

First stage			
No.	lecture title	Lecture content	hours
1	Human Biology	The microscope	2
		The cells	2
		The tissues (Single epithelial tissue)	2
		Connective tissue	2
		Muscular tissue	2
		Nervous tissue	2
		Bone & Cartilage	2
		Digestive system(digestion)	2
		Digestive system (Small & Large intestine)	2
		Blood	2
		The Chromosome	2
		Cell division (Mitosis)	2
		Cell division (Meiosis)	2
		Excretory system	2
		Skin	2
Analytical Chemistry		Demonstration of some laboratory equipments.	2
		Separation and identification of group 1 cations (individual test).	2
		Analysis of group 1 cations mixture.	4
		Preparation and standardization of an acid.	2
		Determination of the percentage of acetic acid.	2
		Analysis of sodium carbonate and sodium hydroxide mixture.	2
		Determination of chloride by the Mohr method.	2
		Determination of chloride by the Volhard method.	2
		Preparation and standardization of 0.1N KMnO ₄ .	4
		Determination of ferrous form of iron in Mohr's salt.	
		Determination of total hardness in tap water.	2
		Gravimetric determination of Nickel.	4
Human Anatomy		Directional term for Anatomy	2
		Skeletal system axial skeleton	2
		Skeletal system appendicular skeleton	2
		Appendicular muscles	2
		Axial muscles	2
		Joints of the body	2
		Circulatory system: Location of vascular system (Heart, Arteries, Veins)	2
		Digestive system: -location of different parts of digestive tract (GIT) (Oral cavity, Mouth, Esophagus & Stomach) -Small intestine, Large intestine, Rectum & Anus.	2
		Digestive system: Glands associated with the digestive tract by location (Salivary glands, Pancreas, Liver & Gall bladder).	

			2
		Respiratory system: -Conducting portion (Nose, Nasopharynx, Trachea Bronchus & Bronchioles). -Respiratory portion (Lung)	2
		Urinary system: -location of the (kidney & nephron)	2
		Nervous system: Central & Peripheral nervous system by location	2
6	Medical Physics	Explain how to plot graph and make laboratory report.	2
		Optical Fiber Loss (bend) Measurement.	2
		Simple pendulum.	2
		Spectral photometric	2
		Density of liquid.	2
		The focal length of convex lens.	2
		application computer in medical physics	2
		Measurement of Viscosity of liquids.	2
		Ostwald's Viscometer: find viscosity of unknown; find the molecular weight; find concentration of unknown substance.	4
		Measuring surface tension (by capillary rise method and traveling microscope).	2
		Measuring surface tension (differential height capillary method).	2
		Decay curve and half life.	2
		Boyle's Law.	2
		Speed of sound.	2
		Laser application for measurement of single slit.	2
		7	Histology
Lymphatic system (Thymus gland & spleen)	2		
Lymphatic system (Lymph node & Islet of Langerhans)	2		
Nervous system (Cerebral & cerebrum cortex)	2		
Nervous system (Spinal cord)	2		
Respiratory system (Trachea & lung)	2		
Digestive system (Tongue, Esophagus & Stomach)	2		
Digestive system (Small & Large intestine)	2		
Digestive system Digestive system -Accessory glands of the digestive system (liver & Pancreas)	2		
	2		
Endocrine system (Pituitary & Thyroid gland)	2		
Endocrine system (Adrenal & pineal gland)	2		

		Male reproductive system (Testes & prostate gland)	2
		Female reproductive system (Ovary & Uterus)	2
		Urinary system (Kidney & Urinary bladder)	2
		Skin (Thick & Thin skin)	2
	organic chemistry I	Determination of melting point (Known sample).	2
		Determination of melting point (quiz and unknown).	2
		Determination of boiling point (known sample).	2
		Determination of boiling point (quiz and unknown).	2
		Elemental analysis (explanation of basic concepts).	2
		Elemental analysis (known quantity and quality sample).	2
		Solution and filtration techniques (explanation of basic concepts).	2
		Re-crystallization (known sample).	2
		Re-crystallization (quiz and unknown sample).	2
		Extraction technique (known sample).	2
		Extraction technique (quiz and unknown).	2
		Distillation techniques (known samples).	2
		Distillation techniques (quiz and unknown).	2
		Sublimation technique (known sample).	2
	Sublimation technique (quiz and unknown).	2	
	Practical Pharmaceutical Calculation	Demonstration of different glass wares and equipments used in the field of pharmacy.	2
		Pharmaceutical measurements.	2
		Volume measurements.	2
		Preparation of aromatic waters.	4
		Preparation of simple solutions.	4
		Reducing and enlarging prescription contents.	6
		Percentages in calculating prescription contents.	4
		Stock solutions and dilution technique during dispensing technique.	6
		· Home Tab	2
		· Modifying Spreadsheets	
		· Move/Copy Cells	
		· Insert Tab	2
		Ø Tables	
		Ø Illustration	1

Computer science 1 st semester	Ø Charts	2
	Ø Create a Chart	1
	Ø Move Chart to New Sheet	
	Ø Change Chart Name	
	Ø Change Chart Layout	2
	Ø Change Chart Style	
	Ø Chart or Axis Titles	
	Ø Data Labels	2
	Ø Legend	
	Ø Move or Resize Chart	
	Ø Formatting an Excel Trendline	
	Ø Reports	2
	Ø Sparklines	2
	Ø Filter	2
	Ø Links	
	Ø Symbols	
	· Formulas Tab	4
	Ø Function Library	
	Ø Defined Names	
	Ø Formula Auditing	
	Ø Calculation	2
	· Data Tab	
	Ø Data tab contains 5 groups:-	
	1- Get external data	1
	2- Connections	1
	3 - Sort & filter	1
	4- Data Tools	1
	5- Outline	1
	· Add Data Analysis	2
	Ø T-test	
Computer science 2 st semester	Introducing Operating System Window 7	2
	Microsoft Office Professional 2010	2
	Introduction Microsoft Word 2010	2
	Microsoft Office Interface.	
	File Ribbon Tab	
	Microsoft Office Quick Access Toolbar	
	Appearance of Microsoft Word	
	Creating a New Document	
	Opening a Document	2
	Home Tab	2
	Insert Tab - Inserting Objects	2
	Page Layout Tab - Document Layout	2
	References Tab	2
	Review Tab	2
	Mailings Tab - Mail Merge	2
	Introduction Power Point 2010	2
	Microsoft Office Interface.	2
	File Ribbon Tab	2
	Microsoft Office Quick Access Toolbar	2
	Appearance of Microsoft Word	2
	Creating a New Document	2
	Opening a Document	2
	Home Tab – Styling your Presentation	2
	Insert Tab – Inserting Objects	2
	Design Tab – Slide Layout	
	Transitions Tab	
	Animations Tab	2
	Slide Show Tab	2
	Review Tab	2

		Second stage	
		Lecture title	hour s
1	Organic Chemistry II	Solubility Classification (known)	2
		Solubility Classification (tutorial and quiz)	2
		Solubility Classification (unknown)	2
		Identification of alcohols (known)	2
		Identification of alcohols (tutorial and quiz)	2
		Identification of alcohols Elemental analysis (unknown)	2
		Identification of phenol (known)	2
		Identification of phenol (tutorial and quiz)	2
		Identification of phenol (unknown)	2
		Identification of aldehyde and ketone (known)	2
		Identification of aldehyde and ketone (tutorial and quiz)	2
		Identification of aldehyde and ketone (unknown)	2
		Identification of organic compound (general, known)	2
		Identification of organic compound (general, unknown)	2
		Identification of organic compound (general quiz)	2
	Medical Microbiology,	Orientation to the laboratory. Rules of conduct and general safety.	2
		Microscopic techniques. Bright-field light microscope.	2
		Examination of stained microorganisms; Smear preparation and simple staining; Gram staining.	2
		The hanging drop slide and bacterial motility; Acid-fast staining procedure.	2
		Bacterial spores and endospores staining; Microbiological culture media and sterilization; Methods of inoculation and isolation of pure culture.	2
		Action of Antibiotics; Enzymes assays for some specific microbial enzymes.	2
		Assays for specific metabolic activities; Acid and gas production from: Carbohydrate fermentation; Triple sugar iron agar test; IMVIC tests.	2
		Systemic bacteriology: <i>Staphylococci spp.</i>	2
		<i>Streptococci</i> species.	2
		<i>Salmonella</i> species.	2
		<i>Shigella</i> species.	2
		<i>Pseudomonas</i> species.	2
		<i>Proteus</i> species.	2
		<i>Escherichia coli</i>	2
		<i>Klebsiella</i> species.	2
<i>Candida albicans</i> .	2		
	Physical Pharmacy I	Introduction to physical pharmacy	2
		Expression of concentrations in pharmaceutical preparations.	6
		Two component systems containing liquid phases.	6
		Three component systems.	4
		Tie linear for three component systems.	6
		Buffer solutions	6
	Physiology I	Experiments on respiratory system (respiratory rate and volumes).	4
		Introduction to blood physiology.	2
		Blood typing and blood transfusion.	2
		Tutorial.	2
		Packed cell volume.	2
		Determination of hemoglobin concentration.	2
		Blood indecies.	2
		Determination of bleeding time and clotting time.	2

		Tutorial.	2
		Blood pressure.	2
		Effect of exercise on blood pressure.	4
		Electrocardiogram (ECG).	2
		Tutorial and review.	2
	Organic Chemistry II	Identification of aliphatic carboxylic acid (known)	2
		Identification of aliphatic carboxylic acid (tutorial and quiz)	2
		Identification of aliphatic carboxylic acid (unknown)	2
		Identification of aromatic carboxylic acid (known)	2
		Identification of aromatic carboxylic acid (tutorial and quiz)	2
		Identification of aromatic carboxylic acid (unknown) .	2
		Identification of aliphatic amine (known)	2
		Identification of aliphatic amine (unknown)	2
		Identification of aromatic amine (known)	2
		Identification of aromatic amine (known)	2
		Identification of aromatic amine (unknown)	2
		Identification of aromatic amine (unknown)	2
		Identification of amine (tutorial and quiz)	2
		Identification of alkyl halide (known)	2
		Identification of alkyl halide (unknown)	2
	Identification of organic compound (general unknown and quiz)	2	
	Physiology II	Differential W.B.C count	4
		Total W.B.C. count	2
		Tutorial	4
		Red blood cell counting	2
		Platelets counting	2
		Erythrocyte sedimentation rate (ESR)	2
		Tutorial	4
		Insulin regulation of blood glucose	2
		Renal physiology	2
		Some experiments on vision	2
	Tutorial and review	4	
	Pharmacognosy I	Chromatography.	4
		Paper chromatography (circular and horizontal paper chromatography).	4
		Introduction to tin-layer chromatography.	4
		TLC on microscope slides.	2
		Partition chromatography for the separation of volatile oils.	2
		Effect of activity of adsorbents on Rf values.	2
	Medical Virology and Parasitology	Introduction and classification of the human parasites.	2
		Intestinal protozoa: <i>Entamoeba histolytica</i> .	2
		Commensal amoeba; <i>Entamoeba coli</i> ; <i>Endolimax nana</i> ; <i>Iodamoeba buetschillii</i> .	2
		Flagellate of digestive tract: <i>Giardia lamblia</i> ; <i>Chilomastix mesenili</i> .	2
		Flagellate of genital organs: <i>Trichomonas vaginalis</i> ; Ciliate protozoa; <i>Balantidium coli</i> .	2
		Flagellate of blood and tissues: <i>Leishmania donovani</i> ; <i>Leishmania tropica</i> .	2
		<i>Trypanosoma gambiense</i> ; <i>Trypanosome rhodesiense</i> ; <i>Trypanosoma cruzi</i> .	2
		Malarial parasite: Life cycle of Plasmodium species; <i>Plasmodium vivax</i> ; <i>Plasmodium falciparum</i> .	2
		<i>Plasmodium malariae</i> ; <i>Plasmodium ovali</i> .	2
		<i>Toxoplasma gondii</i> ; Cestoidea; <i>Taenia saginata</i> ; <i>Taenia solium</i> .	2
		<i>Hymenolepis nana</i> ; <i>Echinococcus granulosus</i> ; <i>Echinococcus multilocularis</i> .	2
		Trematoda: Life cycle of <i>Schistoma</i> species; <i>Schistoma japonicum</i> ; <i>Schistoma mansoni</i> ; <i>Schistoma haematobium</i> .	2
		Nematoda: <i>Trichurs trichuira</i> ; <i>Entrobium vermicularis</i> .	2

		<i>Ascaris lumbricoides</i> ; <i>Ancylostoma duodenale</i> .	2	
		Methods of diagnosis of parasites.	2	
	Physical PharmacyII	Solubility	2	
		Solubilization by complexation.	2	
		Solubilization by surface active agents	4	
		Determination of solubility product constant	2	
		determination of partition coefficient	4	
		Kinetics	8	
		Measurement of surface tension	2	
		Viscosity	6	
	Practical Physical Pharmacy II	Solubilization of components of pharmaceutical preparations.	2	
		Solubilization of Aspirin.	2	
		Surface tension: measurements and calculations.	4	
		Rate kinetic: Application in stability of pharmaceutical stability.	4	
		Viscosity: Measurements and calculation.	4	
		Adsorption isotherm.	4	
		Solubilization of components of pharmaceutical preparations.	6	
		Solubilization of Aspirin.	4	
	Computer science 1 st semester	Introduction to Statistical Computing in Microsoft Excel	3	
		- Importing/Accessing Data		
		- Data Analysis	3	
		- How to compute such statistics		
		- formula errors in Excel		
		- Accessing the data analysis tools	4	
		- Descriptive Statistics.		
		- Histogram		
		- Correlation.	2	
		- Regression	2	
		- Sampling	4	
		- T-test one sample		
		- T-test paired		
		- T- test Independent		
		- Anova Test	6	
		- One sample		
		- Anova: Two-Factor Without Replication		
		- Anova: Two-Factor With Replication		
		Practical Classes in Chemistry	6	
		- Introduction to Program BioChemOffice 2013		
		The drawing of chemical formulae and reaction schemes is a repetitive task for chemists on all levels of their education. While hand-sketching is most efficiently used during discussions and learning, neat drawings are required for official reports, publications, and theses. Such drawings can be created with several computer programs, and we recommend using ChemDraw. ChemDraw is a simple-to-use program that allows to draw intuitively and efficiently simple two-dimensional representations of organic molecules.		
		Computer science 2 nd semester	1-Introduction	5
			Introduction to SPSS	
	Data analysis with SPSS: general aspects, workflow, critical issues			
	SPSS: general description, functions, menus, commands		5	
	SPSS file management			
	2 -Input and data cleaning		6	
	Defining variables			
	Manual input of data			
	Automated input of data and file import			
	Data manipulation			
	Data Transformation			
	Syntax files and scripts			
	Output management			
	3-Descriptive analysis of data		6	
	Frequencies			
	Descriptive			
	Explore			
	Crosstabs			
	Charts			
	4-Statistical tests		4	

	Means	
	T-test	
	One-way ANOVA	
	Non parametric tests	
	Normality tests	
	Correlation and regression	
	Linear correlation and regression	
	Multiple regression (linear)	
	5-Multivariate analysis	4
	Factor analysis	
	Cluster analysis	
	Software used SPSS 21	
	Suggested bibliography	
	Field A., Discovering Statistics Using SPSS, Fourth Edition , SAGE, 2013	

Third stage		
lecture	Lecture title	hours
organic Pharmaceutical Chemistry I	Preparation and standardization of 0.1N KMnO ₄ (known sample).	2
	Preparation and standardization of 0.1N KMnO ₄ (quiz and unknown).	2
	Assay of hydrogen peroxide solution (known sample).	2
	Assay of hydrogen peroxide solution (quiz and unknown sample).	2
	Assay of ferrous sulfate (known sample).	2
	Assay of ferrous sulfate (unknown sample).	2
	Preparation and standardization of 0.1Na ₂ S ₂ O ₄ solution (known sample).	2
	Preparation and standardization of 0.1Na ₂ S ₂ O ₄ solution (quiz and unknown sample).	2
	Assay of copper sulfate (known sample).	2
	Assay of copper sulfate (unknown sample).	2
	Assay of Chlorinated Lime (known sample).	2
	Assay of Chlorinated Lime (quiz and unknown).	2
	Preparation and assay of Lugol's Solution (known sample).	2
	Preparation and assay of Lugol's Solution (quiz and unknown).	2
Pharmacognosy III	Alkaloids piperine	4
	Black pepper	4
	Tropaine alkaloids	4
	Indole alkaloids	4
	Identification of Harmala alkaloids	2
	Purine bases	4
	Isoquinoline alkaloids	4
	Citric acid	4
Pharmaceutical Technology I	Emulsions: Preparation techniques and quality evaluation.	6
	Suppositories: Preparation techniques and quality evaluation.	6
	Powders: Preparation techniques and quality evaluation.	6
	Capsules: Preparation techniques and quality evaluation.	6
	Semisolid dosage forms: Preparation techniques and quality evaluation.	6
Biochemistry I	General urine examination: Physical properties.	2
	General urine examination: Chemical properties; Protein in urine; Sugar in urine.	2
	General urine examination: Ketone bodies in urine (Rothera test); Bile salts in urine (Hays test); Bilirubin in urine.	2
	General urine examination: Evaluation of unknown urine sample.	2
	Cerebrospinal fluid analysis: Measurement of glucose in CSF.	2
	Cerebrospinal fluid analysis: Measurement of chloride in CSF.	2
	Cerebrospinal fluid analysis: Measurement of proteins in CSF.	
	Serum calcium measurement.	2
	Blood phosphorus measurement (inorganic phosphate).	2

	Serum total proteins (quantitative analysis).	2
	Estimation of urea level in the blood.	2
	Measurement of serum uric acid level.	2
	Measurement of serum ascorbic acid level.	
	Gastric juice analysis: Detection of free hydrochloric acid concentration.	2
	Gastric juice analysis: detection of free acid, total acid content.	2
Pathophysiology	General introduction and slide preparation.	2
	Cell injury and degenerations.	2
	Growth disturbances.	2
	Inflammation.	2
	Thrombosis.	2
	Neoplasia.	2
	Disorders of respiratory system.	2
	Disorders of the cardiovascular system	2
	Disorders of renal system.	2
	Liver disorders.	2
	Disorders of the gastrointestinal tract.	2
	Disorders of the central nervous system.	2
	Disorders of the reproductive system.	2
	Disorders of skeletomuscular system.	2
Disorders of endocrine system.	2	
Pharmaceutical Technology II	Solutions (into body cavity, oral and external use).	4
	Syrups: Preparation techniques and quality evaluation.	6
	Elixirs: Preparation techniques and quality evaluation.	4
	Spirits: Preparation techniques and quality evaluation.	6
	Suspensions: Preparation techniques and quality evaluation.	4
	Dispersion of oils in inhalations.	6
Biochemistry II	General urine examination: Physical properties.	2
	General urine examination: Chemical properties; Protein in Sugar in urine.	2
	General urine examination: Ketone bodies in urine (Rothera test); Bile salts in urine (Hays test); Bilirubin in urine.	2
	General urine examination: Evaluation of unknown urine sample.	2
	Cerebrospinal fluid analysis: Measurement of glucose in CSF.	2
	Cerebrospinal fluid analysis: Measurement of chloride in CSF.	2
	Cerebrospinal fluid analysis: Measurement of proteins in CSF.	2
	Serum calcium measurement.	2
	Blood phosphorus measurement (inorganic phosphate).	2
	Serum total proteins (quantitative analysis).	2
	Estimation of urea level in the blood.	2
	Measurement of serum uric acid level.	2
	Measurement of serum ascorbic acid level.	
	Gastric juice analysis: Detection of free hydrochloric acid	2

Pharmacognosy II	concentration.	
	Gastric juice analysis: detection of free acid, total acid content.	2
	Cardio-active glycosides	6
	Anthraquinone glycosides.	6
	Saponin glycosides.	6
	Tannins.	4
	Volatile oils	4
Inorganic Pharmaceutical Chemistry	Flavonoid glycoside	4
	Preparation and standardization of 1N HCl (known sample).	2
	Preparation and standardization of 1N HCl (quiz and unknown).	2
	Preparation and standardization of 1N NaOH (known sample).	2
	Preparation and standardization of 1N NaOH (quiz and unknown).	2
	Assay of NaOH solution (known sample).	2
	Assay of NaOH solution (unknown sample).	2
	Assay of sodium benzoate (known sample).	2
	Assay of sodium benzoate (quiz and unknown).	2
	Assay of Borax (explanation of basic concepts).	2
	Assay of Borax (quiz and unknown).	2
	Assay of citric acid (known sample).	2
	Assay of citric acid (unknown sample).	2
	Assay of magnesium hydroxide (known sample).	2
	Assay of magnesium hydroxide (quiz and unknown).	2
	Assay of ammoniated mercury (unknown sample).	2
	Solubilization of components of pharmaceutical preparations.	2
	Solubilization of Aspirin.	2
	Surface tension: measurements and calculations.	4
	Rate kinetic: Application in stability of pharmaceutical stability.	4
	Viscosity: Measurements and calculation.	4
Adsorption isotherm.	4	
Solubilization of components of pharmaceutical preparations.	6	
Solubilization of Aspirin.	4	

Fourth stage

	Lecture title	hours
Pharmacology II	Routs of drug administration	4
	Onset and duration of drugs (Barbiturates)	2
	Absorption and excretion of drugs	2
	Effect of parasympathomimetics on gland secretions	2
	Drugs and human eye.	4
	The effects of drugs on IOP rabbits	2
	Evaluation of opioid analgesics	2
	Evaluation of NSAIDS	4
	Evaluation of anti-parkinsonian drugs	2
	Evaluation of anti- convulsant drugs	2
	The effects of drugs and their antagonists on isolated rats ileum	2
	The effects of drugs and their antagonists on isolated rabbits ileum	2
Organic pharmaceutical II	Preparation of salicylic acid.	2
	Re-crystallization of salicylic acid.	2
	Synthesis of aspirin.	2
	Re-crystallization of aspirin.	2
	Assay of aspirin (known sample).	2
	Assay of aspirin (unknown sample).	2
	Preparation of nitrobenzene.	2
	Preparation of aniline.	2
	Preparation of acetanilide.	2
	Re-crystallization of acetanilide.	2
	Chlorosulfonation of acetanilide.	2
	Amination of <i>p</i> -chlorobenzene sulfonyl chloride.	2
	Hydrolysis of <i>p</i> -chlorobenzene sulfonyl chloride to sulfanilamide.	2
	Assay of sulfa drugs (known sample).	2
Assay of sulfa drugs (unknown sample).	2	
	Communication with patients.	2
	Respiratory system in practice (part I): Cough.	2
	Respiratory system in practice (part II): Common cold.	2
	G.I.T system in practice (part I): Constipation.	2
	G.I.T system in practice (part II): Diarrhea and IBS.	2
	GIT system in practice (part III): GERD& indigestion.	2
	Skin conditions in practice (part I): Hair loss; cold sore and athlete's foot.	2

Clinical Pharmacy1	Skin conditions in practice (part II): Dandruff, Eczema and mouth ulcer.	2
	Skin conditions in practice (part III): warts and scabies.	2
	Pediatrics in practice: Oral thrush; colic; pinworm and napkin rash.	2
	Minor eye disorders in practice.	2
	CNS system: Insomnia, motion sickness, obesity and nicotine replacement therapy (NRT).	2
	Drug Information sources for pharmacist.	2
	An update in reclassification of OTC drugs.	2
	Collective practice.	2
Biopharmaceutics	Lab. 1. Preparation of calibration curve of salicylic acid	
	Lab. 2. <i>In vitro</i> evaluation of bulk laxative.	
	Lab. 3. <i>In vitro</i> evaluation of antacids.	
	Lab. 4. Dissolution of tablets.	
	Lab. 5. Determination of pharmacokinetic parameters from CP-time by residual method.	
	Lab. 6. Determination of pharmacokinetic parameters from CP-time by trapezoidal method.	
	Lab. 7. Hydrolysis of aspirin in buffer pH 6.8.	
	Lab. 8. Determination of pharmacokinetic parameters from urine excretion samples.	
Organic Pharmaceutical Chemistry III	Cannizaro reaction (part I).	2
	Cannizaro reaction (part II).	2
	Re-crystallization of benzoic acid.	2
	Assay of ascorbic acid (known sample).	2
	Assay of ascorbic acid (unknown sample).	2
	Synthesis of Phenol.	4
	Assay of phenol (known sample).	2
	Assay of phenol (unknown sample).	2
	Synthesis of chlorbutanol.	4
	Synthesis of paracetamol.	4
Communication with patients.	2	
Respiratory system in practice (part I): Cough.	2	

Clinical Pharmacy II	Respiratory system in practice (part II): Common cold.	2
	G.I.T system in practice (part I): Constipation.	2
	G.I.T system in practice (part II): Diarrhea and IBS.	2
	GIT system in practice (part III): GERD& indigestion.	2
	Skin conditions in practice (part I): Hair loss; cold sore and athlete's foot.	2
	Skin conditions in practice (part II): Dandruff, Eczema and mouth ulcer.	
	Skin conditions in practice (part III): warts and scabies.	2
	Pediatrics in practice: Oral thrush; colic; pinworm and napkin rash.	2
	Minor eye disorders in practice.	2
	CNS system: Insomnia, motion sickness, obesity and nicotine replacement therapy (NRT).	2
	Drug Information sources for pharmacist.	2
	An update in reclassification of OTC drugs.	2
	Collective practice.	2
General Toxicology	General introduction to practical toxicology.	2
	Acute toxicity study, determination of LD50.	4
	Drug toxicity on liver.	4
	Nicotine toxicity.	4
	Pesticide toxicity.	4
	Metal toxicity	4
	Blood toxicity.	4
Drug-induced toxicity.	4	
Industrial Pharmacy I	Introduction in industrial pharmacy and pre-formulation.	2
	Effervescent granules: Preparation and characterization.	4
	Flow properties and rheology of granules.	4
	Tablet dosage form: Preparation and characterization.	4
	Evaluation of tablets.	4
	Preparation of children aspirin by wet granulation method.	4
	Sustained release dosage forms: Preparation and characterization.	4
	Coating techniques of tablets.	4

Fifth stage

	Lecture title	hours
	Direct compression method for preparation of tablets.	6
Industrial Pharmacy II	Wet granulation method for preparation of tablets.	6
	Dry granulation method for preparation of tablets.	6
	Evaluation of tablets.	4
	Capsules dosage form: Preparation and evaluation.	4
	Parenteral dosage forms.	4
Therapeutic Drug Monitoring	Problems in basic Pharmacokinetics (PK)	2
	Problems in basic pharmacodynamic (PD)	2
	Clinical PK equations and calculations	2
	Clinical PK in special population and cases	2
	Problems in Clinical PK for Antibiotics (e.g., Aminoglycosides, Vancomycin)	4
	Problems in Clinical PK/PD for Cardiovascular agents (e.g., Digoxin, Lidocaine, Procainamide/N-Acetyl Procainamide)	4
	Problems in Clinical PK/PD for Anticonvulsants (e.g., Phenytoin, Carbamazepine, Valproic Acid, Phenobarbitone/Primidone, Ethosuxsimide)	6
	Problems in Clinical PK/PD for Immunosuppressants (e.g., Cyclosporine, Tacrolimus)	2
	Clinical PK/PD of other drugs (e.g., Lithium, Theophylline, Anticancer agents, Anticoagulants)	6
Clinical Chemistry	Specimen collection and preservation.	2
	Estimation of blood glucose (enzymatic method).	2
	Oral Glucose Tolerance Test (OGTT).	2
	Determination of blood urea nitrogen.	2
	Determination of Creatine and Creatinine.	2
	Estimation of serum uric acid.	2
	Estimation of serum Bilirubin.	2
	Estimation of serum calcium and Phosphate.	2
	Total lipid profile: Estimation of serum cholesterol.	2
	Total lipid profile: Estimation of LDL.	2
	Total lipid profile: Estimation of HDL.	2
	Total lipid profile: Estimation of Triglycerides.	2
	Estimation of AST activity.	2
	Estimation of ALT activity.	2
	Estimation of CK activity.	2

Clinical Toxicology	Laboratory Principles or Toxicological Screening.	2
	Over the counter drugs: Case on Acetaminophen poisoning; Salicylates; evaluation of urine salicylates.	4
	Urine analysis of toxins and chemicals.	4
	Cardiac glycosides toxicity: Digitalis.	2
	Cases on toxicity with foods and dietary supplements.	4
	Identification of some common poisons in biological samples: Arsenic; cyanide; strychnine; Salicylates; Phenothiazine derivatives; barbiturates	6
	Evaluation of cases of toxicity with anti-parkinsonian drugs.	4
	Evaluation of drug toxicity on human.	4
Hospital Training	Internal medicine department	20
	Department of surgery	15
	Department of gynaecology part1 obstetric	15
	Department of pediatrics	10
Clinical Laboratory Training	Diagnostic test basics, collecting & transporting specimens, venipuncture, urine specimen, stool specimen.	4
	Biochemical tests: Fasting blood glucose, Post-prandial glucose, Oral glucose tolerance test.	4
	Blood urea, Blood creatinine, Creatinine clearance, Uric acid.	4
	Cholesterol, Lipoproteins, triglycerides.	4
	Blood proteins, Bilirubin.	4
	Calcium, Inorganic phosphate, Serum chloride	4
	Alkaline phosphatase, Acid phosphatase, Alanine aminotransferase, Aspartate aminotransferase, Lactate dehydrogenase, Creatine phosphokinase.	4
	Serological tests: VDRL, ASO- Titer, Hepatitis tests.	4
	C-reactive protein test, Rheumatic factor test, Rosebengal test, Typhoid fever test(Widal test), Pregnancy Test.	4
	General urine examination, urine specimen collection.	4
	Hematological tests: RBC count, Hb, PCV, RBC indices, WBC count, Platelets count.	4
	Blood typing, Coombs test, Bleeding time, ESR.	4
	Microbiological tests: culture and sensitivity tests, Staining methods	4
	Culture media, Enriched culture media for general use	4
Tests for identification of bacteria, Disk diffusion tests of sensitivity to antibiotics, Choice of drugs for disk test, bacterial disease and their laboratory diagnosis.	4	
	Introduction & demonstration to visible spectrophotometry.	2

**Practical Advanced Pharmaceutical
Analyses**

Absorption spectra of known colored solution.	2
Absorption spectra of unknown colored solution.	2
Beer's law plot of known solution.	2
Beer's law plot of unknown solution.	2
Colorimetric assay of tetracycline (FeCl ₃), known sample.	2
Colorimetric assay of tetracycline (FeCl ₃), unknown sample	2
Colorimetric assay of tetracycline (acid), known sample.	2
Colorimetric assay of tetracycline (acid), unknown sample.	2
Colorimetric assay of streptomycin (maltol, known sample).	2
Colorimetric assay of streptomycin (maltol, unknown sample).	2
Colorimetric assay of streptomycin (oxidized, known sample).	2
Colorimetric assay of streptomycin (oxidized, unknown sample).	2
Colorimetric assay of tetracycline (basic, known sample).	2
Colorimetric assay of tetracycline (basic unknown sample).	2