Course Syllabi
Department of Sciences and Humanities

SCL101 MATHEMATICS PREPARATIVE (15 Lectures)

Contents:

Differential Calculus

Set theory, concept of functions, types of functions, limit, continuity, differentiability of functions, graphical representation of functions.

Integral Calculus

Basic concepts, Integration as a limit of sum, Elementary methods of integration (Integration by parts, by substitution and by partial fraction) Definite Integral basic rules, properties of definite integrals.

Geometry

Two dimensional geometry; straight lines, circle, conic sections.
Three dimensional geometry; coordinate system, planes and straight lines.

Text Books:

1. Thomas, G.B. and Finney R.L., Calculus and Analytic Geometry, 9th ed., Addison-Wesley, 2003.
2. Loney, S.L., The Elements of Coordinate Geometry: Cartesian Coordinates Part-1, AITBS Publishers, India, 2014.

SCL102 APPLIED MATHEMATICS-I (3-2-0-8)

Contents:

Differential Calculus

Functions of single variable: Limit, continuity and differentiability. Mean value theorems: Rolle's Theorem, Lagrange's theorem, Cauchy's theorem, Taylor's theorem with remainders, indeterminate forms, curvature, curve tracing.

Integral Calculus

Fundamental theorem of Integral calculus, mean value theorems, evaluation of definite integrals, Applications in Area, length, volumes and surface of solids of revolutions, Improper integrals: Beta and Gamma functions, differentiation under integral sign.

Infinte series

Sequences, Infinite series of real and complex numbers, Cauchy criterion, tests of convergence, absolute and conditional convergence, improper integrals, improper integrals depending on a parameter, uniform convergence, power series, radius of convergence.

Matrices

Rank of matrix, consistency of a system of equations, linear dependence and independence, linear and orthogonal transformations, Eigen values and Eigen vectors, Cayley – Hamilton theorem, reduction to diagonal form, Hermitian and skew Hermitian matrices, Quadratic forms.

Text Books:

1. Kreyszig, E., Advanced Engineering Mathematics, 9h ed., Wiley-India, 2013.
2. Piskunov, N.S., Differential and Integral Calculus (Vol. 1 and Vol. 2), CBS Publishers and Distributors Pvt. Ltd., 2000.

Reference Books:

1. Thomas, G.B. and Finney R.L., Calculus and Analytic Geometry, 9th ed., Addison-Wesley, 2003.
2. Greenberg, M.D., Advanced Engineering Mathematics, 2nd ed., Pearson Education, 2014.
3. Jain, R.K. and Iyengar, S.R.K., Advanced Engineering Mathematics, 4th ed., Narosa Publishers, 2014.

SCL103 APPLIED MATHEMATICS-II (3-2-0-8)

Contents:

Limit, continuity and differentiability of functions of several variables, partial derivatives and their geometrical interpretation. Euler's theorem on homogeneous functions, Total differentiation, chain rules, Jacobian, Taylor's formula, maxima and minima, Lagrange's method of undetermined multipliers.
Multiple Integrals: Double and triple integrals, change of order of integration, change of variables, application to area, volumes and C.G.

Vector Calculus

Scalar and vector fields, gradient of scalar point function, directional derivatives, divergence and curl of vector point function, solenoidal and irrotationalvector fields.
Vector integration: line, surface and volume integrals, Green's theorem, Stoke's theorem and Gauss divergence theorem (without proof)

Ordinary Differential Equations

First order differential equations: Exact equation, Integrating factors, Reducible to exact differential equations, Linear and Bernoulli's form, orthogonal trajectories, First order simultaneous differential equations.
Solutions of second and higher order linear equation with constant coefficients, Method of variation of parameters, Solution of Cauchy's equation, Application of first and second order differential equations.

Fourier Series

Fourier series for general interval, Fourier series for even and odd functions, half range sine and cosine series expansions, exponential form of Fourier series.

Text Books:

1. Kreyszig, E., Advanced Engineering Mathematics, 9th ed., Wiley-India, 2013.
2. Boyce, W.E. and DiPrima, R.C. Elementary Differential Equations and Boundary Value Problems, 10th ed., John Wiley and Sons, 2013.

Reference Books:

1. Thomas, G.B. and Finney R.L., Calculus and Analytic Geometry, 9th ed., Addison-Wesley, 2003.
2. Jain, R.K. and Iyengar, S.R.K., Advanced Engineering Mathematics, 4th ed., Narosa Publishers, 2014.
3. Greenberg, M.D., Advanced Engineering Mathematics, 2nd ed., Pearson Education, 2014.

SCL104 APPLIED PHYSICS (3-0-2-8)

Mechanics of solids (formulation of particles) and fluid
Quantum mechanics, mechanics wave nature of a particles uncertainty principal, postulates of quantum theory, Schrodinger equation and operators
Electromagnetics, interaction with electrons, electrostatic lense, electron gun cyclotron,
Waves, Mechanical waves
Optics: Diffraction, interference, thin films, photonic crystals, transmission through fibers, introduction to Lasers
Solid state physics, Crystal structures, atomic packaging miller indices, band theory, hall effects, conduction in semiconductors and devices, diodes, drift current and diffusion current.

Text Books:

1. Dommelen, L.V., Quantum Mechanics for Engineers, Dommelen, 2004.
2. Halliday, D., Resnick, R. and Walker, J., Principles of Physics, 9th ed., Wiley India, 2013.

Reference Books:

1. Beiser, A., Concepts of Modern Physics, 6th ed., Tata McGraw Hill, 2009.
2. Jenkins, F.A. and White, H.E., Fundamentals of Optics, 4th ed., Tata McGraw Hill, 2001.
3. Pillai, S.O., Solid State Physics, 6th ed., New Age International, New Delhi, 2010.
4. Avadhanulu, M.N. and Kshirsagar, P.G., A Textbook of Engineering Physics, 5th ed., S. Chand and Company Ltd., 2011.
5. Young, H.D., Sears and Zemansky's University Physics with Modern Physics, 13th ed., Pearson Education, 2014.
6. Ghatak, A.K. and Thyagarajan, K., Fiber Optics and Lasers: The Two Revolutions, Macmillan India Ltd., 2006.
7. Ghatak A.K., Optics, 5th ed., Tata McGraw Hill Education, New Delhi, 2012.

SCL105 APPLIED CHEMISTRY (3-0-2-8)

Contents:

Quantum Chemistry, Schrodinger Equation and its applications, particle in a box, wave function for hydrogen atoms.Atomic orbitals, and molecular orbitals, concept of bonding.
Physical chemistry, Kinetic theory reactions of various orders, Arrehenius equation, chain reaction enzyme kinetics, catalysis
Electrochemistry, Batteries and corrosion,
Inorganic chemistry, Co-ordination chemistry, organometallic compounds, bio-inorganic compounds
Organic chemistry, stereo chemistry, molecular orbital theory.
Synthesis of nano particles and nano molecules and Green chemistry.

Text Books:

1. Kuriacose J.C. and Rajaram J., Chemistry in Engineering and Technology, (Vol.1 & Vol.2) McGraw Hill.
2. Jain, P.C. and Jain, M., Engineering Chemistry, 15th ed., Dhanpat Rai Publishing Company, 2012.

References Books:

1. Dara, S. S., A Textbook of Engineering Chemistry, S. Chand and Company, New Delhi, 2008.
2. Vermani, O.P. and Narula, A. K., Industrial Chemistry, 1st ed., Galgotia Publications Pvt. Ltd., 2008.
3. Vairam, S. and Ramesh, S., Engineering Chemistry, Wiley India, 2013.

SCL201 APPLIED MATHEMATICS III (3-0-0-6) (ME/EE/CE)

Contents:

Integral Transforms

Laplace Transforms**:** Definition of Laplace Transforms, Linearity property, condition for existence of Laplace Transform, first and second shifting properties, transforms of derivatives and integrals, evaluation of integrals by Laplace Transform. Inverse Laplace Transform, Convolution Therorem, Laplace Transform of periodic functions, unit step function and Dirac delta function. Applications of Laplace Transform to solve ordinary differential equations.

Fourier Transforms: Fourier integral theorem, Fourier transform, Fourier Sine and Cosine Transforms, Linearity, Scaling, frequency shifting and time shifting properties, Convolution theorem.

Z-transform: Z-transform, Properties of Z-transforms, Convolution of two sequences, inverse Z-transform, Solution of Difference equations.

Numerical Methods

Solution of Algebraic and transcendental equations: Regula Falsi method, Newton-Raphson method, Newton Raphson method for system of nonlinear equations, and their convergence.

Solution of linear algebraic system of equations: LU Decomposition, Gauss-Seidal methods; solution of tridiagonal system.

Numerical Solution of first order differential equations and Simultaneous differential equations

Initial value problems: Taylor's, Euler's, Runge-Kutta methods, Finite difference approximations for derivatives, boundary value problems with explicit boundary conditions, implicit boundary conditions, Finite difference methods, Shooting method, Cubic splines and their application for solving two point boundary value problems.

Complex Analysis

Functions of a complex variable: continuity, differentiability, analytic functions, complex integration, Cauchy's integral theorem. Cauchy's integral formula, Taylor's theorem, Laurent's theorem, zeros of an analytic function, singularities, residue, Cauchy's residue theorem, contour integration, the fundamental theorem of algebra.

Conformal transformation, Bilinear transformation, Transformation by elementary functions.

Text Books:

1. Jain, M.K., Iyengar, S.R.K. and Jain, R.K., Numerical Methods for Scientific and Engineering Computation, 6th ed., New Age International, 2012.
2. Kreyszig, E., Advanced Engineering Mathematics, 9th ed., Wiley-India, 2013.

Reference Books:

1. Gerald, C.F. and Wheatley, P.O., Applied Numerical Analysis, 7th ed., Pearson Education, 2009.
2. Atkinson, K.E., An Introduction to Numerical Analysis, 2nd ed., John Wiley and Sons, 2004.
3. Spiegel, M.R., Schiller, J.J. and Srinivasan, R.A., Probability and Statistics, 4th ed., McGraw Hill, 2013.

SCL202 ELECTRONIC AND ELECTROMAGNETIC MATERIALS (3-2-0-8)

Contents:

Electrical Conduction: high conductivity and resistivity materials, effect of temperature and impurity on conductivity, resistivity of metals, conductivity of pure metals and alloys, temperature coefficient of resistivity, heating element, fuses, contact materials, connectors, switches, solders, fixed and variable resistor. Superconducticity and applications.

Polarization of Dielectrics: Polar and non-polar dielectrics, Basic concept of polarization, Types of polarization, Dielectric constant, Internal field in dielectrics, Ferroelectric, Spontaneous polarization, Curie-Weiss law, Piezoelectric and Pyro electric, Dielectric loss, Breakdown in dielectrics. Ceramic, dielectrics used in cables and transformers, Thin film Processes, Super Capacitors.

Magnetic Properties of Materials: Atomic interpretation of diamagnetic, Paramagnetic, anti-ferromagnetic and ferromagnetic materials, Ferromagnetic domain, permanent magnets and non magnetic steels, nonmetallic magnetic materials, magnetic materials for ferromagnetic tape and memory devices, ferrites.

Industrial lasers: Basic concepts, properties of Lasers, Different types of laser, Industrial application of lasers, drilling, cutting, welding, heat treatment, Optical Fiber Communication.

Text Books:

1. Pillai, S.O., Solid State Physics, 6th ed., New Age International, New Delhi, 2010
2. Dekker, A.J., Electrical Engineering Materials, Prentice Hall of India, New Delhi, 2013

Reference Books:

1. Krane, K.S., Modern Physics, 3rd ed., John Wiley, 2012.
2. Omar, M.A., Elementary Solid State Physics: Principles and Applications, 4th ed., Pearson Education, 2008.
3. Kasap, S.O., Principles of Electronic Materials and Devices, 3rd ed., Tata McGraw Hill, 2007.
4. Balasubramaniam, R., Callister's Materials Science and Engineering, Wiley India, 2009.
5. Puri, R.K. and Babbar, V.K., Solid State Physics and Electronics, S. Chand Limited, 2008.
6. Kittel, C., Introduction to Solid State Physics, 7th ed., Wiley India, 2008.

SCL203 PROBABILITY AND NUMERICAL METHODS (3-0-0-6) (CS/EC)

Contents:

Random Variable & Probability Distributions

Random Variables, Density function, distribution function for continuous and discrete R.V.Joint distributions, Distributions of functions of R.V. Mathematical Expectation, The variance and Standard deviation, Moment Generating Function, Characteristic Function. Some special probability distributions like Binomial, Poisson, Geometric, Normal, Uniform, Exponential and Gamma Distributions.

Random processes, continuous and discrete, deterministic, stationary, ergodicity etc. correlation functions, autocorrelation and cross-correlation, properties and applications of correlation functions.

Numerical Methods

NumericalSolutionof Algebraicand transcendental equations:
RegulaFalsi method, Newton-Raphson method,Newton Raphson method for system of nonlinear equations,and their convergence.Solution of linear algebraic system ofequations: LU Decomposition, Gauss-Seidal methods; solution of tridiagonal system.

Numerical Solution of first order differential equations and Simultaneous differential equations

Initial value programs:Taylor's, Euler's, Runge-Kutta methods, Finite difference approximations for derivatives, boundary value problems with explicit boundary conditions, implicit boundary conditions, Finite difference methods, Shooting method, Cubic splines and their application for solving two point boundary value problems.

Text Books:

1. Papoulis, A., Probability, Random Variables and Stochastic Processes, 4th ed., McGraw Hill, 2012.
2. Jain, M.K., Iyengar, S.R.K. and Jain, R.K., Numerical Methods for Scientific and Engineering Computation, 6th ed., New Age International, 2012.

Reference Books:

1. Spiegel, M.R., Schiller, J.J. and Srinivasan, R.A., Probability and Statistics, 4th ed., McGraw Hill, 2013.
2. Gerald, C.F. and Wheatley, P.O., Applied Numerical Analysis, 7th ed., Pearson Education, 2009.
3. Atkinson, K.E., An Introduction to Numerical Analysis, 2nd ed., John Wiley and Sons, 2004.

SCL204 DISCRETE MATHEMATICS (3-2-0-8) (CS/EC)

Contents:

Set theory, operations on sets-relation and functions, continuity, partial order, equivalence relations, Peano axioms and induction.

Mathematical logic, propositions, predicate logic, formal mathematical systems, algebra, homomorphism automorphism.

Elements of Theory of some algebras, semigroups, monoids, groups.

Rings, fields, lattices, bolean Algebra

Graphs, hypergraphs, transitive closure, trees, spanning trees

Combinatorics, generating functions, recurrences, Counting theorem and applications.

Text Books:

1. Babu Ram, Discrete Mathematics, Pearson Education, 2011.
2. Garnier, R. and Tayor, J., Discrete Mathematics: Proofs, Structures and Applications, 3rd ed., Taylor and Francis, 2010.

Reference Books:

1. Kolman, B., Discrete Mathematical Structures, 6th ed., Pearson Education, 2014.
2. Liu, C.L., Introduction to Combinatorial Mathematics, McGraw Hill, 1986.

SCL402 LINEAR ALGEBRA (3-0-0-6) (CS/EC)

Contents:

Matrices: Review of Matrix Algebra; Rank of matrix, Row reduced Echelon form,Solution of the matrix Equation Ax = b, Gauss elimination method,

Vector Space, Subspaces, Linear Dependence/Independence, Basis, Dimension, Range Space and Rank, Null Space and Nullity; Rank nullity theorem, Linear transformation, Matrix Representation of a lineartransformation, Linear Operators on R^n and their representation as square matrices, Invertible linear operators, Inverse of a non-singularMatrix, Eigenvalues and eigenvectors of a linear operator; properties of eigenvalues and eigenvectors ofHermitian, skew-Hermitian, Unitary, and Normal matrices (including symmetric,skew-symmetric, and orthogonal matrices), Characteristic Equation, Bounds on eigenvalues, Cayley Hamilton theorem, Diagonalizability of a linear operator. Inner Product Spaces, Norm, Orthonormal Sets, Gram Schmidt orthogonalisation process; projections and least squares approximation.
Optimization: Modeling and formulation of optimization problems, Linear programming and Simplex Algorithm (Big M and Two Phase Method), Duality and the primal dual method.

Text Books:

1. Hoffman, K. and Kunze, R.A., Linear Algebra, 2nd ed., Pearson Education, 2012.
2. Rao, S.S., Optimization: Theory and Applications, 2nd ed., New Age International Ltd., New Delhi, 1995.

Reference Books:

1. Krishnamurthy, V., Mainra, V.P. and Arora, J.L., An Introduction to Linear Algebra, East-West Press, 1976.
2. Bhattacharya, P.B., Jain, S.K. and Nagpaul, S.R., First Course in Linear Algebra, New Age International Publishers, 2005.
3. Datta, K.B., Matrix and Linear Algebra, Prentice Hall of India, New Delhi, 2006.

SCL403 PROBABILITY THEORY AND STATISTICS (3-0-0-6) (Optional)

Contents:

Random Variable & Probability Distributions

Random Variables, Density function, distribution function for continuous and discrete R.V.Joint distributions, Distributions of functions of R.V. Mathematical Expectation, The variance and Standard deviation, Moment Generating Function, Characteristic Function. Some special probability distributions like Binomial, Poisson, Geometric, Normal, Uniform, Exponential Gamma Beta, Chi-Square, Students 't', F-distribution and Weibull Distribution.

Statistics

Sampling Theory: Population Parameter, Sample Statistics, Sampling distributions, Sample mean, Sampling distribution of means, The Sample variance, and the sampling distribution of variance.
Estimation Theory: Point estimate and Interval Estimates, Reliability, Confidence interval estimates of population parameters, confidence intervals for means, proportions and variance.
Tests of Hypothesis and Significance: Statistical decisions, Tests of hypothesis and significance. Type I and Type II errors. Level of significance, one tailed and two tailed tests. Tests involving small samples and large samples .Fitting theoretical distributions to sample frequency distribution .The chi-square test for goodness of fit.

Text Books:

1. Parzen, E., Modern Probability Theory and Its Applications, John Wiley and Sons, 2013.
2. Miller, I. and Miller, M., John E. Freund's Mathematical Statistics with Applications, 7th ed., Pearson Education, 2013.

Reference Book:

1. Spiegel, M.R., Schiller, J.J. and Srinivasan, R.A., Probability and Statistics, 4th ed., McGraw Hill, 2013.

HML101 SOCIAL SCIENCE (2-0-0-4)

Contents:

Introduction

Social Sciences, Relationship between an individual and society, Utility for Engineers.
Humanities, history of Human civilization & brief history of science in India.
Society: Types & Characteristics.
Culture: Characteristics, Types & issues.

Industry and Society

Privatization, Liberalization and Globalization, Impact on Indian Society.
Industrial Fatigue.Reasons & remedial methods.
Job stress
Industrial psychology-Selection, training and motivation of employees.
Organization behavior & Industrial Leadership.

Study of political organization

Indian Constitution, Fundamental Rights, directive principals and RTI.

Main Social Problems in India

Illiteracy, Over Population, Corruption & Public Perception, Slums, migration, Poverty, Youth movement, Violence, rise of religious fundamentalism and Terrorism.

Text Books:

1. Shabbir, S., Sheikh, A.M and Dwadashiwar, J., A New Look into Social Sciences, S. Chand and Company Ltd., 2012.
2. Ahuja, R., Social Problems in India, 2nd ed., Rawat Publications, 2013.

Reference Books:

1. Bhushan, V. and Sachdeva, D.R., Fundamentals of Sociology, Pearson Education, 2012.
2. Sirohi, A., Fundamentals of Sociology, 1st ed., Dominant Publishers, New Delhi, 2012.
3. Chandra, R., Globalisation, Liberalisation, Privatisation and Indian Polity (set of 8 Vols.), Isha Books, Delhi, 2004.

HML102 PRINCIPLES OF INDUSTRIAL MANAGEMENT AND PSYCHOLOGY (3-0-0-6)

Contents:

Industrial Management, Scope and relevance, allied disciplines, Psychology, Industrial Sociology and Management, Evolution of Management thought, Principles of Industrial Management, Planning, Co-ordination and Communication, Types of Communication.
Industrial Psychology, Basic concepts Psychology, Learning, Perception and Motivation. Causes of Behavior, Individual differences, Intelligence and Personality, History of Industrial Psychology in India.
Understanding the word of work, Personnel and Human Resource Management, Fundamentals of Marketing Management, Consumer Behavior and advertising, Materials Management, ABC Analysis, ISO 9000 and ISO 14000.
Foundation of Group Behavior, Work Teams, Team Morale, Motivation, Importance and Nature, Theories of Motivation, Maslow, Aldermen, Herzberg and Norms theory of Motivation, Leadership in Industry, Nature and Types, Theories of Leadership.
Conflict and Negotiation, Conflict Management. Fatigue in Industry. Work stress. Nature and sources of stress, Individual difference, coping strategies, Employee counseling.Quality of work life.

Text Books:

1. Kaila, H.L., Industrial and Organisational Psychology (2 vols.), Kalpaz Publications, Delhi, 2006.
2. Talwar, P., Human Resource Management, Isha Books, Delhi, 2006.

Reference Books:

1. Mittal, M.L., Essentials of Educational Technology and Management, Pearson Education, 2012.
2. Baron, R.A. and et.al., Fundamentals of Social Psychology, Pearson Education, 2012.
3. Srivastava, S.K. and Kumari, P., Organisational Behaviour: A Comprehensive Study, Global Vision Publishing House, 2009.

HML103 INDUSTRIAL PSYCHOLOGY AND HUMAN RESOURCE MANGEMENT (3-0-0-6)

Contents:

Industrial Psychology, Basic concepts of Psychology, Learning, Perception and Motivation. Causes of Behavior, Individual differences, Intelligence and Personality, History of Industrial Psychology in India.
Job analysis, Job design and Job appraisals.Selection and recruitment, Selection procedure, Selection Methods, Types of Selection Tests.Intelligence, Personality, Aptitude and Psycho-Motor Tests.Training, Types of Training, Job Satisfaction.
Foundation of Group Behavior, Work Team Morale, Motivation, Importance and Nature, Theories of Motivation, Maslow, Aldeofer, Heazberg and Norms theory of Motivation, Leadership in industry, Nature and Types, Theories of Leadership.
Conflict and Negotiation, Conflict Management. Fatigue in Industry. Work stress. Nature and sources of stress, Individual differences, coping strategies, Employee counseling.Quality of work life.
Human Resource Management.Participation in Decision making.Collective bargaining.Trade Union Movement in India.MBO and Quality Circle Movement, Wage and Salary Administration.H.R.M. in Asia, Europe and U.SA.

Text Books:

1. Pandey, A., Psychology and Industrial Efficiency, Global Vision Publishing House, New Delhi, 2006.
2. Baer, R., Stress Management, Global Vision Publishing House, New Delhi, 2010.

Reference Books:

1. Dunn, W.C., Fundamentals of Industrial Instrumentation and Process Control, Tata McGraw Hill, 2005.
2. Hariharan, M., Padmaja, G. and Padhy, M., Trauma and Pain: Biopsychosocial Perspectives, 1st ed., Global Vision Publishing House,2011.
3. Singh, S., Human Resource and Managerial Development, 1st ed., Global Vision Publishing House, 2006.

HML104 INDUSTRIAL ECONOMICS (3-0-0-6)

Contents:

Industrial Economics its scope and utility Economics systems: Capitalist, Communist and mixed economy. Land system and agriculture, taxes, money and credit, trade and exchange rate. Population, size composition, quality and growth trend, occupational distribution. Division of Economy into private and public sector Role of public sector in Indian economy. Privatization, Urbanization, Westernization, Modernization and Globalization. Scope and significance of productivity, Measurement of productivity, Tools of productivity, Factors influencing on industrial productivity, National productivity council. Globalization India and WTO. Trade policy of government of India, Import and Export Policy, New trade policy IMF, World Bank and associates Economic planning in India, Employment and economics.

Text Books:

1. Mishra, R.C. and Pandey, R.S., Fundamentals of Financial Management, Global Vision Publishing House, 2010.
2. Chaudhary, M.A., History of International Trade and Monitory Economy, Global Vision Publishing House, 2008.

Reference Books:

1. Sivayya, K.V. and Das, V.B.M., Indian Industrial Economy, 5th rev. ed., S. Chand and Company, 1983.
2. Mishra, S.K. and Puri, V.K., Indian Economy: Its Development Experience, 29th rev. ed., Himalaya Publishing House, Mumbai, 2011.
3. Dutta, R. and Sundaram, K.P.S., Indian Economy, S. Chand and Company, New Delhi, 2002.

HML105 INDUSTRY AND SOCIETY (3-0-0-6)

Contents:

Factory as a social system Formal and inform organization. Impact of social structure on industry.Impact of industry on society.Changing profile of labour. Labour management Relation Participative Management Industrial Dispute and Trade union. Collective bargening, Industrial health and safety Impact of Industrialization on family, education, and stratification. Class and class conflict in industrial sector obstacles and limitation of industrialization. Migration of rural society to urban society Industrial Policy, Workers welfare legislation in India, Human Relation in Industry.Management and development program and employee training. Politics and society in current scenario

Text Books:

1. Moore, F., Environment and Society, 1st ed., Dominant Publishers and Distributors, New Delhi, 2003.
2. Sen, S., Human Rights in a Developing Society, APH Publishing Corporation, 2011.

Reference books:

1. Khanna, O.P., Industrial Engineering and Management, 7th ed., Dhanapat Rai and Sons, 1985.
2. Bhagoliwal, T.N, Economics of Labour and Industrial Relations, 5th ed., Sahitya Bhawan, 1982.
3. Murthy, C.S.V, Business and Ethics, APH Publishing House, New Delhi, 2003.
4. Bhowmik, S., Industry, Labour and Society, Orient Blackswan, New Delhi, 2012.

HML106 PERSONNEL MANAGEMENT AND INDUSTRIAL RELATION (3-0-0-6)

Contents:

Human behavior of an individual as a member as a small group and as a member of an organization, Influence of culture organizational on individual.
Analysis of dynamic behavior of organization by simulation structure of organization and flow of men, money, material, information capital, equipment and order, system models on the basis of policy of management to evolve effective policies for management.
Scope and objectives of personnel management, personnel planning, labour market, recruitment training and placement.
Job evaluation, merit rating wage incentives, employee health, security and welfare, morale and motivation, industrial disputes, voluntary and compulsory settlement trade unionism.
Labour legislationsPerformance appraisal and evaluation

Text Books:

1. Sharma, A., Management and Job Performance, Gyan Publication House, 1986.
2. Mathur, K.M., Managing Human Resource Development: An Indian Perspective, Gyan Publication House, 2001.

Reference Books:

1. Knouse, S.B., Human Resources Management Perspectives on TQM:Concepts and Practices, ASQC Quality Press, 1996.
2. Schuler, R.S., Managing Human Resources, 6th ed., South-Western College Publishing, 1998.
3. Mamoria, C.B., Mamoria, S. and Gankar, S.V., Dynamics of Industrial Relations, Himalaya Publishing House, New Delhi, 2008.

HMP102 SPOKEN ENGLISH (1-0-2-4)

Contents:

Listening Skills: Kinds of Listening, Hearing and Listening, Barriers in Listening, Enhancing Listening Skills.
Speaking Skills: Art of Speaking, Stages of Speaking, Speech Style and Techniques, Speech Mechanism: Organs of Speech, Sound and Speech, Vowels and Consonants, Dipthongs, Speech Process, Phonetics; Phonology, Phonemes, Stress, Rhythm, Intonation.
Developing Speaking Skills: Instructions, Dictation, Face to Face Communication, Meetings, Public Speaking, Group Discussion, Team Talk,
Presentations, Seminars, Conferences, Interviews Techniques, Mock Interviews, Telephonic Skills, Conversation Practice Based on Audio and Visual Aids, Dialogues Delivery, Speech and Debate, Speaking on a given topic, Extempore, Words Exercise and Words Games to enhance Self-Expression, Pronunciation Practices, Communication Games and Activities, Group Project.
Personality Development: Creativity, Mind Mapping, Time Management, Stress Management, Body Language, Attitude and Behaviour, Etiquettes and Manners.

Text Books:

1. Krishna Mohan and Banerji, M., Developing Communication Skills, 2nd ed., MacMillan Publishers India Ltd., 2013.
2. Seely, J., Oxford Guide to Effective Writing and Speaking, 3rd ed., Oxford University Press, 2013.

Reference Books:

1. Allen, W.S., Living English Speech, Orient Longman, Bombay, 1984.
2. Wallace, H.R. and Masters, L.A., Personality Development for Work, 7th ed., South-Western Educational Publication, 1996.
3. Carnegie, D. and Napolean Hill, Public Speaking, Editorial Benei Noaj, 2006.
4. Aslam, M. and Kak, A.A., Introduction to English Phonetics and Phonology, Cambridge University Press India Private Limited, 2007.

HMP103 WRITTEN ENGLISH (1-2-0-4)

Contents:

Grammar: Parts Of Speech, Determiners, Modals, Tenses, Active Passive, Direct Indirect, Transformation of sentences. Sentence Structure, Error Finding, Vocabulary Building: Synonyms, Antonyms, One word substitutions, Word formation, Idioms and Phrases, Homophones, Prefix, Suffix and Vocabulary Usage, Spelling,
Reading Comprehension
Composition: Verbal Input: Descriptive, Argumentative, Visual Input: Essay Writing, Report Writing, Note Making, Diary Entry, Professional Letter Writing, Drafting a job Application Letter, Guidelines for Preparing a C.V.
Communication: Meaning, Definitions, Types of Communication, Process, Levels, Barriers to communication, Communication in Professional Context, and Importance of Effective Communication. Technical Communication, Difference between General Writing and Technical Writing, Features of Technical Writing, Computer-aided Communication, Style in Communication.

Text Books:

1. Green, D., Contemporary English Grammar Structures and Composition, Macmillan Publishers India Limited, 2013.
2. Sen, L., Communication Skills, 2nd ed., PHI Learning Private Limited, Delhi, 2013.

Reference Books:

1. Murphy, R., English Grammar in Use: A Self-Study Reference and Practice Book for Intermediate Learners of English: With Answers, 4th ed., Cambridge University Press, 2013.
2. Greenbaum, S. and Nelson, G., An Introduction to English Grammar, 3rd ed., Pearson/Longman, 2010.
3. Rutherfoord, A.J., Basic Communication Skills for Technology, 2nd ed., Pearson Education, 2007.
4. Gerson, S.J. and Gerson, S.M., Technical Writing: Process and Product, 5th ed., Pearson Education, 2009.