-relationships, association, aggregation, inheritance, polymorphism etc.



**Analog & Digital Communication (DCSE-405)**

Course code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		MST (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g)		
						Max (a)	Min (b)			Max (e)	Min (f)				
DCSE-405	Analog & Digital Communication	3	1	-	4	70	22	20	100	30	09	20	50	150	3 hr

**UNIT- I**

**Marks : 14**

Time domain and frequency domain representation of signal, Fourier Transform and its properties, Transform of Gate, Periodic gate, Impulse periodic impulse sine and cosine wave, Concept of energy density and power density (Parseval’s theorem), Power density of periodic gate and impulse function, impulse response of a system, convolutions, convolution with impulse function, causal and non causal system impulse response of ideal low pass filter, Correlation & Auto correlation.

**UNIT- II**

**Marks : 14**

Base band signal, need of modulation, Introduction of modulations techniques, Amplitude modulation, Equation and its frequency domain representation, Bandwidth, Power distribution. AM suppressed carrier waveform equation and frequency domain representation Generation (Balance/Chopper modulator) and synchronous detection technique, errors in synchronous detection, Introduction to SSB and VSB Transmission Angle modulation, Frequency and phase modulation equation and their relative phase and frequency deviations, modulation index frequency spectrum, NBFM and WBFM, Bandwidth comparison of modulation techniques.

**UNIT- III**

**Marks : 14**

Sampling of signal, sampling theorem for low pass and Band pass signal, Pulse amplitude modulation (PAM), Time division, multiplexing (TDM). Channel Bandwidth for PAM-TDM signal Type of sampling instantaneous, Natural and flat top, Aperture effect, Introduction to pulse position and pulse duration modulations, Digital signal, Quantization, Quantization error, Pulse code modulation,

**UNIT- IV**

**Marks : 14**

Digital modulations techniques, Generation, detection, equation and Bandwidth of amplitude shift keying (ASK) Binary Phase Shift keying (BPSK), Differential phase shift keying (DPSK), offset and non offset quadrature phase shift keying (QPSK), M-Ary PSK, Binary frequency Shift Keying (BFSK), M-Ary FSK Quadrature Amplitude modulation (QAM), MODEM, Introduction to probability of error.

## **UNIT- V**

**Marks :16**

Information theory and coding- Information, entropies (Marginal and conditional), Model of a communication system, Mathematical representation of source, channel and receiver characteristics, Mutual information, channel capacity efficiency of noise free channel Binary symmetric channel (BSC) Binary erasure channel (BEC), Repetition of signal, NM symmetric Binary channel, Shannon theorem, Shannon-Hartley theorem (S/N-BW trade off) Source encoding code properties; Shannon, Fano and Huffman coding methods and their efficiency error control coding .

### **Reference Books**

1. Cormen Thomas, Leiserson CE, Rivest RL; Introduction to Algorithms; PHI.
2. Horowitz & Sahani; Analysis & Design of Algorithm
3. Dasgupta; algorithms; TMH
4. Ullmann; Analysis & Design of Algorithm;
5. Michael T Goodrich, Roberto Tamassia, Algorithm Design, Wiley India

### **List of Experiments**

1. Study of sampling process and signal reconstruction and aliasing.
2. Study of PAM PPM and PDM
3. Study of PCM transmitter and receiver.
4. Time division multiplexing (TDM) and De multiplexing
5. Study of ASK PSK and FSK transmitter and receiver.
6. Study of AM modulation and Demodulation techniques (Transmitter and Receiver) Calculate of parameters
7. Study of FM modulation and demodulation (Transmitter and Receiver) & Calculation of parameters
8. To construct and verify pre emphasis and de-emphasis and plot the wave forms



**Web Technology DCSE-0501**

Course code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		MST (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
DCSE-501	Web Technology	3	1	-	4	70	22	20	100	-	-	-	-	100	3 hr

**UNIT- I**

**Marks :14**

**Introduction To Web Design**

Web page and Web site - Web publishing Process of Web, publishing, planning, organizing, Hierarchical, Linear, Webbed. Implementing, Testing, Maintenance.

**UNIT- II**

**Marks : 14**

**HTML**

Introduction, Head section – Prologue, Link, Base, Meta, Script, Style Body Section – Header, Paragraphs, Text Formatting, Linking, Internal Linking, Embedding Images, Lists, Tables, Frames. Other Special Tags and Characters, HTML Forms

**UNIT- III**

**Marks : 14**

**Java Script**

Introduction, Language Elements – Identifiers, Expressions, Keywords, Operators, Statements, Functions, Object of Java Scripts – Window Object, Document Object, Forms Objects, Text Boxes and Text Areas, Buttons, Radio Buttons and Check Boxes, The Select Object, Other Object – The Date Object, The Math Object, The String Object, Regular Expressions, Arrays, Worked Examples

**UNIT- IV**

**Marks : 14**

**DHTML**

Introduction. Cascading Style Sheet (CSS) – Coding, Properties of Text, Property Values, Other Style Values, In-Line Style Sheet, Embedded Style Sheet, External Style Sheet, Grouping, Inheritance, Classes as Selector, ID as Selector, Contextual Selector, Pseudo Classes and Pseudo Elements, Positioning, Backgrounds, Element Dimensions DHTML Document Object Model and Collections – Using the Collection all, Moving object around the documents, Event Handling – Assigning Event Handlers, Even Bubbling, Filters and Transactions Data Bindings –Using Tabular Data Control, Sorting Data, Dynamic, Sorting,Filtering



## **UNIT- V**

**Marks : 14**

### **XML Basics**

Introduction, HTML vs XML, Syntax of the XML Document, XML Attributes Publishing The Site ,Uploading Web pages-Using FTP and using Web Page Editors, Web hosting - S hared hosting Running a Local Web server.

### **Reference Books**

1. Allen D.W. & Steve Johnson; the Learning Guide to Internet; B.P.B. Publication.
2. Alexis Leon and Matthew Leon; Internet for every one; Vikas publishing house Pvt. Ltd. New Delhi.
3. Internet for Dummy, Pustak Mahal, New Delhi.
4. Web Technology – A Developer’s Perspective – PHI by N. P. Goplan and J. Akilandeswar



**Java Programming (DCSE-502)**

Course code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		MST (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
DCSE-502	Java Programming	3	1	2	6	70	22	20	100	30	09	20	50	150	3 hr

**UNIT- I**

**Marks : 14**

**OVERVIEW OF JAVA LANGUAGE**

JAVA and its support systems, JAVA environment. JAVA program structure, Tokens, Statements, JAVA virtual machine, C++ Versus JAVA, Constants & Variables, Data Types, Declaration of Variables, Scope of Variables, Symbolic Constants, Type Casting , Operators: Arithmetic, Relational, Logical Assignments, Increment & Decrement, Conditional, Bit wise, Special, Expressions & its Evaluation. Control statements: If statements and its variant, Switch statement, ? Operator, while loop, do while loop, For loop, Break and continue, Labeled Loops.

**UNIT- II**

**Marks : 14**

**CLASSES, OBJECTS & METHODS**

Defining a Class, Adding Variables & Methods, Creating Objects, Accessing Class Members , Constructors, Methods Overloading, Static Members, Nesting of Methods, Inheritance: Extending a Class, Overriding Methods, Concept of public, private and protected, Final Variables & Methods, Final Classes, Finalizer Methods, Abstract methods & Classes, Static class, Visibility Control.

**UNIT- III**

**Marks : 14**

**Java Script**

Introduction, Language Elements – Identifiers, Expressions, Keywords, Operators, Statements, Functions, Object of Java Scripts – Window Object, Document Object, Forms Objects, Text Boxes and Text Areas, Buttons, Radio Buttons and Check Boxes, The Select Object, Other Object – The Date Object, The Math Object, The String Object, Regular Expressions, Arrays, Worked Examples

**UNIT- IV**

**Marks : 14**

**ARRAYS, STRINGS & VECTORS**

Arrays : One Dimensional & two Dimensional, strings, Vectors, wrapper Classes, Defining Interfaces, Extending Interfaces, Implementing Interfaces, Accessing Interfaces Variables, Systems Packages, Using System Packages, Naming Conventions, Creating Packages, Accessing a Package, Using Package, Adding a Class to a Package, Hiding Classes .MULTITHREADED PROGRAMMING Creating Threads, Extending the Threads Class, Stopping & Blocking a Thread, Life Cycle of a Thread, Using Thread Methods, basic exception handling, Threads Exceptions, Thread Priority, Synchronization, Implementing the Run able Interface.

## **UNIT- V**

### **JDBC**

**Marks : 14**

Understanding JDBC, JDBC Architecture, types of JDBC driver, Register JDBC driver, establish a database connection, execute an SQL statement, process the result, close the data base connection. **File handling and simple GUI Design** Introduction, Data records, reading and writing to text files, simple GUI design option pane class, message dialog-presenting information to user, input dialog reading data from the user, confirmation dialog - getting confirmation from user.

### **Reference Books**

- 1 E. Balaguruswami, Programming in Java, 2nd Edition, TMH Publications Herbert Shield.
- 2 Peter Norton , Peter Norton Guide to JAVA Programming, Tech media Publications. Stroker .
- 3 P.lew, 1998, An introduction to JAVA, Thomson learning.

### **List of Experiments**

1. Programs using various decisions making & looping statements of JAVA.
2. Programs to demonstrate the use of array, Class & packages.
3. Programs using Concept of public, private and protected, Final Variables & Methods.
4. Programs using Final Classes, Finalize Methods, Abstract methods & Classes, Static class, Visibility Control.
5. Program for creating & extending thread.
6. Programs to demonstrate the use of multiple threads.
7. Programs to create an applet for “HELLO “ & call this in HTML.
8. Programs to demonstrate the use of various applet tags, Designing data entry forms using various building blocks at client side.
9. Program to connect single & multiple databases using JDBC concept.
10. Program to read & write a text file.



**Hardware Installation and Maintenance (DCSE-503)**

Course code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		MST (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g)		
						Max (a)	Min (b)			Max (e)	Min (f)				
DCSE-503	Hardware Installation and Maintenance	3	1	-	4	70	22	20	100	-	-	-	-	100	3 hr

**UNIT- I**

**Marks : 14**

Elements of Computers Processors Specifications SMPS Types of data cables and power cables Types of connectors, headers I/O Ports:- Serial, Parallel USB Chipset, Video system, sound system, Drive system, MODEM, USB Printers

**UNIT- II**

**Marks : 14**

Motherboard Controllers & System Resources, Memory Mapping Interrupts Request Line (IRQ) - Purpose, Standard Assignments, Conflicts, Sharing & ISA, PC I, PnP Configuration of IRQ System B uses - Industry Standard Organization, Micro Channel Architecture, Enhanced Industry Standard Architecture, UESA Local Bus, Peripheral Component Interconnect, Accelerated Graphics Ports, PC I-X. Chipsets - Northbridge & South Bridge, Function of Chipset Motherboard form factor & Power supplies - AT, ATX, LPX & NLX, Voltage & Signal Lines, Power Supply Quality & Specifications, Form Factors, Ribbon Cable and Adapter Card Installation Batteries - charging, rating, CMOS backup Batteries, Backup Battery Replacement

**UNIT- III**

**Marks : 14**

Processor Specification - Clock Speed, FSB, L1, L2 & L3 cache, Processor over clocking CPU - RISC & CISC Microprocessor CPU Packaging - DIP, PGA, SPGA, MCM, LCC, PLCC & Tape Carrier Package. Intel CPU Family – Fifth generation & Sixth Generation P6, Xeon, Celeron Processor AMD CPU Family - Fifth, Sixth, & Seventh Generation K Series, Athlon, Thunderbird & Duron Processor Handling & Replacement of CPU, CPU Configuration FSB, Core Speed, Core Voltage Configuration

**UNIT- IV**

**Marks : 14**

Logical Organization of Memory - Real Mode, Protected Mode, Lower, BIOS Data Area, Upper Memory, High Memory Area, Frame Buffer, Shadow & Cache Memory Packaging - DIP, STPP, SIMM, DIMM, RIMM RAM Types - EDO, SDRAM, VRAM, SGRAM, RDRAM, DDRAM, PPRAM, DDR 1, DDR 2, DDR 3 Memory Performance - Speed, Inter living & Caching Interfaces - IDE, ATA 1 to 6, Master Slave Configuration, SCSI, SATA, PATA. SCSI Interface - BUS ID, Logical Unit Number, Termination, Signaling Types, SCSI Standards, Comparison between IDE & SCSI Optical Storage Devices - CD, DVD, and Blu-ray Disc

## **UNIT- V**

**Marks : 14**

BIOS Functions Cold & Warm Booting BIOS Error Codes BIOS Interrupts Identification of Different BIOS (AMI & AWARD BIOS) BIOS Memory Assignments, BIOS Advance setup PC Case/Cabinet Preparation, Mounting process of the Motherboard, CPU Installation , Attaching Heat sink and Cooling Fan, RAM installation, Connecting SMPS to different devices, Connecting Hard-drive and its cables, Installation of optical drives, video card, sound cards, PCI cards and Expansion cards user.

### **Reference Books**

1. Subhadeep Choudhary, The A-Z of PC Hardware & Maintenance part I and II.
2. Govindrajalu, IBM PC and Clones.
3. Balasubramanyam, Computer Installation and Servicing.
4. Stephen J. Bigelow, Troubleshooting, Maintaining and Repairing PCs, Fifth edition TMH.



**Software Engineering ( DCSE-504)**

Course code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		MST (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g)		
						Max (a)	Min (b)			Max (e)	Min (f)				
DCSE-504	Software Engineering	3	1	2	6	70	22	20	100	30	09	20	50	150	3 hr

**UNIT- I**

**Marks : 14**

INTRODUCTION TO SOFTWARE ENGINEERING Software characteristics, Software myths. Components, application; process, methods, tools & view of S/E; software process Capability Maturity Model, life cycle models (water fall, incremental, spiral, RAD, prototyping, object oriented) fourth generation model.

**UNIT- II**

**Marks : 14**

SOFTWARE PROJECT PLANNING 10Responsibilities of Software Project manager, Project planning Objective, Software scope, Software project estimation technique, Decomposition techniques, Estimation models, Scheduling, staffing, Risk Management, Software configuration Management.

**UNIT- III**

**Marks : 14**

SOFTWARE REQUIREMENT ANALYSIS, SPECIFICATION & MODELING Analysis principles, system specification, software requirement specifications, Functional specifications, software prototyping, specification, data modeling, data flow Diagrams, ER Diagram, Mechanics of structured analysis, data dictionary. OBJECT –ORIENTED CONCEPT Object Oriented Concepts, Unified Modeling language Diagram (Use Case Diagram, Class Diagram, Sequence Diagram, State Chart Diagram) Elements Of Object Modeling, Management Of Object Oriented Software Projects, Object Oriented Analysis, Domain Analysis, OOA Process Conventional v/s OO Approach, Object – Relationship Model

**UNIT- IV**

**Marks : 14**

DESIGN CONCEPT PRINCIPLE AND METHODS Design Process, Design Principles, Design Concepts, Effective Modular Design, Design Documentation, Architectural Design, and Architectural Design Process- Optimization, Procedural Design

**UNIT- V****Marks : 14**

SOFTWARE TESTING Software Testing Fundamentals: Principles & objectives, V Model. Testing Methodology: Unit Test, Integration Test, Functional testing, System Testing, Acceptance test, White Box & Black Box testing techniques Gray box testing, Retesting and Regression testing, Debugging & reliability Analysis. Testing Documentation: Test Requirement, Test Plan, Test case design and execution(Study of manual testing tool : Quality center)Software Reliability And Quality Management: Concepts of S/W Quality Control and Assurance, Software Reliability, ISO 9000 & 9001, Standard SE I –CMMSOFTWARE IMPLEMENTATION AND MAINTENANCE Characteristics, reverse engineering, maintenance process model, estimation of maintenance cost .

**Reference Books**

1. Pankaj Jalote ,”An Integrated Approach to Software Engineering”, Narosa Pub, 2005
2. Rajib Mall, “Fundamentals of Software Engineering” Second Edition, PHI Learning
3. R S. Pressman ,”Software Engineering: A Practitioner's Approach”, Sixth edition 2006, McGraw-Hill.



**Operating System (DCSE-505)**

Course code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		MST (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g)		
						Max (a)	Min (b)			Max (e)	Min (f)				
DCSE-505	Operating System	3	1	2	6	70	22	20	100	30	09	20	50	150	3 hr

**UNIT- I**

**Marks : 14**

**Introduction** to System Programs & Operating Systems, Evolution of Operating System (mainframe, desktop, multiprocessor, Distributed, Network Operating System, Clustered & Handheld System), Operating system services, Operating system structure, System Call & System Boots, Operating system design & Implementations, System protection, Buffering & Spooling. Types of Operating System: Bare machine, Batch Processing, Real Time, Multitasking & Multiprogramming, time-sharing system.

**Unit II**

**Marks : 14**

File: concepts, access methods, free space managements, allocation methods, directory systems, protection, organization, sharing & implementation issues, Disk & Drum Scheduling, I/O devices organization, I/O devices organization, I/O buffering, I/O Hardware, Kernel I/O subsystem, Transforming I/O request to hardware operations. Device Driver: Path managements, Sub module, Procedure, Scheduler, Handler, Interrupt Service Routine. File system in Linux & Windows

**Unit III**

**Marks : 14**

Process: Concept, Process Control Blocks (PCB), Scheduling criteria Preemptive & non Preemptive process scheduling, Scheduling algorithms, algorithm evaluation, multiple processor scheduling, real time scheduling, operations on processes, threads, inter process communication, precedence graphs, critical section problem, semaphores, classical problems of synchronization. Deadlock: Characterization, Methods for deadlock handling, deadlock prevention, deadlock avoidance, deadlock detection, recovery from deadlock, Process Management in Linux.

**Unit IV**

**Marks : 14**

Memory Hierarchy, Concepts of memory management, MFT & MVT, logical and physical address space, swapping, contiguous and non-contiguous allocation, paging, segmentation, and paging combined with segmentation. Structure & implementation of Page table. Concepts of virtual memory, Cache Memory Organization, demand paging, page replacement algorithms, allocation of frames, thrashing, demand segmentation.



## **Unit V**

**Marks : 14**

Distributed operating system:-Types, Design issues, File system, Remote file access, RPC,RMI, Distributed Shared Memory(DSM), Basic Concept of Parallel Processing & Concurrent Programming Security & threats pr Authentications, Protection Mechanisms. Introduction to Sensor network and parallel operating system. Case study of Unix, Linux & Windows, protection: Security violation through Parameter, Computer Worms & Virus, Security Design Principle,

### **Reference Books**

1. Silbers chatz ,”Operating system”, Willey Pub.
2. Stuart,” Operating System Principles, Design & Applications”,Cengage Learning
3. Tannanbaum, “Modern operating system”, PHI Learning
4. Dhamdhere, ”Operating System”, TMH.

### **List of Experiments**

1. Write a program to implement FCFS CPU scheduling algorithm.
2. Write a program to implement SJF CPU scheduling algorithm.
3. Write a program to implement Priority CPU Scheduling algorithm.
4. Write a program to implement Round Robin CPU scheduling algorithm.
5. Write a program to compare various CPU Scheduling Algorithms over different Scheduling Criteria.
6. Write a program to implement classical inter process communication problem (producer consumer).
7. Write a program to implement classical inter process communication problem (Reader Writers).
8. Write a program to implement classical inter process communication problem (Dining Philosophers).
9. Write a program to implement & Compare various page replacement algorithms.
10. Write a program to implement & Compare various Disk & Drum scheduling Algorithms
11. Write a program to implement Banker’s algorithms



Computer Graphics, Multimedia & Animation ( DCSE-601)

Table with columns: Course code, Title of the Paper, Periods Per week (L, T, P, C), Distribution of (Theory, Practical, MST, Total), Grand Total, Duration of Exam.

UNIT- I

Marks : 14

Introduction to Computer Graphics

Definition of Computer Graphics, Application of Computer Graphics, Graphics Hardware Input and Output Devices, Display Devices, Refreshing Display Devices, Raster-Scan, Random-Scan Points and Lines Line-drawing Algorithms, DDA Algorithm, Bresenham’s line Algorithm Circle-generating Algorithm Midpoint Circle of Algorithm Polygon Filling Algorithm: Scan-Line

UNIT-II

Marks : 14

Transformation, 2-D Viewing and Clipping

Basic Transformations (2D and 3D)

Translation, Rotation, Scaling, Shear, Reflection Composite Transformations Rotations about a point, Reflection about a line, Homogeneous Coordinate Systems Clipping-Point Clipping, Line Clipping -Cohen-Sutherland Clipping algorithm, Polygon Clipping: Sutherland Hodgeman Algorithm

UNIT-III

Marks : 14

Basics of Multimedia Technology

Concepts of Multimedia: Types, Data Streams, Hardware and Software Requirements and Applications, Multimedia Authoring, Digital Audio: Audio Sampling, Recording Digital Audio, Audio Standards for Multimedia Applications, MIDI File Formats, MIDI Hardware and Software. Image Compression Standards: Types. Video Compression and Standards:

Compression Standards, MPEG Compression Basics, MPEG-1, MPEG-2, and MPEG-4 Hypertext and Hypermedia

UNIT-IV

Marks : 14

Graphics Image File Formats

Raster Format, Bitmap (BMP) Format, Graphics Interchange Format (GIF), Joint Photographic Experts Group (JPEG), Tagged Image File Format (TIFF), Portable Network Graphics (PNG) and their differences

## **UNIT-V**

**Marks : 14**

### **Compute Animation**

development of Animations: Non Computer and Computer Based Animations, Different Types of Animations. Flash Basics: Flash Work Flow, Animation Using Flash. The Flash Work Environment: The Stage and the Time Line, Symbols and Instances, Symbols and Interactive Movies, Using the Tool Box, Using Panels, Using Context Menus, Moving the Play Head, Working the Frames using time line. Drawing Overview: Flash Drawing and Painting Tools, Working With Color, Using Imported Art Work, Adding Sound, Representation of Animation. Using Layers: Adding and Deleting Layers, Viewing Layers. Creating Text Boxes for User input. Creating Animations: Creating Key Frames, Layers in Animations, Frame Rates, Frame Rates, and Steps for creating animations. Frame by Frame Animations. Publishing and Exporting.

### **Reference**

1. Donald Hearn and M.P. Becker "Computer Graphics" Pearson Pub.
2. Rogers, "Procedural Elements of Computer Graphics", Tata McGraw Hill



**Dot Net Technologies DCSE-602**

Course code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i+d+h)	Duration of Exam
		L	T	P	C	Theory		MST (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g)		
						Max (a)	Min (b)			Max (e)	Min (f)				
DCSE - 602	Dot Net Technologies	3	1	2	6	70	22	20	100	30	09	20	50	150	3 hr

**UNIT-I**

**Marks : 14**

**Introduction to .NET**

Introduction to Microsoft.Net Framework, Building blocks in .Net, Drawback of previous languages, Understand .Net, Common language runtime (CLR), Common type system (CTS), Difference between ASP and ASP. Net, Introduction to IIS, web application and its usage, ASP.Net IDE Visual studio .Net, Creation of web forms, Using web form controls.

**UNIT-II**

**Marks : 14**

**ASP.Net Objects and components**

Response object, Server object, Application object, Session object, ASP.Net scope, state, view state, post back and configuration, ObjectCreation: Scripting, Drive, Folder, File, Use of object, ServerComponents: Ad Rotator, Content Linker, Browser Capabilities Use and Creation of global.asa file, Application object: Events, Methods and collections, Example, Session object: Enabling and disabling of session, Event, Properties, Method, Collection.

**UNIT-III**

**Marks : 14**

**ADO.Net**

ADO.Net in ASP. Net: Connection, Dataset and data reader, Datable and data row, Web.config introduction, Binding data with data grid, Accessing and manipulating data, ADO .Net: Server control templates and data binding techniques, Data access in .Net using ADO.Net, Server control templates available for data binding like repeater, data list and data grid controls.

**UNIT-IV**

**Marks : 14**

**ASP Transactions and e-mail**

Transactions, Transaction db design, CDONTS object, Email sending web page creation

**UNIT-V**

**Marks : 14**

**Working with XML in ASP.NET**

Basics of XML, XML support in .NET, XML Validation Overview, XML Parsing API's in .NET, Parsing XML with the XmlTextReader, Parsing XML using DOM Objects, Generating XML with the XmlTextWriter, Introduction to XSLT, Transforming XML using .NET's XSLT classes, Viewing relational data as XML, Dataset XML Properties and Methods, Using the XmlDataDocument Class Syncing between DataSets and XmlDataDocuments.

## **Reference**

1. C# for Programmers by Harvey Deitel, Paul Deitel, Pearson Education
2. Balagurusamy; Programming in C#; TMH
3. **Web Commerce Technology Handbook** by Daniel **Minoli**, Emma **Minoli** , TMH
4. Web Programming by Chris Bates, Wiley
5. XML Bible by Elliotte Rusty Harold ,
6. ASP .Net Complete Reference by McDonald, TMH.
7. ADO .Net Complete Reference by Odey, TMH

## **List of Practical**

1. Working with call backs and delegates in C#
2. Code access security with C#.
3. Creating a COM+ component with C#.
4. Creating a Windows Service with C#
5. Interacting with a Windows Service with C#
6. Using Reflection in C#
7. Sending Mail and SMTP Mail and C#
8. Perform String Manipulation with the String Builder and String Classes and C#:
9. Using the System .Net Web Client to Retrieve or Upload Data with C#
10. Reading and Writing XML Documents with the XML Text-Reader/-Writer Class and C#
11. Working with Page using ASP .Net.
12. Working with Forms using ASP .Net
13. Data Sources access through ADO.Net,
14. Working with Data readers , Transactions
15. Creating Web Application.



**Data mining & Warehousing ( DCSE-603)**

Course code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		MST (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
DCSE -603	Data mining & Warehousing	3	1	2	6	70	22	20	100	30	09	20	50	150	3 hr

**UNIT-I**

**Marks : 14**

**FUNDAMENALS OF DATA MINING**

Data mining , The history of the data mining, Data Mining strategies Popular data mining techniques Data mining applications Challenges of data mining The future of data mining.

**UNIT-II**

**Marks : 14**

**DATA PROCESSING AND DATA WAREHOUSING**

Data, information and knowledge Types of data Data warehouses Data cleaning Data denormalization Data transformation Data quality measure OLAP(Online Analytical Processing) Data Sampling

**UNIT-III**

**Marks : 14**

**WEKA AN ATTRACTIVE DATA MINING TOOL**

**Introduction**

Installing Weka , Weka data file format Starting Weka Data Visualization Data filtering Selecting Attributes Data Mining with Weka

**UNIT-IV**

**Marks : 14**

**ASSOCIATION RULE MINING**

Transaction data Concepts of association rules Relevance of association rule mining Functions of association rule mining Improvement and share The problem of large datasets Apriority algorithm Strengthens and weakness of Association Rule Mining Application of Association Rule Mining

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Transaction data Concepts of association rules Relevance of association rule mining Functions of association rule mining Improvement and share The problem of large datasets Apriority algorithm Strengthens and weakness of Association Rule Mining Application of Association Rule Mining

## **UNIT-V**

**Marks : 14**

### **THE CLUSTERING TASK**

Introduction Distance Measure Types of clustering Clustering through Weka: K-Means algorithms Clustering Validation Strengthens and weakness of Clustering algorithms Applications of Clustering algorithms

### **THE ESTIMATION TASK**

Introduction Scatter plots and correlation Linear regression Models Logistic regression Regression analysis Strengthens and weakness of estimation Application of estimation

### **List of Practical**

1. Write a program for storing the transaction data (like item no. , price, date, quantity etc.) of shopping mall duration of one month and find out
  - (A) The total amount
  - (B) The day in which maximum transaction occur.
  - (C) The item that are purchased maximum times
  - (D) The item that are purchased minimum times
- 2 Use of WEKA tool.
- 3 Apply the association mining rule on problem no. 1
- 4 Apply the clustering technique on problem no.



**Database Management System (DCSE-604)**

Course code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
		L	T	P	C	Theory		MST (c)	Total (d = a+c)	Practical		TW (g)	Total (h= e+g )		
						Max (a)	Min (b)			Max (e)	Min (f)				
DCSE - 604	Database Management System	3	1	2	6	70	22	20	100	30	09	20	50	150	3

**Unit I**

**Marks : 14**

DBMS Concepts and architecture Introduction, Database approach v/s Traditional file accessing approach, Advantages, of database systems, Data models, Schemas and instances, Data independence, Data Base Language and interfaces, Overall Database Structure, Functions of DBA and designer, ER data model:Entities and attributes, Entity types, Defining the E-R diagram,Concept of Generalization, Aggregation and Specialization. transforming ER diagram into the tables. Various other data models object oriented data Model, Network data model, and Relational data model, Comparison between the three types of models.

**Unit II**

**Marks : 14**

Relational Data models: Domains, Tuples, Attributes, Relations, Characteristics of relations, Keys, Key attributes of relation, Relational database, Schemas, Integrity constraints. Referential integrity, Intension and Extension, Relational Query languages:SQL-DDL, DML, integrity constraints, Complex queries, various joins, indexing, triggers, assertions,Relational algebra and relational calculus, Relational algebra operations like select, Project,Join, Division, outer union. Types of relational calculus i.e. Tuple oriented and domain oriented relational calculus and its operations.

**Unit III**

**Marks : 14**

Data Base Design: Introduction to normalization, Normal forms, Functional dependency, Decomposition, Dependency preservation and lossless join, problems with null valued and dangling tuples, multivalued dependencies.Query Optimization: Introduction, steps of optimization, various algorithms to implement select, project and join operations of relational algebra, optimization methods: heuristic based, cost estimation based.

**Unit IV**

**Marks : 14**

Transaction Processing Concepts: - Transaction System, Testing of Serializability, Serializability of schedules, conflict & view serializable schedule, recoverability, Recovery from transaction failures. Log based recovery. Checkpoints deadlock handling.Concurrency Control Techniques: - Concurrency Control, locking Techniques for concurrency control, time stamping protocols for concurrency control, validation based protocol, multiple granularity. Multi version schemes, Recovery with concurrent transaction. Introduction to Distributed databases, datamining, datawarehousing, Object Technology and DBMS, Comparative study of OODBMS Vs DBMS . Temporal, Deductive, Multimedia, Web & Mobile database .





### **Unit V**

**Marks : 14**

Study of Relational Database Management Systems through Oracle/Postgres SQL/MySQL: Architecture, physical files, memory structures, background process. Concept of table spaces, segments, extents and block. Dedicated server, multi threaded server. Distributed database, database links, and snapshot. Data dictionary, dynamic performance view. Security, role management, privilege management, profiles, invoker defined security model. SQL queries, Data extraction from single, multiple tables equi-join, non equi-join, self-join, outer join. Usage of like, any, all, exists, in Special operators. Hierarchical queries, inline queries, flashback queries. Introduction of ANSI SQL, anonymous block, nested anonymous block, branching and looping constructs in ANSI SQL. Cursor management: nested and parameterized cursors, Oracle exception handling mechanism. Stored procedures, in, out, in out type parameters, usage of parameters in procedures. User defined functions their limitations. Triggers, mutating errors, instead of triggers.

### **Reference**

1. Date C J, "An Introduction To Database System", Pearson Educations
2. Korth, Silbertz, Sudarshan, "Fundamental of Database System", McGraw Hill

### **list of experiments: -**

1. Delete duplicate row from the table.
2. Display the alternate row from table.
3. Delete alternate row from table.
4. Update multiple rows in using single update statement.
5. Find the third highest paid and third lowest paid salary.
6. Display the 3rd, 4th, 9th rows from table.
7. Display the ename, which is start with j, k, l or m.
8. Show all employees who were hired the first half of the month.
9. Display the three record in the first row and two records in the second row and one record in the third row in a single sql statements.
10. Write a sql statements for rollback commit and save points.
11. Write a pl/sql for select, insert, update and delete statements.