

SNDT Women's University

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Premila Vithaldas Polytechnic

Syllabus – Diploma in Pharmacy



SNDT Women's University
1, Nathibai Thackersey Road,
Mumbai 400 020
Revised – 2008

DIPLOMA IN PHARMACY
REVISED CURRICULUM
2008

PREMLILA VITHALDAS POLYTECHNIC
SNDT WOMENS' UNIVERSITY
JUHU ROAD, SANTACRUZ (W)
MUMBAI 400049

Goals and Objectives

- To impart quality technical education in pharmacy as per the statutory norms under education regulation-1991 of Pharmacy Council of India for Diploma in Pharmacy.
- To develop professionalism within every student Pharmacist for Pharmaceutical services and patient care under Hospital and Community Pharmacy.
- To orient the prescribed curriculum towards changing needs of professional practice and provide required opportunity to student pharmacist for learning new concepts under hospital & Community Pharmacy.
- To identify the student pharmacist having entrepreneurial qualities and motivate them to participate in modular courses, organized in and out of institution for owning a Pharmacy, as a best career option.
- To establish the concept of family Pharmacist for health care.

Restructuring of Syllabus & Reforms in Examination

SYLLABUS FORMAT

Faculty Name: Technology

Course Name : Dip. in Pharmacy

SCHEME: Semester I										
Paper Code	Subjects	L	P	T	D	TP	TW	P/V	T	Credit
1001	Pharmaceutics - I	2	4	-	2 hrs	25	25+25	25	100	4
1002	Pharmaceutical Chemistry - I	2	2	-	2 hrs	25	25	25	75	3
1003	Pharmacognosy	2	2	-	2 hrs	25	25	25	75	3
1004	Bio-Chemistry & Clinical Pathology	2	2	-	2 hrs	25	25	25	75	3
1005	Human Anatomy & Physiology	2	2	-	2 hrs	25	25	25	75	3
1006	Health Education & C. Pharmacy	2	-	-	2 hrs	25	25	-	50	2
1007	Skills in Language Communication	2	-	-	2 hrs	25	25	-	50	2
1008	Personality Development	2	-	-	2 hrs	25	25		50	2
	Total	16	12			200	225	125	550	22

SCHEME: Semester II										
Paper Code	Subjects	L	P	T	D	TP	TW	P/V	T	Credit
2001	Pharmaceutics-I	3	2	-	2hrs	50	25	25	100	4
2002	Pham. Chemistry - I	3	2	-	2 hrs	50	25	25	100	4
2003	Pharmacognosy	3	2	-	3 hrs	50	25	25	100	4
2004	Biochemistry & Clinical Pathology	2	2	-	2 hrs	25	25	25	75	3
2005	Human Anatomy & Physiology	3	2	-	2 hrs	50	25	25	100	4
2006	Health Education & C. Pharmacy	2	-	-	2 hrs	25	25	-	50	2
2007	Skills in Language Communication	2	-	-	2 hrs	25	25	-	50	2
	Total	18	10			275	225	125	575	23

SCHEME: Semester III										
Paper Code	Subjects	L	P	T	D	TP	TW	P/V	T	Credit
3001	Pharmaceutics-II	2	4	-	2 hrs	25	25+25	25	100	4
3002	Pham. Chemistry - II	3	2	-	2 hrs	50	25	25	100	4
3003	Pharmacology & Toxicology	2	2	-	2 hrs	25	25	25	75	3
3004	Pharmaceutical Jurisprudence	2	-	-	2 hrs	25	25	-	50	2
3005	Drug Store & Business Management	2	-	-	2 hrs	25	25	-	50	2
3006	Hospital & Clinical Pharmacy	2	2	-	2 hrs	25	25	25	75	3
3007	Computer Skills	-	4	-	2 hrs	-	25	25	50	2
3008	Skills in Language Communication	2	-	-	2 hrs	25	25	-	50	2
	Total	15	14			200	250	125	550	22

SCHEME: Semester IV										
Paper Code	Subjects	L	P	T	D	TP	TW	P/V	T	Credit
4001	Pharmaceutics-II	3	2	-	2hrs	50	25	25	100	4
4002	Pham. Chemistry - II	3	2	-	2hrs	50	25	25	100	4
4003	Pharmacology & Toxicology	3	2	-	2hrs	50	25	25	100	4
4004	Pharmaceutical Jurisprudence	2	-	-	2 hrs	25	25	-	50	2
4005	Drug Store & Business Management	3	-	-	2hrs	50	25	-	75	3
4006	Hospital & Clinical Pharmacy	3	2	-	2 hrs	50	25	25	100	4
4007	Skills in Language Communication	2	-	-	2 hrs	25	25	-	50	2
	Total	19	8			300	175	100	575	23

SCHEME: Semester V Internship	
12 weeks / 500 hrs/ in Hospital Pharmacy	10 credits
12 weeks / 500 hrs/ in Hospital Pharmacy	10 credits

SCHEME: Semester I									
Subjects	L	P	T	D	TP	TW	P/V	T	Credit
Pharmaceutics - I	2	4	-	2 hrs	25	25+25	25	100	4
Pharmaceutical Chemistry - I	2	2	-	2 hrs	25	25	25	75	3
Pharmacognosy	2	2	-	2 hrs	25	25	25	75	3
Bio-Chemistry & Clinical Pathology	2	2	-	2 hrs	25	25	25	75	3
Human Anatomy & Physiology	2	2	-	2 hrs	25	25	25	75	3
Health Education & C. Pharmacy	2	-	-	2 hrs	25	25	-	50	2
Skills in Language Communication	2	-	-	2 hrs	25	25	-	50	2
Personality Development	2	-	-	2 hrs	25	25		50	2
Total	16	12			200	225	125	550	22

Semester – I
1001 Pharmceutics-I (Th.) No.of Hrs – 30 (2 hrs/wk.)
Credits-2

Sr. no.	Topic/Subtopic	No. of lecture assigned	Percentage Weightage
1	Introduction of different dosage forms <ul style="list-style-type: none"> • Classification with examples • Relative applications • New drug delivery system 	3	15
2	Introduction of pharmacopoeias <ul style="list-style-type: none"> • Introduction • Indian pharmacopoeia 	1	5
3	Metrology <ul style="list-style-type: none"> • Percentage calculation & adjustment of products • Allegation method • Isotonic solutions 	2	5
4	Packing of pharmaceuticals <ul style="list-style-type: none"> • Study of glass, plastic as material for containers • Rubber as a closure • Aerosol packaging 	3	5
5	Size reduction <ul style="list-style-type: none"> • Hammer mill • Ball mill • Fluid energy mill • Disintegrator 	2	10
6	Size Separation <ul style="list-style-type: none"> • Introduction • Official Standard for powders • Sedimentation methods of size separation • Cyclone separator 	2	10
7	Mixing and Homogenization <ul style="list-style-type: none"> • Liquid mixing and powder mixing • Mixing of semisolids sliverson Mixer-Homogeniser, Planetary Mixer, Agitated powder mixer, Triple Roller Mill, Propeller Mixer, Colloid Mill and Hand Homogeniser, Double cone Mixer 	3	10
8	Clarification and Filtration <ul style="list-style-type: none"> • Theory of filtration, Filter media, Filter aids and selection of filters • Filter press, Sintered Filters, Filter candles, Metafilter 	3	10

Sr. no.	Topic/Subtopic	No. of lecture assigned	Percentage Weightage
9	Extraction and Galenicals <ul style="list-style-type: none"> • Study of percolation and maceration and their modification, continuous hot extraction- Application in the preparation of tinctures and extracts • Introduction to Ayurvedic Dosage forms 	3	10
10	Heat processes Evaporation <ul style="list-style-type: none"> • Definition factors affecting evaporation- Study of evaporating still and Evaporating pan 	2	5
11	Distillation <ul style="list-style-type: none"> • Introduction, Simple distillation and Fractional distillation, Steam distillation and vacuum distillation, Study of vacuum still • Preparation of Purified water I.P. and water for injection I.P. Construction and working of the still used for the same 	4	10
12	Drying process <ul style="list-style-type: none"> • Introduction • Study of Tray Dryers, Fluidized Bed Dryer, Vacuum Dryer and Freeze Dryer 	2	5

Semester – I

**1002 Pharmceutics-I. (Pr.) No. of Hrs – 60 (4hrs/ wk.)
Credits-2**

Sr. No.	Topics	No. of hrs.
1	Preparation of the following categories illustrating different techniques involved <ul style="list-style-type: none">• Aromatic waters• Solutions• Spirits• Tinctures• Extracts	12 16 8 16 8

Semester – I
1003 Pharmaceutical Chemistry-I (Th.) No.of Hrs – 30 (2 hrs/wk.)
Credits-2

Sr. no.	Topic/Subtopic	No. of lecture assigned	Percentage Weightage
1	Gastrointestinal agents I. Acidifying agents dil. Hydrochloric acid II. Antacids III. Protectives & Adsorbents IV. Saline Cathartics	1 4 3 2	3 10 5 5
2	Acid Bases and Buffers I. Theories of acid and bases II. Preparation properties & uses of acids. III. Preparation properties & uses of bases IV. Buffer (names, formula, action of buffers, importance in pharmacy)	2 3 2 2	4 7 8 8
3	Antioxidants:- I. Definition theories of antioxidants II. Antioxidants compounds preparation, properties, uses	1 3	5 10
4	Quality control of drugs & pharmaceuticals I. Importance of quality control, control assurance, CGMP II. Significant errors III. Methods used for quality control IV. Sources of impurities in pharmaceuticals V. Limit tests VI. Assay methods acidimetry alkalimetry.	1 1 1 1 2 1	5 5 5 5 10 5

Semester – I
1004 Pharmaceutical Chemistry-I (Pr.) No.of Hrs – 30 (2 hrs/wk.)
Credits-2

Sr.no.	Topic	No. of hrs.
1	Identification tests for inorganic compounds particularly drugs and pharmaceuticals	18
2	Limit test for chloride, sulfate	12

Semester – I
1005 Pharmacognosy (Th.). No.of Hrs – 30 (2 hrs/wk.)
Credits-2

Sr. No.	Topics/subtopics	No. of Lectures assigned	Percentage Weightage
1	Definition, History and Scope of Pharmacognosy, Indigeneous system of medicine.	2	5
2	Various systems of classification of drugs of natural origin.	2	5
3	Adulteration and evaluation of drug. Significance of pharmacopoeial standards.	5	10
4	Brief outline of occurrence Distribution, isolation(outline) identification Tests, therapeutic effects. Pharmaceutical applications:-Terpenoids, glycosides, tannins and lipids.	9	30
5	Occurrence, distribution, organoleptic evaluation, chemical constituents, chemical tests, therapeutic efficacy of the following drugs:- a) Pharmaceutical Aids: Honey, Arachis oil, Starch, Kaolin, Pectin, Lanolin, Bees-wax, Acacia, Tragacanth, Sodium alginate, Agar, Guar gum, Gelatin, Olive oil. b) Enzymes: Diastase, c) Laxatives: Aloes, Rhubarb, Castor oil, Ispaghula, Senna. d) Cardiotonics: Digitalis, Arjuna. e) Astringents: Catechu. f) Vitamins: Shark liver oil. g) Perfumes flavoring Agents: Peppermint oil, Lemon oil, Orange oil, Lemon grass oil. h) Miscellaneous: Licorice.	12	50

Semester – I
1006 Pharmacognosy-I (Pr.) No.of Hrs – 30 (2 hrs/wk.)
Credits-1

Sr.no.	Topic	No. of hrs.
1	Identification of drugs by Morphological characters	10
2	Evaluation of drugs – Physical and Chemical test	12
3	Gross Anatomical studies of the drugs (transverse section)	8

Semester – I
1007 Biochemistry & Clinical Pharmacy (Th.) No.of Hrs – 30 (2 hrs/wk.)
Credits-2

Sr. No.	Topic/Subtopic	No. of Lectures	Percentage weightage
1	Introduction to Biochemistry	1	5
	CARBOHYDRATES		
2	a)Chemistry and role of carbohydrates,classification	9	30
	b)Properties of Monosaccharides, Dissacharides,Polysaccharides		
	c)Qualitative tests for sugar identification		
	d)Diseases related to carbohydrate metabolism		
3	PROTEINS AND AMINO ACIDS	9	30
	a)Defn ,chemistry and role of proteins & amino acids & their classification		
	b)Qualitative tests & biological value of proteins		
	c)Deficiency diseases		
4	METABOLISM	8	20
	Brief Concept of normal & abnormal metabolism of carbohydrates & proteins		
	a)Glycolysis,TCA cycle		
	b)Urea cycle & protein biosynthesis		
5	BODY WATER & MINERALS	3	15
	Role of minerals & water in life processes		

Semester – I
1008 Biochemistry & Clinical Pathology (Pr.) No. of Hrs – 30 (2hrs/ wk.)
Credits-1

Sr. No.	Topics	No. of hrs.
1	Detection and identification of Proteins, Amino Acids, Carbohydrates and lipids	14
2	Analysis of normal and abnormal constituents of Urine	10
3	Qualitative determination of Blood Glucose <ul style="list-style-type: none"> • Determination of total protein and urinary protein • Determination of total albumin inserum 	6

Semester – I
1009 Human Anatomy & Physiology (Th.) No.of hours : 45 (3 hrs./wk.)
Credit :3

Sr. no.	Topic / Subtopic	No. of lecture assigned	Percentage Weightage
1	Scope of Anatomy & Physiology	1	5
2	Structure of cell, function of its components with reference to mitochondria and microsomes	2	5
3	Elementary tissues of the body <ul style="list-style-type: none"> • Epithelial tissue, muscular tissue, connective tissue, nervous tissue 	2	6
4	Structure and function of skeleton <ul style="list-style-type: none"> • Classification of joints and their function, Joint disorder 	4	10
5	Composition of blood <ul style="list-style-type: none"> • Function of blood, elements , Blood group and coagulation of blood brief information regarding disorders of blood 	4	15
6	Name and function of lymph glands	2	4
7	Structure and functions of various parts of the heart <ul style="list-style-type: none"> • Arterial and venous system with special reference to the names and positions of main arteries and veins. Blood pressure and its recording. Brief information about cardiovascular disorders 	5	15
8	Various parts of respiratory system and their functions <ul style="list-style-type: none"> • Physiology of respiration 	10	10
9	Various parts of urinary system and their functions. <ul style="list-style-type: none"> • Structure and functions of Kidney • Physiology of Urine formation • Pathophysiology of renal diseases and oedema 	10	15
10	Structure of skeletal muscle <ul style="list-style-type: none"> • Physiology of muscle contraction • Names, position, attachments and functions of various skeletal muscles • Physiology of neuromuscular junction 	5	15

Semester – I
1010 Human Anatomy & Physiology (Pr.) No.of hours : 30 (2 hrs/wk.)
Credit :1

Sr. No.	Topics	No. of hrs.
1	Study of human skeleton	6
2	Study with the help of charts and models of the following systems and organs <ul style="list-style-type: none"> • Respiratory System • Cardiovascular system • Urinary System 	18
3	Microscopic examination of epithelial tissue, cardiac muscle, smooth muscle. Skeletal muscle. Connective tissues and nervous tissues.	6

Semester – I
1011 Health Education & Community Pharmacy (Th.) No.of Hrs – 30 (2 hrs/wk.)
Credit :2

Sr. no.	Topic / Subtopic	No. of lecture assigned	Percentage Weightage
1	Concept of Health <ul style="list-style-type: none"> • Definition of physical health, mental health, social health, spiritual health, determinants of health, indicators of health, • Concept of disease, natural history of diseases, the disease agents, concept of prevention of disease 	6	20
2	Nutrition and health <ul style="list-style-type: none"> • Classification of foods requirements, disease induced due to deficiency of proteins • Vitamins and minerals treatment and prevention 	4	15
3	Demography and family planning <ul style="list-style-type: none"> • Demography cycle, fertility, family planning, contraceptive methods, behavioural methods, natural family planning method, chemical methods, mechanical methods, hormonal contraceptives, population problem of India. 	5	15
4	First aid <ul style="list-style-type: none"> • Emergency treatment in shock, snake-bite, burns poisoning, heart disease, fractures and resuscitation methods • Elements of minor surgery and dressings 	3	10
5	Environment and health <ul style="list-style-type: none"> • Sources of water supply, water pollution, purification of water, health and air, • Noise light-Solid waste disposal and • Control-medical entomology, arthropod borne diseases and their control, rodents, animals and diseases 	8	25
6	Fundamental principles <ul style="list-style-type: none"> • Microbiology classification of microbes, isolation, staining techniques of organisms of common diseases 	4	15

Semester – I
1012 Personality Development (Th.) No.of Hrs – 30 (2 hrs/wk.)
Credit :2

Sr. no.	Topic / Subtopic	No. of lecture assigned	Percentage Weightage
1	Self-awareness/assessment • Johary Windows	2	10
2	Goal Setting	2	10
3	Positive Thinking	1	5
4	Self Esteem	2	5
5	Communication Skills	5	15
6	Public Speaking	7	20
7	Interview Techniques	2	5
8	Human Relations	3	10
9	Overcoming Negative Emotions	3	10
10	Time Management	3	10

Semester – I
1013 Skills in Language Communication (Th.) No.of Hrs – 30 (2 hrs/wk.)
Credit:2

Sr. no.	Topic / Subtopic	No. of lecture assigned	Percentage Weightage
1	Identifying basic elements of effective English writing including spelling and punctuation	3	10
2	Vocabulary enrichment <ul style="list-style-type: none"> Identifying essential vocabulary 	5	10
3	Identifying a topic sentence	5	10
4	Distinguishing sound for correct comprehension	5	10
5	Reference skills <ul style="list-style-type: none"> Reference to a dictionary 	2	10
6	Effective Listening Skills <ul style="list-style-type: none"> Improving listening skills for study 	2	10
7	Oral communication <ul style="list-style-type: none"> Constructing information-seeking questions 	2	10
8	Event narration <ul style="list-style-type: none"> Describing events with in college experience 	2	10
9	Homonyms <ul style="list-style-type: none"> Distinguishing between words for precise meaning 	2	10
10	Oral communication <ul style="list-style-type: none"> Speaking for various student needs 	2	10

SCHEME: Semester II									
Subjects	L	P	T	D	TP	TW	P/V	T	Credit
Pharmaceutics-I	3	2	-	2hrs	50	25	25	100	4
Pham. Chemistry - I	3	2	-	2 hrs	50	25	25	100	4
Pharmacognosy	3	2	-	3 hrs	50	25	25	100	4
Biochemistry & Clinical Pathology	2	2	-	2 hrs	25	25	25	75	3
Human Anatomy & Physiology	3	2	-	2 hrs	50	25	25	100	4
Health Education & C. Pharmacy	2	-	-	2 hrs	25	25	-	50	2
Skills in Language Communication	2	-	-	2 hrs	25	25	-	50	2
Total	18	10			275	225	125	575	23

Semester – II
2001 Pharmceutics-I (Theory) No.of Hrs – 45 (3hrs./wk.)
Credits-3

Sr. no.	Topic	No. of lecture assigned	Percentage Weightage
1	Sterilization <ul style="list-style-type: none"> • Concept of Sterilization and its differences from disinfection • Sterilization with moist heat, Dry heat sterilization, Sterilization by radiation, Sterilization by filtration and Gaseous sterilization • Aspetic techniques, Application of sterilization processes in hospitals particularly with reference to surgical dressings and intravenous fluids, Precautions for safe and effective handling of sterilization equipment 	15	35
2	Processing of Tablets <ul style="list-style-type: none"> • Definition, Different types of compressed tablets and their properties • Processes involved the production of tablets • Tablets excipients • Defects in tablets • Evaluation Test of Tablets • Physical Standards including Disintergration and Dissolution. • Tablet coating-Sugar coating, Film coating, enteric coating and microencapsulation 	16	35
3	Processing of Capsules <ul style="list-style-type: none"> • Introduction, Hard and soft gelatine capsules, different sizes of capsules • Filling of capsules, handling and storage of capsules, Special application of capsules 	5	10
4	Study of immunological Products <ul style="list-style-type: none"> • Introduction • Sera, Vaccines, toxoids and their preparations 	9	20

Semester – II
2002 Pharmceutics-I (Pr.) No.of Hrs – 30(2 hrs./wk)
Credits-1

Sr. No.	Topic/Subtopic	No. of hrs.
1	Preparation of the following categories illustrating different techniques involved <ul style="list-style-type: none"> • Creams • Cosmetic preparations • Capsules • Tablets • Preparation involving sterilization • Ophthalmic preparations • Preparations involving aseptic techniques 	4 6 4 4 4 4 4

Semester – II
2003 Pharmaceutical Chemistry-I (Th.) No. of hrs.—45 (3hrs./wk.)
Credits – 3

Sr. No.	Topic/Subtopic	No. of lectures	Percentage Weightage
1	Topical agents <ul style="list-style-type: none"> • Classification, Definition and Uses. • Protectives • Antimicrobials and Astringents • Sulphur and its compounds • Astringents 	1 3 3 2 1	2 8 8 3 3
2	Dental Products <ul style="list-style-type: none"> • Anticaries agents and Dentifrices • Cleaning and Polishing agents • Desensitizing agents 	1 1 1	3 3 3
3	Inhalants Oxygen Carbon Dioxide Nitrous Oxide	2	5
4	Respiratory Stimulants	1	5
5	Expectorants and Emetics	1	3
6	Antidotes	2	5
7	Electrolytes used for Replacement Therapy <ul style="list-style-type: none"> • Physiological Acid-Base Balance • Disorders of Acid-Base Balance • Electrolyte combination therapy • Oral Rehydration Salts 	2 2 2 1	5 5 5 3
8	Radio Pharmaceuticals and contrast media <ul style="list-style-type: none"> • Radioactivity & properties of radiations • Biological effects of radiations • Measurements of radio activity GM counter • Radio isotopes • Radio opaque contrast media 	1 2 1 2 2	3 5 2 5 5
9	Inorganic official compounds of Iron	2	5
10	Inorganic official compounds of Calcium	2	5
11	Inorganic official compounds of Iodine	2	5
12	Identifications test for cations & anions as per pharmacopia	1	2
13	Limit test for Iron, Lead and Arsenic	2	10
14	Assay methods – Oxidation, reduction titration, Precipitation titration, Complexometric precipitations.	2	5

Semester – II
2004 Pharmaceutical Chemistry-I (Pr.) No.of Hrs – 30 (2 hrs/wk.)
Credits-1

Sr.no.	Topic	No. of hrs.
1	Limit test for Iron, Lead and Arsenic	12
2	Assay or inorganic Pharmaceutical involving each of the following methods <ul style="list-style-type: none"> • Acid-Base titrations (at least 2) • Redox titrations (at least 2) • Precipitation titrations (at least 2) • Complexometric titrations (Calcium and Magnesium) 	18

Semester – II
2005 Pharmacognosy-I (Th.) No. of hrs.—45 (3hrs. /wk.)
Credits – 3

Sr. No.	Topics/subtopics	No. of Lectures assigned	Percentage Weightage
1	Occurrence, distribution, isolation, identification tests :- Alkaloids, Volatile oils, Resins.	10	20
2	<p>Occurrence, distribution organoleptic evaluation of Chemical constituents including tests wherever applicable and therapeutic efficacy of the following categories of the drugs :-</p> <p>Drugs acting on nervous system: Hyoscyamus, Belladonna, Aconite, Ashwagandha, Ephedra, Opium, Cannabis, Nux-vomica.</p> <ul style="list-style-type: none"> • Oxytocics : Ergot. • Antihypertensives : Rauwolfia. • Antiseptic and disinfectants: Benzoin, Myrrh, Nim, Curcuma. • Carminatives and GIT regulators.: Umbelliferous fruits, Coriander, Fennel, Ajowan, Cardamom, Ginger, Black pepper, Asafoetida, Nutmeg, Cinnamon, Clove. • Antitumours: Vinca. • Antirheumatics: Guggul, Colchicum. • Antileprotics: Chaulmoogra oil. • Antidysentrics: Ipecacuanha. • Antidiabetics : Gymnema. • Antitussives: Vasaka, Tolu-balsam, Tulsi. • Diuretics: Gokhru, Punarnava. • Antimalarials: Cinchona, • Vitamins and enzymes: Amla, Papaya, Yeast • Miscellaneous: Garlic, Picrohiza, Dioscorea, Linseed, Shatavari, Shankhapushpi, Pyrethrum, Tobacco, Datura(anatomical studies) 	30	70
3	Study of source, preparation and identification of fibers used in sutures and Surgical dressings :- Cotton, wool, silk, regenerated fibers. .	5	10

Semester – II
2006 Pharmacognosy-I (Pr.) No.of Hrs – 30 (2 hrs/wk.)
Credits-1

Sr.no.	Topic	No. of hrs.
1	Identification of drugs by Morphological characters	14
2	Gross Anatomical studies of the drugs (transverse section)	
3	Evaluation of drugs – Physical and Chemical test	10
4	Identification of fibers and surgical dressings	6

Semester – II
2007 Biochemistry & Clinical Pathology (Th.) No. of Hrs – 30 (2 hrs./wk.)
Credits-2

Sr. No.	Topic/Subtopic	No. of Lectures	Percentage weightage
1	LIPIDS	10	35
	• Brief chemistry & role of lipids		
	• Classification & Qualitative tests		
	• Diseases related to lipid metabolism		
	• Brief concept of normal & abnormal metabolism of lipids		
2	VITAMINS & COENZYMES	8	30
	a) Defn, chemistry & classification of vitamins		
	b) Water Soluble Vitamins		
	c) Fat soluble Vitamins		
3	ENZYMES	8	20
	a) Classification & Nomenclature		
	b) Mechanism of enzyme action		
	c) Factors affecting enzyme reaction		
	d) Therapeutic & pharmaceutical importance		
	e) Diseases related to enzymes		
4	CLINICAL PATHOLOGY OF BLOOD & URINE	4	15
	a) Lymphocytes & platelets & their role		
	b) Erythrocytes & their significance		
	c) Abnormal constituents of urine & their significance in diseases		

Semester – II
2008 Biochemistry & Clinical Pathology (Pr.) No. of Hrs – 30 (2 hrs/wk.)
Credits-1

Sr. no.	Topic	No. of hrs.
1	Analysis of normal and abnormal constituents of blood (Urea, creatinine, cholesteroal, alkaline, phosphatase, acid phosphatase, Bilirubin, SGPT, SGOt, Calcium, Diastase, Lipase	28
2	Examination of sputum and faeces (microscopic and staining) Practice in injecting drugs by intramuscular, subcutaneous and intravenous routes. Withdrawal of blood sample	2

Semester – II
2009 Human Anatomy & Physiology (Th.) No.of hours- 30 (2 hrs./wk.)
Credit :2

Sr. no.	Topic / Subtopic	No. of lecture assigned	Percentage Weightage
1	Various Parts of central nervous system <ul style="list-style-type: none"> Brain and its parts, functions and reflex action Anatomy and Physiology of autonomic nervous system 	8	25
2	Elementary knowledge <ul style="list-style-type: none"> Structure and Functions of the organs of taste, smell., ear, eye and skin. Physiology of pain 	6	25
3	Digestive system <ul style="list-style-type: none"> Names of the various parts of digestive system and their functions. Structure and functions of liver, physiology of digestion and absorption 	5	15
4	Endocrine glands and Hormones <ul style="list-style-type: none"> Locations of the glands, their hormones and functions Pituitary, thyroid, Adrenal and Pancreas 	2	10
5	Reproductive system <ul style="list-style-type: none"> Physiology and Anatomy of Reproductive system 	9	25

Semester – II
2010 Human Anatomy & Physiology (Pr.) No.of hours - 30 (2 hrs/wk.)
Credit :1

Sr. No.	Topics	No. of hrs.
1	Study with the help of charts and models of the following systems and organs <ul style="list-style-type: none"> • Digestive System • Reproductive System • Nervous System • Eye • Ear 	16
2	Examination of blood films for TLC, DLC and malarial parasite	6
3	Determination of clotting time of blood erythrocyte sedimentation rate and Haemoglobin value .	6
4	Recording of body temperature, pulse, heartrate blood pressure and ECG	2

Semester –II
2011 Health Education & Community Pharmacy(Th.) No. of hrs.- 30 (2 hrs./wk.)
Credit :2

Sr. no.	Topic / Subtopic	No. of lecture assigned	Percentage Weightage
1	Communicable disease – Causative agents, modes of transmission and prevention <ul style="list-style-type: none"> • Respiratory infections – Chicken pox, measles, Influenza, diphtheria, whooping cough and tuberculosis • Intestinal infections – Poliomyelitis, Hepatitis, Cholera, Typhoid, Food poisoning, Hook worm infection • Arthropod borne infections- Plague, Malaria, Filariasis • Surface infections- Rabies, trachoma, Tetanus, Leprosy • Sexually Transmitted disease- Syphilis, Gonorrhoea, AIDS 	13	45
2	Non-Communicable diseases <ul style="list-style-type: none"> • Causative agents, prevention care and control • Cancer, Diabetes, Blindness, Cardiovascular diseases 	5	20
3	Epidemiology <ul style="list-style-type: none"> • Its scope, methods, uses, dynamics of disease transmission, immunity and immunization • Immunological products and their dose schedule • Principles of disease control and prevention, hospital acquired infection, prevention and control. • Disinfection, types of disinfection, disinfection procedures, for faeces, urine, sputum, room, linen, dead-bodies, instruments 	12	35

Semester –II
2012 Skills in Language Communication (Th.) No. of hrs.- 30 (2 hrs./wk.)
Credit:2

Sr. no.	Topic / Subtopic	No. of lecture assigned	Percentage Weightage
1	Extended writing <ul style="list-style-type: none"> • Reading to note development of theme 	2	4
2	Learning methods of expansion of ideas from written abstracts	3	5
3	Technical writing <ul style="list-style-type: none"> • Developing the skills of scanning scientific text 	2	2
4	Technical writing <ul style="list-style-type: none"> • Interpreting discourse structures to understand scientific texts 	2	2
5	Using language sensitively in terms of grammatically contextual relevance and communicative appropriateness	2	10
6	Note making <ul style="list-style-type: none"> • Developing written discourse from spoken words and notes • Writing essential points to form notes from lectures 	2	2
7	Precis writing <ul style="list-style-type: none"> • Precision of medical passages 	2	5
8	Public speaking <ul style="list-style-type: none"> • Practicing common spoken communication strategies in the social and education contexts 	3	20
9	Learning methods of narrating, defining, explaining, justifying and predicting	2	10
10	Learning conventions of commercial Correspondence for writing <ul style="list-style-type: none"> • To enquire about product or services • To response with detail about material • To place order for goods • To acknowledge receipt of goods 	10	40

SCHEME: Semester III									
Subjects	L	P	T	D	TP	TW	P/V	T	Credit
Pharmaceutics-II	2	4	-	2 hrs	25	25+25	25	100	4
Pham. Chemistry - II	3	2	-	2 hrs	50	25	25	100	4
Pharmacology & Toxicology	2	2	-	2 hrs	25	25	25	75	3
Pharmaceutical Jurisprudence	2	-	-	2 hrs	25	25	-	50	2
Drug Store & Business Management	2	-	-	2 hrs	25	25	-	50	2
Hospital & Clinical Pharmacy	2	2	-	2 hrs	25	25	25	75	3
Computer Skills	-	4	-	2 hrs	-	25	25	50	2
Skills in Language Communication	2	-	-	2 hrs	25	25	-	50	2
Total	15	14			200	250	125	550	22

Semester – III
3001 Pharmceutics-II(Th.) No. of hrs.- 30 (2 hrs./wk.)
Credits-2

Sr. no.	Topic/Subtopic	No. of lecture assigned	Percentage Weightage
1	Dispensing Pharmacy (i) Prescriptions - <ul style="list-style-type: none"> Latin terms commonly used, Reading and understanding of prescription, Modern method of prescribing, Adoption of metric system, Calculations involved in dispensing 	4	15
	(ii) Posology <ul style="list-style-type: none"> Dose and Dosage of drugs, Factor influencing dose, Calculations of doses on the basis of age, sex and surface area 	2	5
2	Dispensed Medications (i) Powders <ul style="list-style-type: none"> Types of powders, Advantages and Disadvantages of powders, Granule. Preparation of different types of powders encountered in prescriptions, Geometric dilution 	3	10
	ii) Liquid Dosage Forms <ul style="list-style-type: none"> Monophasic- Commonly used vehicles, Essential adjuvant like stabilizers, colourants and flavours with example Liquids for internal administration – Mixtures and Syrups, Elixirs Liquids for external administration or used on mucus membranes- Gargles, Mouth washes, Throat-paints, Douches, Ear Drops, Nasal drops & Sprays, Liniments, Lotions	2 19	15 55

Semester – III
3002 Pharmceutics-II (Pr.) No.of Hrs – 30 (2 hrs./wk.)
Credits-1

Sr. no.	Topic/Subtopic	No.of hrs.
1	Dispensing of following products <ul style="list-style-type: none"> • Mouthwash • Lotions • Enema • Irrigation Solutation • Mixtures • Gargle • Throat paint • Syrups • Elixirs • E.N.T. preparation • Powders • Liniments • Granules 	2 2 2 2 6 2 2 2 2 2 2 2 2

Semester – III
3003 Pharmaceutical Chemistry-II (Th.) No. of hrs.—45 (3 hrs./wk.)
Credits – 3

Sr. no.	Topic/Subtopic	No. of lecture assigned	Percentage Weightage
1	Nomenclature of organic compounds with special reference to Heterocyclic compounds.	3	1
2	Analgesics -Antipyretics	3	5
3	Non-steroidal anti-inflammatory agents.	1	3
4	General and Local Anaesthetics.	3	5
5	Hypnotics - Sedatives	4	8
6	Psychopharmacological agents	5	10
7	Anti - convulsants	1	3
8	Histamine – Antihistamines.	2	7
9	Cardiovascular agents 1. Cardiac glycosides 2. Vasodilators 3. Anti-arrhythmic agents 4. Anti-hypertensive agents 5. Lipid lowering agents..		15
10	Coagulants	1	2
11	Anticoagulants	3	8
12	Adrenergic agents	3	8
13	Adrenergic blocking agents.	2	5
14	Cholinergic agents	1	2
15	Anticholinergic agents 1. Antispasmodic agents 2. Anti parkinsons agents 3. Mydriatic and Cycloplegic agents.	5	1
16	Anticholinesterases	2	
17	Laxatives - Purgatives	1	4

Semester – III
3004 Pharmaceutical Chemistry-II (Pr.) No.of Hrs – 30 (2 hrs/wk.)
Credits-1

Sr.no.	Topic	No. of hrs.
1	Official identification test for certain groups of drugs included in the I.P. (8 compounds)	16
2	Assay of organic compounds	10
3	Saponification value of Oil	4

Semester – III
3005 Pharmacology and Toxicology (Th.) No. of Hrs – 30 (2 hrs./wk.)
Credits-2

Sr. No.	Topic/Subtopic	No. of Lectures	Percentage weightage
1	GENERAL PHARMACOLOGY	1	5
	Introduction & scope of pharmacology		
2	ROUTES OF ADMINISTRATION OF DRUGS	3	10
	Advantages & Disadvantages & factors governing them		
3	PHARMACOKINETICS	3	10
	a) Various processes of absorption of drugs & factors affecting them		
	b) Metabolism, distribution & excretion of drugs		
4	GENERAL MECHANISM OF DRUG ACTION & FACTORS WHICH MODIFY DRUG ACTION	3	10
5	DRUGS ACTING ON THE CNS	10	35
	a) General Anaesthetics		
	b) Analgesics & Antipyretics & non –steroidal anti –inflammatory drugs, narcotic analgesics, antirheumatic & antigout remedies, sedatives & hypnotics, anticonvulsant & analeptics		
	c) Local Anaesthetics		
6	DRUGS ACTING ON THE DIGESTIVE SYSTEM	8	20
	a) Carminatives & Digestants		
	b) Bitters & Antacids		
	c) Drugs used in peptic ulcer		
	d) Purgatives & Laxatives		
	e) Antidiarrhoeals, emetics & antiemetics		
	f) Antispasmodics		
7	DISINFECTANTS & ANTISEPTICS	2	10

Semester –III
3006 Pharmacology and Toxicology (Pr.) No.of hours : 30 (2 hrs/wk.)
Credit :1

Sr. No.	Topics	No. of hrs.
1	Effect of K^+ Ca^{++} , acetylcholine and adrenaline on frog's heart.	16
2	Effect of spasmogens and relaxants on rabbits intestine	4
3	Effect of local anaesthetics on rabbit cornea	2
4	To study the action of strychnine on frog	2
5	Effect of hypnotics in mice	2
6	Effect of convulsants and naticonvulsant in mice or rats	2
7	Taming and hypnosis potentiating effect of chlorpromazine in mice/rats	2

Semester –III
3007 Pharmaceutical Jurisprudence (Th.) No.of hrs. : 30 (2 hrs./wk.)
Credit :2

Sr. no.	Topic / Subtopic	No. of lecture assigned	Percentage Weightage
1	Origine and nature of Pharmaceutical Legislation in India	3	10
2	The Drugs and Cosmetic Act (1950) and the rules thereunder <ul style="list-style-type: none"> • Introduction • Preamble, various Committes • Standard of Quality • Misbranded • Adulterated • Spurious drugs • Misbranded • Adulterated Cosmetic • Offences Punishments 	20	60
3	Price Control Order in Force	5	20
4	Poisons Act (1919)	1	5
5	Medical and Toilet Preparation (Excise Duties) Act (1955)	1	5

Semester –III
3008 Drug stores and Business Management(Th.) No.of hrs : 30 (2
hrs./wk.)Credit :2

Sr. no.	Topic / Subtopic	No. of lecture assigned	Percentage Weightage
1	Introductions to the accounting concepts and conventions <ul style="list-style-type: none"> • Double entry Book keeping • Different kinds of accounts 	8	20
2	Cash Book	6	25
3	General Leger and Trial Balance	3	10
4	Profit and Loss Account and Balance Sheet	6	25
5	Simple technique of analyzing financial statements	5	10
6	Introduction Budgetting <ul style="list-style-type: none"> • Books Recommended (Latest edition) • Remington's Pharmaceutical Sciences 	2	10

Semester – III
3009 Hospital & Clinical Pharmacy-II (Th.) No. of hrs —30 (2 hrs./wk.)
Credits – 2

Sr. no.	Topic / Subtopic	No. of lecture assigned	Percentage Weightage
1	Hospital : Definition, Functions , Classification, Organisation, Management, Health Delivery System In India	6	15
2	Hospital pharmacy: (a)Definition, (b)Functions, Objectives, (c)Location,Layout, Flow chart of Material & Men Personnel & Facilities Requirement (d)Abilities required for Hospital Pharmacist	6	15
3	Drug Distribution System in Hospitals: (a)Out Patient Service (b) In Patient Service –I)Types II)Central ServiceSupply III)Bed Side Pharmacy	5	15
4	Manufacturing: (a) Economical Consideration, Estimation of Demand (b) Sterile Manufacture _Large & Small Volume Parenterals _Layout Production Planning ,Facilities ,Requirement (c) Non –Sterile Manufacture-Liquid –Orals Externals,Bulk-Concentrates (d) Procurement of Stores & Testing of Raw materials	7	20
5	Nomenclature & Uses of Surgical Instruments & Hospital Equipments & Health Accessories	1	6
6	Pharmacy & Therapeutic Committee,Hospital Formulary System	2	8
7	Drug Information Service & Drug Information Bulletin	1	8
8	Surgical Dressing –Cotton ,Gauze , Bandages , Adhesive Tapes & Other Hospital Supply	1	7
9	Applications of Computer in Pharmacy-In Records , Medication Monitoring , Drug Information & Data Storage & Retrieval.	1	6

Semester – III
3010 Hospital & Clinical Pharmacy (Pr.) No.of Hrs – 30 (2 hrs/wk.)
Credits-1

Sr.no.	Topic	No. of hrs.
1	Preparation of <ul style="list-style-type: none"> • Transfusion fluids • Anticoagulant solutions • Rehydration Mixtures 	8
2	Testing of raw materials used in No.1	6
3	Evaluation of surgical dressing	4
4	Handling and used of data processing	4
5	Identification of surgical supply, preparation of surgical supply	8
6	Sterilization in Hospital (Hospital supply)	

Semester III
3012 Computer Skills (Pr.) No. of hrs –60 (4 hrs./wk.)
Credits – 2

Sr. no.	Topic / Subtopic	No. of lecture assigned	Percentage Weightage
1	Computer Fundamentals (Theory) 1. What is Computer? 2. What is data, information processing. 3. Parts of a computer system 4. Types of Software	4	5
2	Operating System Concepts 1. Working in MS-DOS 2. Commands related to MS-DOS 3. Working with Windows XP 4. Features of Windows XP	10	20
4	Microsoft Word (Practical) 1. Introduction to MS-Word 2. Features of MS-Word 3. Advanced Features of MS-Word	12	20
5	Microsoft Excel (Practical) 1. Introduction to MS-Excel 2. Working with the worksheet 3. Working with formulas and functions 4. Creating graphs and charts	12	20
6	Microsoft PowerPoint (Practical) 1. Introduction to PowerPoint 2. Using Design Templates 3. Creating Presentation 4. Viewing a slide show 5. Master Slides 6. Custom Animation	12	20
7	FoxPro (Practical) 1. Introduction 2. Creating a database	10	15

Semester –III
3013 Skills in Language Communication (Th.) No. of Hrs.30 (2 hrs./wk.)
Credit:2

Sr. no.	Topic / Subtopic	No. of lecture assigned	Percentage Weightage
1	Precis writing <ul style="list-style-type: none"> Practicing precision in writing by conscious editing of written material 	2	4
2	Technical writing <ul style="list-style-type: none"> Interpreting representative technical discourse 	2	3
3	Vocabulary enrichment <ul style="list-style-type: none"> Deriving exact meanings of word by studying contexts and roots 	2	4
4	Vocabulary enrichment <ul style="list-style-type: none"> Practicing using specific vocabulary in professional contexts with an understanding of appropriacy 	2	4
5	Public speaking <ul style="list-style-type: none"> Practicing representative spoken discourse 	2	10
6	Graphical representation <ul style="list-style-type: none"> Studying the effectiveness of different kinds of visualizations 	2	2
7	Graphical representation <ul style="list-style-type: none"> Learning to interpret and use visual graphics for effect presentation 	2	3
8	Oral communication <ul style="list-style-type: none"> Practicing formal opinion statement 	2	5
9	Report writing <ul style="list-style-type: none"> Studying hypothetical situations and facts to prepare the framework of a report 	2	5
10	Oral communication <ul style="list-style-type: none"> Learning to present an oral account of an event, and an experience 	2	20
11	Learning conventions of commercial correspondence for writing Learning conventions of commercial Correspondence for writing <ul style="list-style-type: none"> To enquire about product or services and reply To place order for goods and acknowledgement To ask for an adjustment and seek a change in specifications To invite and thank 	8	30
12	Oral communication <ul style="list-style-type: none"> Internalizing conventions of formal spoken interactions 	2	10

SCHEME: Semester IV									
Subjects	L	P	T	D	TP	TW	P/V	T	Credit
Pharmaceutics-II	3	2	-	2hrs	50	25	25	100	4
Pham. Chemistry - II	3	2	-	2hrs	50	25	25	100	4
Pharmacology & Toxicology	3	2	-	2hrs	50	25	25	100	4
Pharmaceutical Jurisprudence	2	-	-	2 hrs	25	25	-	50	2
Drug Store & Business Management	3	-	-	2hrs	50	25	-	75	3
Hospital & Clinical Pharmacy	3	2	-	2 hrs	50	25	25	100	4
Skills in Language Communication	2	-	-	2 hrs	25	25	-	50	2
Total	19	8			300	175	100	575	23

Semester – IV
4001 Pharmceutics-II (Theory) No.of Hrs – 45 (3 hrs./wk.)
Credits-3

Sr. no.	Topic	No. of lecture assigned	Percentage Weightage
1	Biphasic Liquid Dosage Forms		
	A] Suspensions – <ul style="list-style-type: none"> Introduction, Suspensions containg diffusible solids and liquids and their preparations. Study of the advjants used like thickenging agent, wetting agents, their necessity and quantity to be precipitate forming liquids like tinctures, their preparations and stability. Suspensions produced by chemical reaction Introduction to flocculated, non flocculated suspensions system 	8	10
	B] Emulsions – <ul style="list-style-type: none"> Types of emulsions, identification of emulsion system formulation emulsions, selection emulsifying agents, Instabilities in emulsions, 	8	15
	C] Semi-Solid Dosage Forms- <ul style="list-style-type: none"> Ointments- Types of ointments, classification and selection of dermatological vehicles. Preparation and stability of ointments by the following processes (i) Trituration (ii) Fusion (iii) Chemical reaction (iv) Emulsification 	4	10
	<ul style="list-style-type: none"> Pastes- Defference between ointments and pastes, bases of pastes. Preparation of pastes and their preservation Jellies – Introduction to the different types of Jellies and their preparation Poultice – Introduction, method of preparation Suppositories and pessaries – Their relative merits and demerits, types of suppositories, suppository bases, classification, properties, Preparation and packing of same 	1 2 4	5 5 10
	D] Dental and Cosmetic <ul style="list-style-type: none"> Dental and Cosmetic Preparations- Introduction to Dentifrices, Facial Cosmetics, Deodorants, Antiperspirants, Shampoos, Hair dressing and Hair removers 	2	5

Sr. no.	Topic	No. of lecture assigned	Percentage Weightage
	<p>E] Sterile Dosage Forms</p> <ul style="list-style-type: none"> Parenteral Dosages forms- Definations, General requirements for parenteral dosages forms, Types of parenteral formulations, Vehicles, adjuvants, processing, personnel, facilities and Quality control. Prepartion of Intravenous fluids and admixtures, Total parenteral nutrition, Dialysis fluids Sterility testing, Particulate matter monitoring, Faulty seal packaging Ophthalmic products- Study of essential characteristics of different ophthalmic preparations. Formulations additives, special precautions in handling and storage of ophthalmic products. 	14	<p>15</p> <p>5</p> <p>10</p>
2	<p>Incompatibilities in Prescriptions</p> <ul style="list-style-type: none"> Study of various types of incompatibilities- Physical, chemical and therapeutic 	2	10

Semester – IV
4002 Pharmceutics-II (Pr.) No.of Hrs – 60 (4 hrs./wk.)
Credits-2

Sr. no.	Topic	No. of Hrs.
1	Dispensing of the following products <ul style="list-style-type: none"> • Emulsions • Lotions • Ointments • Pastes • Applications • Suppositories • Suspension • Gel • Mixture • Eye Drops • Incompatible prescription 	16 4 6 2 2 4 12 2 4 2 6

Semester – IV
4003 Pharmaceutical Chemistry-II (Th.) No. of hrs.—45 (3 hrs./wk.)
Credits – 3

Sr. no.	Topic	No. of lecture assigned	Percentage Weightage
1	Chemotherapeutic agents 1. Anti –tubercular agents 2. Anti-leprosy agents 3. Anti fungal agents 4. Anti protozoal agents 5. Antimalarials 6. Anthelmintics 7. Antiseptics & Disinfectants	13	22
2	Antibiotics	5	10
3	Antineoplastic agents	2	2
4	Hypoglycemic agents	3	5
5	Diuretics	3	5
6	Vitamins - Water soluble vitamins, fat soluble vitamins .synthesis of vitamin A & vitamin C	4	15
7	STEROIDS 1. Steroidal alcohols 2. Steroidal Hormones	6	14
8	Thyroid Hormones & Antithyroid drugs	3	5
9	Adrenal hormones	2	10
10	Surface Active agents	2	5
11	Diagnostic agents	2	5

Semester – IV
4004 Pharmaceutical Chemistry-II (Pr.) No.of Hrs – 30 (2 hrs/wk.)
Credits-1

Sr.no.	Topic	No. of hrs.
1	Official identification test for certain groups of drugs included in the I.P. (8 compounds)	16
2	Assay of organic compounds (4 compounds) <ul style="list-style-type: none"> • Acetylation • Nitration • Iodoform preparations • Picrate formations 	8
3	Simple organic preparations	2
4	Instrumental analysis (U-V Spectroscopy) (2 compounds)	4

Semester – IV
4005 Pharmacology and Toxicology (Theory) No. of Hrs – 45 (3 hrs./wk.)
Credits-3

Sr. No.	Topic/Subtopic	No. of Hrs	Percentage weightage
1	DRUGS ACTING ON AUTONOMIC NERVOUS SYSTEM	9	20
	a)Cholinergic drugs,anticholinergic drugs,anti-cholinesterase drugs		
	b)Adrenergic drugs & adrenergic receptor blockers		
	c)Neurone & ganglion blockers		
	d)Neuromuscular blockers & drugs used in myasthenia gravis		
2	CENTRALLY ACTING MUSCLE RELAXANTS & ANTIPARKINSONISM AGENTS	1	4
3	DRUGS ACTING ON THE EYE	2	5
	Mydriatics & drugs used in glaucoma		
4	DRUGS ACTING ON THE RESPIRATORY SYSTEM	2	5
	a)Respiratory stimulants,bronchodilators,nasal decongestants		
	b)Expectorants & Antitussive agents		
5	CARDIOVASCULAR DRUGS	5	10
	a)Cardiotonics		
	b)Antiarrhythmic agents		
	c)Antianginal agents		
	d)Antihypertensive agents		
	e)Peripheral Vasodilators & drugs used in atherosclerosis		
6	DRUGS ACTING ON THE BLOOD & BLOOD FORMING ORGANS	3	6
	a)Haematinics,Coagulants & anticoagulants		
	b)Haemostatics,Blood substitutes & plasma expanders		
7	DRUGS AFFECTING THE RENAL FUNCTION	2	5
	Diuretics & Antidiuretics		
8	CHEMOTHERAPY OF MICROBIAL DISEASES	9	15
	a)Urinary antiseptics & Antibiotics		
	b)Antitubercular agents		
	c)Antifungal agents		
	d)Antiviral drugs		
	e)Antileprotic drugs		
9	CHEMOTHERAPY OF ANTIPROTOZOAL DRUGS,	4	10
	ANTHELMINTIC DRUGS		

Sr. No.	Topic/Subtopic	No. of Hrs	Percentage weightage
10	CHEMOTHERAPY OF CANCER	4	10
11	ANTACIDS,PHYSIOLOGICAL ROLE OF HISTAMINE & SEROTONIN	2	5
	Histamine&Antihistamines,Prostaglandins		
12	HORMONES & HORMONE ANTAGONISTS	2	5
	a)Hypoglycemic agents		
	b)Antithyroid drugs		
	c)Sex Hormones & Oral Contraceptives		
	d)Corticosteroids		

Semester –IV
4006 Pharmacology and Toxicology (Pr.) No.of hours : 30 (2 hrs/wk.)
Credit :1

Sr. No.	Topics	No. of hrs.
1	Effect of acetylcholine on rectus abdominis muscle of Frog and guinea pig ileum	14
2	Effect of mydriatics and miotics on rabbits eye	4
3	Effect of digitalis on frog's heart	4
4	Test for pyrogen	4
5	Effect of diphenhydramine in experimentally produced asthma in guinea pigs	4

Semester –IV
4007 Pharmaceutical Jurisprudence (Th.) **No.of hours : 30 (2 hrs./wk.)**
Credit :2

Sr. no.	Topic / Subtopic	No. of lecture assigned	Percentage Weightage
1	Drug and Cosmetic Act (1940) and rules there under <ul style="list-style-type: none"> • Plea, Government Analyst and Inspector's Powers & Procedures, Court offences companies, protection of action in good faith. • Rules and provisions for retail, wholesale licenses • Schedules-C,C,F,G,J,H,P,X – Introductory labeling salient feature, storage conditions of drug 	15	45
2	Pharmacy Act (1948)	3	10
3	The Drugs and Magic Remedies (objectionable Advertisement) Act (1954)	3	10
4	Narcotic Drugs and Psychotropic substance Act (1985)	5	20
5	Medical termination of Pregnancy act (1971)	3	10
6	Professional Ethics – <ul style="list-style-type: none"> • Code, Principles & significance 	1	5

Semester –IV
4008 Drug stores and Business Management(Th.) No.of hrs : 45 (3 hrs./wk.)
Credit :3

Sr. no.	Topic / Subtopic	No. of lecture assigned	Percentage Weightage
1	Introduction <ul style="list-style-type: none"> • Trade, Industry and Commerce • Functions and subdivision of Commerce • Introduction to Elements of Economics and Management 	8	15
2	Forms of Business Organisations	3	5
3	Channels of Distribution	3	5
4	Drug House Management <ul style="list-style-type: none"> • Selection of site space Lay-out and legal requirements • Importance and objectives of purchasing, selections of suppliers, credit information, tenders, contracts and price determination and legal requirements thereto. • Codification, handling of drug stores and other hospital supplies 	9	20
5	Inventory control <ul style="list-style-type: none"> • Objects and importance, modern techniques like ABC, VED analysis, the lead time. • Inventory carrying costs, safety stock, minimum and a maximum stock levels, economic order quantity scrap and surplus disposal 	9	25
6	Sales Promotion, Market Research, Salesmanship, qualities of a salesman, Advertising and window display	9	20
7	Recruitment, training, evaluation and compensation of the pharmacist	2	5
8	Banking and Finance service and functions of bank <ul style="list-style-type: none"> • Finance planning and sources of finance • Part-II Accountancy 	2	5

Semester – IV
4009 Hospital and Clinical Pharmacy (Th.) No. of hrs.—45 (3 hrs/wk.)
Credits – 3

Sr. no.	Topic / Subtopic	No. of lecture assigned	Percentage Weightage
1	Introduction to clinical pharmacy. Definition and scope.	2	5
2	Modern dispensing aspects-. Pharmacists and patient counseling and advice for the use of common drugs, medication history.	6	15
3	Common daily terminology used in practice of medicine.	3	6
4	Disease, manifestation and pathophysiology including salient symptoms to understand the disease like Tuberculosis, Hepatitis , Rheumatoid Arthritis, Cardiovascular disease, Epilepsy Diabetes, Peptic Ulcer, Hypertension.	7	15
5	Physiological parameters and their significance.	3	5
6	Drug interaction :- Definition, mechanism, drug-drug interaction with reference to analgesics, diuretics, cardiovascular drugs, gastro-intestinal agents, vitamins and hypoglycemic agents. Drug-food interaction.	8	15
7	Adverse Drug reactions:- Definition , significance , drug-induced disease , teratogenicity.	4	10
8	Drugs in clinical Toxicity:- Introduction, general treatment of poisoning, antidotes, treatment of insecticide poisoning, heavy metal poisoning, narcotic drugs, barbiturates, organophosphorus poison.	7	10
9	Drug dependence, drug abuse, addictive drugs and their treatment complications.	2	10
10	Bioavailability of drugs, factors affecting it.	3	9

Semester – IV
4010 Hospital & Clinical Pharmacy (Pr.) No.of Hrs – 30 (2 hrs/wk.)
Credits-1

Sr.no.	Topic	No. of hrs.
1	Preparation of <ul style="list-style-type: none"> • Transfusion fluids • Anticoagulant solutions • Rehydration Mixtures • Dialysis fluids 	14
2	Sterilization of surgical instruments <ul style="list-style-type: none"> • Demonstration of sterility 	8
3	Introduction to clinical Pharmacy and understanding the role of pharmacists in clinical pharmacy	8
4	Family planning	
5	First –Aid	

Semester –IV
4011 Skills in Language Communication (Th.) No. of Hrs.30 (2 hrs./wk.)
Credit: 2

Sr. no.	Topic / Subtopic	No. of lecture assigned	Percentage Weightage
1	Writing Letters <ul style="list-style-type: none"> To ask for loan To complain about materials/goods etc. To inform about delays etc. To offer explanations To follow up with customers To motivate purchase To request for payment To apply for appointment/ employments 	10	30
2	Composing testimonial <ul style="list-style-type: none"> Cold and warm testimonials 	3	10
3	Interview skills <ul style="list-style-type: none"> Practicing interview techniques and strategies for correct professional oral presentations 	4	10
4	Extended writing <ul style="list-style-type: none"> Studying ways of dilating / expanding given points 	3	10
5	Precis writing <ul style="list-style-type: none"> Summarizing medical passages 	2	10
6	Report writing <ul style="list-style-type: none"> Writing formal event reports 	2	5
7	Report Writing <ul style="list-style-type: none"> Writing formal reports of activity-including self-assessment reports 	2	5
8	Oral communication <ul style="list-style-type: none"> Speaking about a subject on the basis of written material Speaking about a subject on the basis of spoken discourse 	4	20