

Chhattisgarh Swami Vivekanand Technical University, Bilai

Scheme of Teaching & Examination

B.E. V Semester Metallurgical Engineering

S. No	Board of Study	Subject Code	Subject	Periods per Week			Scheme of Exam			Total Marks	Credit L+ (T+P)/2
				L	T	P	Theory/practical				
							ESE	CT	TA		
1	Metallurgical Engineering	338511(38)	Engineering Economics	4	-	-	80	20	20	120	4
2	Metallurgical Engineering	338512(38)	Industrial Pollution and Control	3	1	-	80	20	20	120	4
3	Metallurgical Engineering	338513(38)	Principles of Extractive Metallurgy	3	1	-	80	20	20	120	4
4	Metallurgical Engineering	338514(38)	Mechanical Working Processes	3	1	-	80	20	20	120	4
5	Metallurgical Engineering	338515(38)	Transport Phenomenon in Metallurgical Process	3	1	-	80	20	20	120	4
6	Metallurgical Engineering	338516(38)	Physical Metallurgy	4	1	-	80	20	20	120	5
7	Metallurgical Engineering	338521(38)	Physical Metallurgy Lab	-	-	3	40	-	20	60	2
8	Metallurgical Engineering	338522(38)	Mechanical Working Processes Lab	-	-	3	40	-	20	60	2
9	Metallurgical Engineering	338523(38)	Transport Phenomenon Lab	-	-	3	40	-	20	60	2
10	Metallurgical Engineering	338524(38)	Principles of Extractive Metallurgy Lab	-	-	3	40	-	20	60	2
11	Humanities	300525(46)	Personality Development	-	-	2	-	-	20	20	1
12	Metallurgical Engineering	338526(38)	*Practical Training Evaluation and library	-	-	1	-	-	20	20	1
Total				20	5	15	640	120	240	1000	35

L - Lecture T - Tutorial P - Practical, ESE = End Semester Exam CT Class Test TA - Teacher's Assessment

* To be completed after IV Sem. and before the commencement of V Sem.

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI (C.G)**

Semester: Vth
Subject: Engineering Economics
Total Theory Periods: - 50
Total Marks in End Semester Exam: 80
Minimum number of class tests to be conducted: 2

Branch: Metallurgical Engineering
Code: 338511 (38)
Total Tut Periods – Nil

Unit 1 Introduction;

An idea of fundamental concepts of economics, its relationship with engineering and Technology. Factors of Production: Characteristics and importance of Demand and Supply analysis, elasticity of demand, Price determination, Laws of returns, monopoly. G.N.P. and National income: Importance, distribution, Direct and indirect taxes, taxes and industrial development, elementary idea of theory of employment.

Unit 2 Money, Banking and trades:

Meaning and function of money and bank, value of money and its fluctuations, Quantity theory of money, Gresham's law, Devaluation of money, foreign trade. Industrialization: Factory system of production, its advantages, limitations and problems, small scale industries, problems of small scale industries in India, Comparative merits and demerits of small and large scale industries.

Unit 3 Forms of Business Organizations.

Partnership, joint stock company cooperative societies, limited and unlimited liabilities. Financing by Banks and specialized institutions, stock exchange and money market, credit instruments, shares, debentures and bonds.

Unit 4 Valuation of assets

Depreciation, Depreciation accounting Methods of calculating depreciation. Book keeping and accounting:

Importance of accounting for engineers, engineer as a controller of finances, elements of double entry system of book-keeping, preparation of journal and ledger accounts, Interest and profit analysis, Trial balance, Manufacturing and profit and loss accounts, Balance sheet.

Unit 5 Cost Accounting and Cost Control:

Elements of cost, components of cost, cost accounting, procedure of costing, costing methods, cost control.

Name of Text Books :

1. Engineering Economics – By Tarachand.
2. Industrial Organisation and Engineering Economics, By T.R. Banga and S.C. Sharma.

Name of Reference Books :

1. Industrial engineering and Management system, Dalela, Dr. Mansoor Ali.
2. Engineering Economics, Accounts and Management By S. Prasad.
3. Industrial Engineering & Management By O.P. Khanna.

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI (C.G)**

Semester : Vth

Subject: Industrial Pollution and Control

Total Theory Periods: - 36

Total Marks in End Semester Exam: 80

Minimum number of class tests to be conducted: 2

Branch : Metallurgical Engineering

Code : 338512 (38)

Total Tut. Periods - 12

- Unit 1** Classification of pollutants & their sources, Biodegradable and non-biodegradable pollutants, Review of various types of pollution such as water, air, solid waste, sound pollution, thermal pollution, radiation pollution, metal pollution.
- Unit 2** Water Pollution – caused by various industries, water pollution in selected process industries: integrated steel plants, electroplating & metal finishing industries. NF industries waste water treatment technology in general; phy, chem.. & biological processes.
- Unit 3** Pollution control for Cr, Cd, Hg, As, Sb, Pb, Sn.
- Unit 4** Air Pollution – Gaseous and particulates; primary and secondary air pollutants, hazardous effect of fly ash. Air pollution in industrial units; ferrous and non-ferrous metallurgical industries such as Al, Zn, Pb.
Control of specific gaseous pollutants – SO₂, NO_x, CO₂, HC etc.
Preventive measures and equipments to reduce air pollution.
- Unit 5** Environmental aspects of sponge iron plants, pollutant emissions from alternative iron and steel making processes.

Solid waste from coal, steel, non-ferrous industries; different disposal techniques, waste utilization techniques.

Name of Text Books :

1. Air pollution – V. P. Kudesia
2. Pollution control in process industries – S.P. Mahajan
3. Environmental engineering – Pandey and Carney

Name of Reference Books :

1. Energy ecology, environment and society – Deswal and Deswal
2. Environment pollution – V.K. Prabhakar
3. Pollution and Health – P.K. Ray
4. Environmental Pollution control Engineering - Rao

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI (C.G)**

Semester : Vth
Subject: Principles of Extractive Metallurgy
Total Theory Periods : - 40
Total Marks in End Semester Exam : 80
Minimum number of class tests to be conducted: 2

Branch : Metallurgical Engg
Code : 338513 (38)
Total Tut Periods - 12

Unit 1 General Fundamentals:

Overview of Extractive Metallurgy Processes, their classification in Pyrometallurgy, Hydrometallurgy and Electrometallurgy Unit Operations and Unit Processes. Types of calculations performed for Quantitative process analysis and design in Extractive Metallurgy. Structure and Physical properties of high temperature melts, formation and function of slags and their calculations.

Unit 2 Pyrometallurgy –I (Ore preparation and reduction smelting):

Physico-chemical principles of unit processes of drying, calcinations and Agglomeration Equipments heat requirements/heat balances in shaft. Calcinations and moving bed grate sintering.

Sulphide roasting, use of Predominance area diagrams, types of reactions, Multiple-hearth vs. Flash and fluidized bed roaster, Heat balance in roasting, Autogenous roasting.

Reduction smelting Principles of liquid / liquid separation, types of furnaces, Thermodynamics of oxide reduction by CO / CO₂ gas mixture and Carbothermic reduction. Electric and blast furnace smelting and applications.

Unit 3 Pyrometallurgy-II

Metallothermic reduction, types of reductions, heat balance and reactors. Aluminothermic reduction, Silicothermic reduction and applications. Halide metallurgy principles, Carbothermic Zinc process of reduction its thermodynamic condition, vapour phase separation, heats of reaction.

Imperials smelting process its advantages. Matte smelting principles, its thermodynamics. Industrials smelting and converting. Flash smelting, continuous smelting, applications of matte smelting.

Metal –slag separation and fire refining and its equipment, thermodynamics and reaction equilibria. Specific example, Electro-refining.

Classification of other refining processes, theory of distillation, Refluxing column, Catalytic distillation examples and applications. Liquation, Parkes, Parkinson process of Cu/Fe/Zn removal from Pb. Harris process Zone refining principles, Vacuum refining, examples.

Unit 4 hydrometallurgy and Electrolytic Processes:

Leaching, its classification, leaching reagent and purification of leach liquor.

Principles of Electrolysis and its laws, arrangement in electrolytic cells, structure of electrolytic media. Current efficiency, voltage requirement, decomposition voltage and Ohmic drop in the electrolyte. Over voltage phenomena. Electrolysis in aqueous cells, electrolysis of fused salts.

Electrorefining and applications, Electrowinning and applications, Energy requirements in Electrometallurgy. Problems based on the above syllabus unit.

Unit 5 Introduction to production of Iron and Steel. Production of Cu, Zn and Al Plants producing these metals.

Name of Text Books :

1. Principles of Extractive Metallurgy – A. Ghosh and H.S. Ray, IIN Publications, Calcutata 1984
2. Principles of Extractive Metallurgy – Rosenquist, T., McGrawhill-Kogakusha Internation – 1983.
3. Unit Processes of Extractive Metallurgy – Pehalke, R.D. Elsevier, 1973

Name of Reference Books :

1. Theory of Metallurgical Processes – Volsky, A. and Sergievskaya, E.,MTH publishers, Moscow, 1971
2. Extraction of Non-ferrous Metals – Ray, Shridhar and Abraham, Associated East-West 3.Press Pvt. Ltd. Madras – 1985
3. Process Selection in Extractive Metallurgy – Hayes, Peter, SRA Publications Calcutta.

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI (C.G)**

Semester : Vth
Subject: Mechanical Working Processes
Total Theory Periods : - 40
Total Marks in End Semester Exam : 80
Minimum number of class tests to be conducted: 2

Branch : Metallurgical Engg
Code : 338514 (38)
Total Tut Periods - 12

Unit 1 Fundamental concept of metal forming, plastic behaviour, flow stress, yield criteria, shear stress, Von-mises theory classification of metal forming operations on the basis of cold, hot & warm working, effect of variables, speed of deformation, friction, lubricants, metallurgical structures, strain rate, temperature of metal working, heating of steels effect of incorrect heating, rate of heating.

Unit 2 Rolling- principle of metal rolling process, theory of longitudinal rolling, simple concept about angle of bite, spread, deformation coefficient, forward and backward slip, relationship between roll diameter and friction angle, specific roll pressure, power requirements.

Unit 3 Classification of rolling mills on the basis of roll arrangement, mill layout and products, rolling mill equipments
Classification of rolled products, blooms billets, slabs, plates, strips, sheets, wire rod etc. important considerations in roll pass design, Rolling defects.

Unit 4 Forging – Importance and characteristics of forging, fiber structure, open die and closed die forging typical forged products, Die materials, forging equipments, Hammers and presses, calculation of forging load, selection of press/hammer capacity, special forging processes rotary swaging, roll pressure, horizontal forging, forging defects and their removal.

Unit 5 Extrusion Types of variables, defects and typical products. Drawing – Types of drawing, wire drawing, deep-drawing, seamless tube making- various methods. Sheet metal forming- stretching, bending, shearing, trimming, caming, sizing etc. High velocity forming – significance of high velocity forming operations, principles, classification and applications.

Name of Text Books :

1. Mechanical Metallurgy – Dieter
3. Rolling mill practice – Polukhia
2. principles of metal working – Dr. Surendra Kumar

Name of Reference Books :

1. Theory of plastic working of metals – Masterovsky (mir)
2. Manufacturing processes – Linzberg
3. Rolling practice – Burtsev
4. Principles of rolling – Chaturvedi
5. forging Industry – Hand book ASM
6. forging Materials and practices – Subroff. Etal
7. Rolling Mill – ASM
8. Industrial Metal Working- Rowe
9. Forging Practice - Kamenschikov

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C.G)

Semester: Vth

Subject: Transport Phenomenon in Metallurgical process

Total Theory Periods: - 40

Total Marks in End Semester Exam: 80

Minimum number of class tests to be conducted: 2

Branch: Metallurgical Engg

Code: 338515 (38)

Total Tut Periods - 12

Unit 1 Fluid Flow:

Classification of fluids, Differential and total energy balances, Laminar and Turbulent flows. Flow through pipes and ducts, and beds of solids. Flow measurement, Application of dimensional analysis of fluid flow. Concept of boundary layer. Miscellaneous topics such as Bed and Particulate fluidization, Macroscopic mechanical energy balances, Chimney draft, air leakage from openings, molecular of Knudsen flow, etc. as in problems and exercises.

Unit 2 Heat Transfer I:

Steady –state and Transient conduction in solids. One dimensional steady state problems of heat flow through composite walls, Cylinder and Spheres.

Unsteady conduction in one dimensional system examples of heating and cooling of plates and cylinders, Use of Heisler charts and applications.

Convective heat transfer, equation of energy, free and forced convections.

Application of dimensional analysis to convection problem. Concept of heat Example, problems and exercises on the above.

Unit 3 Heat Transfer II:

Radiation , Nature of thermal radiation, Black and Grey bodies, Stefan and Boltzmann law, Kirchoffs laws, Intensity of radiation, lamberts law, View factor. Heat transfer between two black walls in an enclosure. Radiation shields, Radiation through opening in furnaces, radiation from flames and gases.

Combined effect of convection, conduction and radiation. Over all heat transfer coefficient. Example problems and exercises on systems of steady heat flow important in Metallurgy.

Unit 4 Mass transfer and kinetics:

Importance in Heterogeneous metallurgical systems of reactions. Steady one dimensional mass diffusion of component through stationary media. Convective mass transfer in fluids, concept of concentration boundary layer, Mass atransfer coefficient.

Heterogeneous reactions of metallurgical importance, Their rate controlling steps. Discussion of the following examples from metallurgical systems. Nucleation and growth and bubble formation phenomenon, Interfacial reaction, Carbon gasification by CO₂, slag-metal reaction at the interface, Topo chemical model of gas-sokid reaction.

Unit 5 Process Rate Calculation in Reactor Engineering:

Metallurgical reactors, classification with examples, Staged Operations of metallurgical engineering, Pyro metallurgical reactors. Intaroduction to area ctor kinetics, concept of retention times and other paarametaers of reactors. Analysis of rates in batch – type semi-batch type/cocurrent and counter current mode reactors. Introductory remarks on mixing and residence time-distribution in metallurgical reactors, determination of athe value of E.

Name of Text Books :

- (1) Ghosh and Ray – Principles
- (2) Geiger and Poirier – Transport Phenomenon in Metallurgy, Addition – Wilsley readings, U.S.A. – 1973
- (3) Rosenqvist – Principles of Extractive Metallurgy, Mc Graw Hill International, Singapore, 1983
- (4) Szekeley and Themelis-Rate Phenomenon in process metallurgy, Wiley Interscience, New-York-1971
- (5) Schumann, Jr, Metallurgical Engineering volume I, Addison Wilsley Readings, U.S.A. 1952
- (6) Coudurier, Hopkins and Wilkomirsky – Fundamental of Metallurgical Processes, Pergamon Press, Oxford, 1978
- (7) Ray, Sridhar and Aabraham – Extraction of Non-ferrous Metals, Associated East-West Press New-Delhi, 1985
- (8) Smith-Chemical Engineering kinetics, McGraw Hill New-York-1970
- (9) Bird, Stewart and Lightfoot-Transport Phenomenon, John Wiley and Sons Inc. New-York-1960

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C.G)

Semester: Vth

Subject: Physical Metallurgy

Total Theory Periods: - 50

Total Marks in End Semester Exam: 80

Minimum number of class tests to be conducted: 2

Branch: Metallurgical Engg

Code: 338516 (38)

Total Tut Periods - 12

Unit 1

Crystalline and amorphous materials, Elements of Crystallography, Crystal structure of Metals, Crystallographic notation of atomic planes and directions, Imperfections in metal crystals, Allotropy and isotropy in metals, single crystal and polycrystalline aggregates. Grain boundaries and shapes of metal grains. Structure of solid solutions, types of solid solutions, Intermediate phases and their structures.

Unit 2

Solidification of metals and alloys cooling curves, concept of nucleation and growth, Homogeneous and Heterogeneous nucleation, nucleation rate and growth rate, structure of metals ingots, Constitutional super cooling. Dendritic and other growth processes. Micro and macro-segregation, Porosity and inclusions. Concept of structure property relationship.

Unit 3

Types of phase changes, Binary equilibrium diagrams of various systems, with complete and partial solid solubilities involving eutectic and peritectic and other reactions. Syntectic, Monotectic, eutectoid and peritectoid reactions, lever rule, phase rule and their applications. Solid state transformations, ternary diagrams, order-disorder transformations. Experimental determination of liquids, solids and solvus lines.

Unit 4

Detailed study of Cu-Ni, Zn-Sn, Fe-C, Cu-Sn, Cu-Zn, Pb-Sn, Al-Si, Al-Cu and other important non-ferrous alloys. Babbit metals. Austenite to pearlite transformation. Free energy of solid solutions and eutectics. Limitations of equilibrium diagrams, coring.

Unit 5

Electrolytic polishing & Etching, Metallurgical microscope, Properties of objective viz- numerical aperture, Resolving power, magnifying power, depth of focus etc. Bright and dark field illumination, Polarized light microscope. High temperature metallography, thermal characterization of materials, (TGA/DTA/DSC) Measurements; Applications of dilatometric technique. TEM, SEM, Microprobe analyzer, EDR. Production of single crystals, Zone melting and refining.

Name of Text Books :

1. Introduction to Physical Metallurgy – Sydney H. Avner
2. Physical Metallurgy – Vijendra Singh

Name of Reference Books :

1. Physical Metallurgy for Engineers – Clark and Warne
2. Engineering Physical Metallurgy – Y. Lakhten
3. Physical Metallurgy Principles – Robert E. Reed Heel.
4. Modern Physical Metallurgy – R.E. Smallman
5. Principles of Metallographic laboratory practice - Kehl

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI (C.G.)**

Semester Vth

Branch: Metallurgical Engineering

Subject: Physical Metallurgy Lab

Practical Code: 338521 (38)

Total Practical Periods: 40

Total Marks in end Semester Exam: 40

Experiment to be performed

- Preparation of non-ferrous metal for microscopic studies.
- To carry out Electrolytic polishing of metals.
- Determination of decarburized layer thickness.
- Study of microstructure of stainless steels and other high alloy steels.
- To carry out Annealing of steels.
- Hardening of steel and study of associated microstructure and properties.
- Treating steel for having maximum machinability.
- To carry out normalizing of steel.
- Determination of oxide inclusions, with the help of oxide printing of steel
- Studying microstructure under dark field illumination.
- Microstructural analysis of plain carbon steels.
- Study of microstructures of cast irons.
- Study of microstructures of Brasses and bronzes.
- Study of microstructures of High Mn steels
- Study of microstructures of Al-Si alloys and bearing metals.
- Study of microstructures of Titanium alloys and other important non ferrous alloys.
- Study of Etching process and Etching reagents.
- Taking photograph of the given microstructure and its analysis.
- Image analyzer. Using Image analyzer
- Study of scanning electron microscope
- Study of transmission electron microscope.
- Study of Electron probe micro-analyser.

List of Equipments/Machine Required:

- Metallurgical microscope
- Mounting press.
- Metallograph for taking photograph of microstructures.
- Polishing Boards and polishing wheel
- Image analyzer
- TEM, SEM and electron probe micro-analyser

Recommended Books:

- Principles of Metallographic laboratory Practice by Kehl
- Metallography – by Williams and Homerberg.

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI (C.G.)**

Semester Vth

Branch: Metallurgical Engineering

Subject: Mechanical Working processes Lab

Code: 338522 (38)

Total Practical Periods: 40

Total Marks in end Semester Exam: 40

1. Rolling of metal strip
2. Calculation of – Angle of bite, C
 - Change in length
 - Change in width
 - Change in thickness
 - Spread
3. Study of various passes roll passes
4. Hot rolling of mild steel.
5. Study of microstructure of rolled product & rolling defects.
6. Study of various roll arrangements for rolling
7. Comparative study of Direct and Indirect Extrusion.
8. Designal Study of open and closed Die forging.
9. Cold work – anneal cycle of copper based alloys.
10. Drawing the Rolling mill layout.
11. Study of various forging equipments.
12. Calculation of forging Load.
13. Sheet Metal

List of Equipments / Machine Required

1. Rolling mill
2. Models
3. Charts
4. Tables
5. Drawing
6. Video Clipping (CD)

Recommended Books:

1. Metals Handbook
2. Making shaping and Treating of Metals
3. Production Engineering By Jain

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI (C.G.)**

Semester Vth

Branch: Metallurgical Engineering

Subject: Transport Phenomenon Lab

Code: 338523 (38)

Total Practical Periods: 40

Total Marks in end Semester Exam: 40

Experiment to be performed

- Determination of Heat Transfer in Natural Convection
- Determination of heat transfer in forced convection.
- Determination of thermal conductivity of metal Rod.
- Determination of Parallel flow/counter flow by heat exchanger
- Determination of thermal radiation by Steffen Boltzmann
- Determination of thermal conductivity of Insulating powder
- Determination of heat transfer through composite walls.
- Determination of Emissivity by Emissivity measurement apparatus.
- Fluid Bed heat transfer unit
- Determination of Temp. of different materials at a given time.

List of Equipments/Machine Required:

- Natural convectin unit
- Thermal conductivity unit
- heat Exchanger
- Stefen Boltzmann apparatus.
- Emmisivity measurement apparatus
- Barass Tub fitted in a rectangular duct in a vertical fashion
- thermocouple
- ammeter
- Voltmeter
- voltage stabilizer.

Recommended Books:

- Smith- Chemical Engineering Kinetics, Mc Graw Hill
- Bird, Steward and Light foot-Transport Phenomenon ,John Wiley

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI (C.G.)**

Semester Vth

Subject: Principles of Extractive Metallurgy Lab

Total Practical Periods: 40

Total Marks in end Semester Exam: 40

Branch: Metallurgical Engineering

Code: 338524 (38)

Experiment to be performed

1. Calcinations of ore
2. Multiple hearth roasting
3. Fluidized bed roasting
4. Carbothermic reduction
5. Metallothermic reduction
6. Zone-Refining
7. Leaching of different ore
8. Purification of leached liquor
9. Cementation
10. Electrowinning of metal
11. Electrorefining of metal
12. vacuum refining
13. Matte smelting
14. Electro slag refining
15. Halide metallurgy

List of Equipments/Machine Required:

1. Multiple hearth roaster
2. fluidized bed roaster
3. Carothermic reduction furnace
4. Meallothermic reduction equipment
5. Zone-refining machine
6. Leaching chemicals H₂SO₄, HCl etc.
7. ion-Exchanger instrument
8. Cementation equipment
9. Electrowinning equipment (voltmeter, Ammeter, resistors, chemical)
10. Electrorefining equipment.

Recommended Books:

1. Lab Manuals

2. Process Selection in Extractive Metallurgy – Hayes, Peter, SRA Publications Calcutta

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI**

Semester : B.E. V

Subject : **Personality Development**

No. of Periods : 2 pds/week

Total Marks in End Semester Exam. : NIL

Minimum number of class tests to be conducted : Two

Branch : **Common to All Branches**

Code : **300525 (46)**

Tutorial Periods : NIL

Teacher's Assessment : 20

Objective: The course is introduced to develop one's outer and inner personality tremendously and enrich the abilities to enable one to meet the challenges associated with different job levels. Personality Development is essential for overall development of an individual apart from gaining technical knowledge in the subject.

Unit – I

Personality concepts:

- What is Personality – **its physical and psychic aspects. How to develop a positive self-image. How to aim at Excellence. How to apply the cosmic laws that govern life and personality.**
- How to improve Memory. **How to develop successful learning skills. How to develop and effectively use one's creative power.**
- **How to apply the individual MOTIVATORS that make you a self-power personality.**

Unit – II

Interpersonal Skills:

- **Leadership:** Leaders who make a difference, Leadership: your idea, What do we know about leadership? If you are serious about Excellence. Concepts of leadership, Two important keys to effective leadership, Principles of leadership, Factors of leadership, Attributes.
- **Listening:** Listening skills, How to listen, Saying a lot- just by listening, The words and the music, How to talk to a disturbed person, Listening and sometimes challenging.
- **How to win friends** and influence people, How to get along with others. How to develop art of convincing others. How can one make the difference. How to deal with others particularly elders. Conflicts and cooperation.

Unit – III

Attitudinal Changes:

- **Meaning of attitude**, benefits of positive attitudes, how to develop the habit of positive thinking.
- **Negative attitude and wining:** What is FEAR and how to win it. How to win loneliness. How to win over FAILURE. How to win over PAIN. How to win over one's ANGER and others anger. How to overcome CRITICISM. What is stress and how to cope up with it? What is crisis and how to manage it.
- How to apply the **character MOTIVATORS** that elevate you and your personality to the top, the art of self motivation.
- How to acquire **mental well-being.**
- How to acquire **physical well-being.**
- How to formulate effective **success philosophy.**

Unit –IV

Decision Making:

How to make your own LUCK. How to plan goals/objectives and action plan to achieve them. How to make RIGHT DECISION and overcome problems. How to make a Decision. Decision making : A question of style. Which style, when ? People decisions : The key decisions. What do we know about group decision making ? General aids towards improving group decision making. More tips for decisions of importance.

Unit – V

Communication Skills:

- **Public Speaking:** Importance of Public speaking for professionals. The art of Speaking - Forget the fear of presentation, Symptoms of stage fear, Main reason for speech failure, Stop failures by acquiring Information; Preparation & designing of speech, Skills to impress in public speaking & Conversation, Use of presentation aids & media.
- **Study & Examination:** How to tackle examination, How to develop successful study skills.
- **Group discussions:** Purpose of GD, What factors contribute to group worthiness, Roles to be played in GD.

Reference Books:

1. How to develop a pleasing personality by Atul John Rego, Better yourself books, Mumbai, 2000.
2. How to Succeed by Brain Adams, Better Yourself books, Mumbai, 1969.
3. Basic Managerial skills for all by E. H McGrawth, Prentice Hall India Pvt Ltd, 2006.
4. The powerful Personality by Dr Ujjwal Patni & Dr Pratap Deshmukh, Medident Publisher, 2006.
5. Great Words win Hearts by Dr Ujjwal Patni, Fusion Books, 2006.
6. Personality : Classic Theories & Modern Research; friedman ; Pearson Education 2006.
7. How to win friends and influence people by Dale Carnigie, A.H. Wheeler 2006.