DETAILED SYLLABUS
SEMESTER-I
SCHEME OF TEACHING

SUB CODE	NAME OF SUBJECT	CONTACT HOURS PER WEEK		CREDITS	
		T	P	T	P
B101T	Human Anatomy Physiology & Health Education-I Theory	4	--	3	--
B101P	Human Anatomy Physiology & Health Education-I Practical	--	3	--	3
B102T	Pharmaceutical Inorganic Chemistry Theory	4	--	3	--
B102P	Pharmaceutical Inorganic Chemistry Practical	--	3	--	3
B103T	Pharmaceutics (Basic Principles) Theory	4	--	3	--
B103P	Pharmaceutics (Basic Principles) Practical	--	3	--	3
B104T	Pharmaceutical Calculations	4	--	3	--
B105P	Basic Computer Applications (Practical)	--	3	--	3
B106P	English and Communication Skill (Practical)	--	3	--	3
B107P	Library Assignment (Practical)	--	3	--	3
	Tutorial	2	--	--	--
	Total	36		30	

SCHEME OF EXAMINATION

SUB CODE	NAME OF SUBJECT	DURATION OF EXAM (HRS)		MARKS			
				THEORY		PRACTICAL	
		T	P	University level evaluation	Institute level evaluation	University level evaluation	Institute level evaluation
B101T	Human Anatomy Physiology & Health Education-I Theory	3	--	80	20	--	--
B101P	Human Anatomy Physiology & Health Education-I Practical	--	3	--	--	80	20
B102T	Pharmaceutical Inorganic Chemistry Theory	3	--	80	20	--	--
B102P	Pharmaceutical Inorganic Chemistry Practical	--	3	--	--	80	20
B103T	Pharmaceutics (Basic Principles) Theory	3	--	80	20	--	--
B103P	Pharmaceutics (Basic Principles) Practical	--	3	--	--	80	20
B104T	Pharmaceutical Calculations	3	--	80	20	--	--
B105P	Basic Computer Applications (Practical)	--	3	--	--	80	20
B106P	English and Communication Skill (Practical)	--	3	--	--	80	20
B107P	Library Assignment (Practical)	--	3	--	--	80	20
	Total	30		320	80	480	120

SUBJECT : **Human Anatomy Physiology & Health Education-I**
SUBJECT CODE : **B101T & B101P**
RATIONALE : The subject provides basic understanding structure and functions of the human body parts. The understanding of the subject will become the base for many subjects of the higher classes.

COURSE OBJECTIVES :

1) To understand structure and function of each body components from cellular level to system level
2) To understand how functions of each cell is integrated to make the entire body function with complete co-ordination.
3) To understand the various diseases related to disturbances in the body function.
4) To learn fundamentals of health, various dimensions of health, understanding of basic terminologies related to epidemiology and disease management and parameters for measuring health.
5) To learn some simple first aid techniques and management of emergency situations.

LEARNING OUTCOMES:

The student should be able to:

1) Draw and label the internal structure of cell, arrangement of tissues, important organs and body systems.
2) Narrate the functions of important organs and their sub-parts.
3) Provide the basis for physiological variations
4) Quantify the various components of blood and able to diagnose any abnormalities based on variations in the blood components.
5) Identify the important bones, body organs in the models.
6) Able to measure the radial pulse, Blood pressure and body temperature
7) Take ECG tracings and describe the significance of each wave.
8) Explain the cause, transmission, prevention and management of common communicable diseases.
9) Define various terminologies used in health.
10) Narrate various macro and micro-nutrients and provide their importance in maintenance of health.
11) Demonstrate the various first-aid techniques used in emergencies.
12) Narrate the various contraceptive methods, their merits and demerits.

PREREQUISITES:

The student should have basic knowledge of biology, physics and chemistry of HSC level.

TEACHING AND EVALUATION SCHEME:

SUB CODE	TITLE OF SUBJECT	TEACHING SCHEME			CREDITS		EVALUATION SCHEME				TOTAL MARKS
							INTERNAL		EXTERNAL		
		T	P	TOTAL HRS	T	P	T	P	T	P	
B101T & B101P	Human Anatomy Physiology & Health Education-I	4	3	7	3	3	20	20	80	80	200

CONTENT:

1	Scope of Anatomy and Physiology and terminology used in it.	02
2	Structure of cell, its components and functions: Body fluids & its composition, transport mechanisms across the cell membrane, Cell cycle	10
3	Elementary tissues of the human body: Epithelial, Connective Muscular and Nervous tissues, their sub-types and characteristics.	08
4	Osseous system: Structure, composition and functions of skeleton, classification of joints, types of movements at joints, disorders of joints.	08
5	Skeletal muscles: Gross anatomy, physiology of muscle contraction, properties of skeletal muscle and their disorders.	08
6	Haemopoietic system: Composition and functions of blood, and its elements, it's disorders, blood groups and their significance, mechanism of coagulation, disorders of coagulation.	15
7	Lymph and Lymphatic system: Composition, formation and circulation of lymph, disorders of lymphatic system; Basic physiology and functions of spleen.	08
8	Cardiovascular system: Basic anatomy and physiology of heart, blood vessels and circulation. Basic understanding of cardiac cycle, heart sound and electrocardiogram. Blood pressure and its regulation. Brief outline of cardiovascular disorders like hypertension, hypotension, arteriosclerosis, angina, myocardial infarction, congestive heart failure and cardiac arrhythmia	15
9	Respiratory system: Anatomy of respiratory organs, functions of respiratory system, mechanism and regulation of respiration, respiratory volumes and capacity	10
10	Classification of food requirements, balanced diet, nutritional deficiency disorders, their treatment and prevention, specifications for drinking water.	08
11	Demography and family planning: Demography cycle, family planning, various contraceptive methods.	04
12	First Aid: Emergency treatment of shock, snake bites, burns, poisoning, fractures and resuscitation methods	04

B101P Human Anatomy Physiology & Health Education-I Practical

1	Introduction to microscope.
2	To study the permanent slides of various tissue (part I).
3	To study the various tissue permanent slides of various tissue (part II).
4	To study the model of osseous system.
5	Introduction to haemoglobinometer and haemocytometer.
6	To estimate hemoglobin content (Hb %), oxygen carrying capacity and color index of own blood. (A) To find out the bleeding time & clotting time of own blood. (B) Introduction to measurement of ESR and its importance in various blood diseases.
7	To determine blood group of own blood.
8	To study the effects of osmotic pressure on RBCs.
9	To study the model of muscular system.
10	To study the model of cardiovascular system.
11	To examine radial pulse and body temperature of human subject.
12	To determine blood pressure of human subject and to study the effect of posture and exercise on blood pressure.
13	Demonstration and understanding of ECG (with various leads) and significance of different waves of ECG.
14	To record and measure lung volume and vital capacity of human subject.

	Health Education:
15	Introduction to food requirement, balanced diet and different types of nutrition using chart representation (seminar and discussion).
16	Introduction to first aid kit and prepare the first aid kit for home.
17	Study of various contraceptive techniques using chart (seminar and discussion).
18	Study of various contraceptive techniques using chart (seminar and discussion).
19	Chart representation of communicable diseases.
20	Chart representation of non communicable/common diseases.

BOOKS RECOMMENDED:

1. Principles Of Human Anatomy And Physiology By Tortora
2. Textbook Of Medical Physiology By Guyton And Hall
3. Basic Human Physiology By Guyton
4. Practical Anatomy And Physiology By C.L.Ghai
5. Review Of Medical Physiology By William F. Ganong
6. Practical Anatomy And Physiology By R. K. Goyal
7. Human Physiology By C. C. Chatterjee
8. Principles Of Anatomy And Physiology By Marieb
9. Principles of Anatomy and Physiology by Martini
10. The Living Body By Best And Taylor
11. Community Pharmacy by P.C. Dandiya
12. Biochemistry by Satyanarayan

SUBJECT : Pharmaceutical Inorganic Chemistry
SUBJECT CODE : B102T & B102P
RATIONALE : Some of the inorganic compounds are extensively used either as drugs or excipients. The subject will provide preparation, properties, and uses of these compounds. Also some simple methods for determining purity and quality of these compounds will be taught.

COURSE OBJECTIVES:

1) To learn the structure, preparation, properties and medicinal uses of various inorganic compounds.
2) To learn the methods used to determine purity and quality of inorganic medicinal compounds.

LEARNING OUTCOMES:

The student should be able to:

1) Describe the method of preparation, assay principle for testing purity, official methods to measure the quality and medicinal uses of important inorganic compounds.
2) Refer the Pharmacopeia (monographs and appendices) for the drugs they study.
3) Prepare some standard reagents used in testing purity and quality of inorganic compounds.
4) Conduct limit tests for heavy metals, iron, arsenic, lead, chloride, sulphates as per pharmacopeia.
5) Conduct quantitative tests to identify inorganic mixtures

PREREQUISITES: The student should be knowledgeable of the basic chemistry learnt till HSc level.

TEACHING AND EVALUATION SCHEME:

SUB CODE	TITLE OF SUBJECT	TEACHING SCHEME			CREDITS		EVALUATION SCHEME				TOTAL MARKS
							INTERNAL		EXTERNAL		
		T	P	TOTAL HRS	T	P	T	P	T	P	
B102T & B102P	Pharmaceutical Inorganic Chemistry	4	3	7	3	3	20	20	80	80	200

CONTENT:

An outline of method of preparation, uses, sources of impurities, tests for purity and identity, including limit tests for iron, arsenic, lead, heavy metals, chloride, sulphate and special tests if any, of the following classes of inorganic pharmaceutical included in the current Indian Pharmacopoeia:		
1	Acids, Bases and Gastrointestinal agents: Acids and Bases: Buffers, Water. Major Intra- and Extra-cellular Electrolytes: Physiological ions, Electrolytes used for replacement therapy, acid-base balance and combination therapy. Gastrointestinal Agents: Acidifying agents, Antacids, Protective and Adsorbents, Cathartics.	40
2	Major Pharmaceutically useful inorganic agents: Essential and Trace Elements: Transition elements and their compounds of pharmaceutical importance, Iron and hematinic, mineral supplements. Cationic and anionic components of inorganic drugs useful for systemic effects. Topical Agents: Protective, Astringents and Anti-infective. Gases and Vapors: Oxygen, Anesthetics and Respiratory stimulants. Dental Products: Dentifrices, Anti-caries agents.	40
3	Miscellaneous agents Miscellaneous Agents: Expectorants, emetics, poisons and antidotes, etc. Pharmaceutical Aids Used in Pharmaceutical Industry: Anti-oxidants, preservatives, adsorbents.	20

B102P Pharmaceutical Inorganic Chemistry Practical

The background and systematic qualitative analysis of inorganic mixture of up to four radicals. Six mixtures to be analyzed, preferably by semi-micro methods. All identification tests for Pharmacopoeial inorganic pharmaceuticals and qualitative tests for cations and anions should be covered.	
1	Introduction to chemicals and chemical hazards.
2	Qualitative analysis of given inorganic mixtures. (Preliminary tests)
3	Qualitative analysis of given inorganic mixtures. (cations)
4	Qualitative analysis of given inorganic mixtures. (cations)
5	Identification of Cations and Anions in (ORS) Oral Rehydration Salt Powder
6	To perform the chemical test for trace elements in the formulation.
7	Preparation of Boric acid or calcium Lactate
8	Qualitative analysis of given inorganic mixtures. (Anions)
9	Qualitative analysis of given inorganic mixtures. (Anions)
10	Qualitative analysis of given inorganic mixtures. (cations + Anions)
11	To perform the limit test for chloride and sulfate.
12	To perform the limit test for Iron and lead.
13	To perform the assay of hydrogen peroxide.
14	To perform the assay of Zinc oxide.
15	To Perform chemical tests for sodium citrate, sodium acetate and sodium potassium tartrate in the formulation.
16	Qualitative analysis of given inorganic mixtures. (cations + Anions)

LIST OF BOOKS

1. G.R. Chatwal, Pharmaceutical Chemistry-Inorganic, Volume – I, 2nd Edition, Himalaya Publishing House, Mumbai, 2005.
2. G. Svehla, Vogel's Qualitative Analysis, 6th Edition, Orient Longman Pvt. Ltd, New Delhi, 1994.
3. Dr. A.V. Kasture, Dr. S.G. Wadodkar, Pharmaceutical Chemistry – I, 1st Edition, Nirali Prakashan, Pune, 1993.
4. A.H. Backett, J.B. Stenlake, Practical Pharmaceutical Chemistry, First Indian Edition, CBS Publishers, Delhi, 1987.
5. The Indian Pharmacopoeia 2007, Volume-I, II & III, Controller of Publication, 2007.
6. J.H. Block, E.R. Rocne, T.O. Soinr, C.O. Wilson, Inorganic Medicinal and Pharmaceutical Chemistry, First Indian Reprint, Varghese Publishing House, 1986.
7. N.M. Shah, Practical Chemistry, 2nd Edition Reprint, Eton Press Pvt. Ltd., Bombay, 1967.
8. H.D. Gehani, S.M. Parekh, R.V. Bhagwat, Inorganic Chemistry, 3rd Edition, A.R. Sheth and Co., Educational Publishers, Bombay, 1965.
9. P. Gundu Rao, Inorganic Pharmaceutical Chemistry, 3rd Edition, Vallabh Prakashan, Delhi, 1999.
10. Dr. K.G. Bothara, Inorganic Pharmaceutical Chemistry, 1st Edition, Nirali Prakashan, Pune, 1994.
11. N.C. Chaudhary, N.K. Gurbani, Pharmaceutical Chemistry – I, 1st Edition, Vallabh Prakashan, Delhi, 1995.
12. V.V. Nadkarni, A.N. Kothare, P.S. Fernsndes, Semimicro Qualitative Analysis, 2nd Edition, Poular Prakashan, 1997.
13. T.O. Soine, C.O. Wilson, Roger's Inorganic Pharmaceutical Chemistry, 8th Edition, Lea and Febiger, USA, 1967.
14. A.G. Sharpe, Inorganic Chemistry, 3rd Edition, ELBS with Longman, UK, 1992.
15. M.S. Sethi, P.S. Raghawan, Concepts and Problems in Inorganic Chemistry, 1st Edition, Discovery Publishing House, New Delhi, 1998.
16. Bertini, Gray, Lippard, Velentine, Bioinorganic Chemistry, 1st Edition, Viva Books Pvt. Ltd., New Delhi, 1998.

SUBJECT : Pharmaceutics (Basic Principles)
SUBJECT CODE : B103T & B103P
RATIONALE : The subject is meant for exposing the student to different dosage forms, Routes of drug administration and their merits and demerits. Also the student will be provided knowledge of fundamental physical properties of compounds useful in manufacturing of drug formulations. The in depth understanding of some of the important basic processes used in Industry will also be taught.

COURSE OBJECTIVES:

1) To make student understand the different dosage forms and routes of administration.
2) To understand the important physical properties of compounds and its impact in preparation and stability of drug formulation
3) To understand the common processes used in manufacturing of drug formulations.

LEARNING OUTCOMES:
The student will be able to:

1) Narrate various dosage forms, routes of administration and their merits and demerits
2) Describe importance of environmental factors on drug manufacturing.
3) Explain some unit processes used in industry.
4) Describe the importance of certain physical properties of drugs and excipients and their utilization in drug manufacturing.

PREREQUISITES: The student knowledgeable of basic physics and chemistry can take this course well.

TEACHING AND EVALUATION SCHEME:

SUB CODE	TITLE OF SUBJECT	TEACHING SCHEME			CREDITS		EVALUATION SCHEME				TOTAL MARKS
							INTERNAL		EXTERNAL		
		T	P	TOTAL HRS	T	P	T	P	T	P	
B103T & B103P	Pharmaceutics (Basic Principles)	4	3	7	3	3	20	20	80	80	200

CONTENT:

1	General principles: Different dosage forms, Routes of administration and their comparisons, Environment control in Pharmaceutical industry and its importance, Importance of air, water, Humidity, Temperature in drug manufacturing giving some examples, Introduction to various processes in Pharmaceutical manufacturing units.	50
2	Principles of heat transfer: Modes of Heat transfer-Conduction, Convection, Radiation, Induction. Sources of heat—Steam and Electricity Factors affecting rate of evaporation, Differentiations between Evaporation, Distillation, Rectification, Precipitation, and Crystallization. Brief introduction to solvent distillation and its application. Different types of heat reactions—Heats of reactions and formations, Heat of melting, vaporization and sublimation, Differential and integral heat of hydration and solvation.	15

3	States of matter: Different states of matter-Solid, liquid, Gas., Crystalline and Amorphous, Hygroscopic-Efflorescent-Deliquescent Modified states of matter-Glassy state, Glass transition temperature, Liquid crystals, Liqui-solid compacts, Solid dispersions. Two component system containing solid—Solid liquid phases, Eutectic mixtures, Liquid liquid systems-Miscibilisation. Three component systems-Triangular diagram. Brief introduction to Aerosols and Inhalations.	15
4	Polymorphism: Polymorphism, Pseudo polymorphism, Solvates and Hydrates, Metastable forms? Examples of polymorphic drugs and effect on physicochemical properties.	3
5	Principles of fluid flow: Reynolds's Number, and its importance. Types of flow-Laminar flow, Intermediate flow, Turbulent flow. Importance of types of flow in Pharmaceutical processing. Brief application of flow meters.	5
6	Solubility and solubilization: Definitions and expressions Physical properties of different solvents and solutes and their effects on solubility Major pharmaceutical solvents –brief discussions. Liquid-liquid systems-Solubility and Miscibility. Partitioning between immiscible solvents and partition co-efficient Effect of pH on solubility—Dissociation constant. Solubilization techniques –Brief discussion.	10
7	Complexation: Classification of complexes and its applications.	2

B103P Pharmaceutics (Basic Principles) Practical

1	To prepare the list of market products as per physical form.
2	To prepare the list of market products as per route of administration..
3	To collect the data of environment requirements of various sections of Pharmaceutical industry.
4	To determine heat transfer co-efficient for given system.
5	To study steam table.
6	To study two component system –Preparation of eutectic mixture.(2)
7	To study the solubility relationship of 3-component system containing benzene, water and acetic acid (2)
8	To study the mutual solubility of given liquids (phenol, water) and find out upper consolute temperature.
9	To study polymorphism in cocoa butter.
10	To determine Reynold's Number. in given system.
11	To prepare Different pharmaceutical buffers.
12	To study the effect of co-solvency on solubility of given drugs.
13	To study the effect of pH on solubility of given drugs.
14	To determine buffer capacity of different buffers.
15	To study the effect of solubilizer on solubility of poorly soluble drugs.
16	To determine coefficients of different flow meters-Venturi meter, Orifice meter, Rotameter.
17	To rectify Alcohol water mixture using packed column and Plate column.

BOOKS RECOMMENDED

1. C.V.S, S. Pharmaceutical engineering, Principles and Practice, Vallabh Prakashan.
2. K., S. Pharmaceutical Engineering New age International publishers.
3. P., M. Elementary chemical engineering, The Mac Grow Hill.
4. Physical Pharmacy By Alfred Martin
5. Physical pharmaceutics, E. Shotton, Indian edition, oxford press.
6. Physico chemical principles of pharmacy, 5thedition,Alexander T. Florence and David Attwood. Pharmaceutical press.

SUBJECT : Pharmaceutical Calculations
SUBJECT CODE : B104T

RATIONALE : Lots of calculations are required in pharmacy profession which involves basic mathematics and knowledge of simple physics and chemistry principles. The course is intended to teach the student how such calculations are done. The subject will be fundamental for many of the subjects the student will encounter in future.

COURSE OBJECTIVES :
To make student learn the basic calculations a pharmacy professional is expected to do in his/ her professional life.

LEARNING OUTCOMES:
The student should be able to:
1) Carry out routine calculations involved in pharmacy profession.
2) Draw and understand different graphs

PREREQUISITES: Basic knowledge of arithmetic, physics and chemistry.

TEACHING AND EVALUATION SCHEME:

SUB CODE	TITLE OF SUBJECT	TEACHING SCHEME			CREDITS	EVALUATION SCHEME				TOTAL MARKS
						INTERNAL		EXTERNAL		
		T	P	TOTAL HRS		T	P	T	P	
B104T	Pharmaceutical Calculations	4	-	4	3	20	--	80	--	100

CONTENTS:

1	Rational numbers: • Proportional set of numbers. • Ratios • Fractions • Decimals • Percentage	10
2	Other numbers: • Exponents and Logarithms • Variables, Constants and Parameters • Graphical presentation of data-Different types of graphs (Line graph, Bar graph, Pie chart, Histogram etc.), Slope and Intercept.	10
3	Systems and units: • Mass and weights • Metric units • Conversions between systems • Temperature conversions and others.	10
4	Ratios, proportions, and percentage: • Percent calculations • Proportions	10

	• Concentration systems • Part per million • Calculation of amount of ingredients required to make up percentage solutions. • Conversion from one to another strength.	
5	Dilutions: • Simple dilutions • Serial dilutions • Concentrated solutions 'strengths • Multiple dilutions • Mixing concentrations	10
6	Density: • Determination of density, specific gravity • Determination of displacement value, Displacement volumes-solid-solid, liquid-liquid.	10
7	Molecular weight: • Moles, millimoles, milliequivalents, milliosmoles. • Molar concentrations.	10
8	Accuracy and measurements: • Rounding nos. • Significant figures • Correcting nos • Accuracy in arithmetic calculations • Accuracy in weighing, measuring for assays • Limits and uniformity of content	15
9	Parenteral solutions and isotonicity: • Rate of flow of IV solutions • Isotonicity	10
10	Alcohol calculations	05

LIST OF BOOKS:

1. A.J.Winfield, J.A.Rees, I. Smith, Pharmaceutical Practice, 4th edition, Elsevier publication.
2. Christopher A.L and D. B. Pharmaceutical Compounding and Dispensing, Pharmaceutical press.
3. D.P., G. Dosage Calculations, Delmar Publishers.
4. Don A.B. and T. W.G. Pharmacy Calculations, CBS Publisher.
5. Cooper and Gunn's Dispensing for Pharmaceutical students, ed. S.J.Carter, 12th edition. CBS Publisher.
6. Judith A.R, Ian S, et al. Introduction to Pharmaceutical Calculations, Pharmaceutical Press.

SUBJECT : Basic Computer Applications (Practicals)
SUBJECT CODE : B105P
RATIONALE : Computers have become essential component in any profession. Basic knowledge of computers for preparing documents, do calculations of data gathered during experiments and also draw graphs is must for any professional

COURSE OBJECTIVES : To learn proper usage of computers for preparing documents, conduct simple calculations and provide pictorial representation of data.

LEARNING OUTCOMES:
The student should be able to:
1) Prepare documents in MS-Word
2) Preparing data tables in MS-Excel
3) Do calculation in MS-Excel of the data collected from various experiments using simple operations and formulas.
4) Draw Graphs in MS-Excel

PREREQUISITES: Basic computer operations

TEACHING AND EVALUATION SCHEME:

SUB CODE	TITLE OF SUBJECT	TEACHING SCHEME			CREDITS	EVALUATION SCHEME				TOTAL MARKS
						INTERNAL		EXTERNAL		
		T	P	TOTAL HRS		T	P	T	P	
B105P	Basic Computer Applications (Practicals)	-	3	3	3	--	20	--	80	100

CONTENTS:

1	Computer Fundamentals: MS-Office, Networking and Internet,
2	MS-Word Preparation of documents that include text, tables, figures, calculation steps and formatting of such documents.
3	MS-Excel To perform calculations for Chemical kinetics (zero and first order) Area under curve Solubility, buffers, filtration, acid-base titration, oxidation-reduction Physical Pharmaceutics and Pharmaceutical Engineering Preparation of graphs

BOOKS RECOMMENDED

1. Manuals provided with the licensed version of the software
2. Computer Applications and Basic Biostatistics: H. B. Bhadka, Dr. N. N. Jani, Dr. G. R. Kulkarni, Akshat Publications

SUBJECT : English and Communication Skill (Practical)
SUBJECT CODE : B106P
RATIONALE : English Communication is becoming the important skill for pharmacy professionals. Also at professional level the students good in communication have better career opportunities.

COURSE OBJECTIVES:
To learn basic communication skills (oral and written)

LEARNING OUTCOMES:
The student should be able to communicate well both verbally and in written form at various levels such as at interviews, group discussion, letter writing, writing proposals etc.
PREREQUISITES: Basic English

TEACHING AND EVALUATION SCHEME:

SUB CODE	TITLE OF SUBJECT	TEACHING SCHEME			CREDITS	EVALUATION SCHEME				TOTAL MARKS
						INTERNAL		EXTERNAL		
		T	P	TOTAL HRS		Theory	Practical	Theory	Practical	
B106P	English and Communication Skill (Practical)	-	3	3	3	---	20	---	80	100

CONTENTS:

Exercises based on following will be given to students:	
1	Communication Process, Types of Communication
2	Verbal and non-verbal communication
3	Listening skills
4	Effective presentation Strategies
5	Interviews
6	Group Discussions
7	Paragraph Development
8	Letter writing
9	Preparing Technical Reports, proposals, descriptions
10	Effective reading skills
11	Job application
12	Grammar and Vocabulary
13	Medical Vocabulary, Introduction to prefixes and suffixes applied in medical terminology

REFERENCE BOOKS:

1) Raman M., and Sharma S., Technical Communication Principles and Practice. Oxford Publication 2008
2) Anderson, P.V. Technical Communication- A reader centred Approach.
3) Dorland's Illustrated Medical Dictionary
4) Oxford English Dictionary.