| Fourth stage | | |
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| **1st semester** | **Lecture title** | **hours** |
| Title of the course: ***Pharmacology* II** Course number: **411**<br>Level: 4th Class, 1st Semester<br>Credit hours/week: **Theory 3** **Laboratory 1**<br>Reference text: ***Lippincott Pharmacology 3rd Edition, 2006***<br>**Objectives**: To introduce the pharmacy students to the general pharmacology of the ce nervous system and to the various drug groups used in the treatment of CNS diseases or altering its function. The student will be introduced to the various drugs used in the management of cardiovascular diseases. Moreover the course will cover the drugs affec the gastrointestinal and respiratory systems. | | |
| **Pharmacology II** | Introduction to CNS pharmacology**.** | 2 |
| | CNS stimulants. | 2 |
| | Anxiolytic and Hypnotic drugs. | 3 |
| | General and Local Anesthetics. | 3 |
| | Antidepressant drugs. | 3 |
| | Antipsychotic (neuroleptic) drugs. | 3 |
| | Opioid analgesics and antagonists. | 3 |
| | Treatment of neurodegenerative diseases. | 3 |
| | Antiepileptic Drugs. | 2 |
| | Diuretics. | 2 |
| | The treatment of heart failure (HF). | 2 |
| | Antiarrhythmic drugs. | 2 |
| | Antianginal Drugs. | 2 |
| | Antihypertensive drugs. | 3 |
| | Drugs affecting the blood. | 3 |
| | Antihyperlipidemic drugs. | 2 |
| | Gastrointestinal and antiemetic drugs. | 2 |
| | Drugs acting on the respiratory system. | 3 |

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| Title of the course: ***Organic Pharmaceutical Chemistry* II** Course number: **412**<br>Level: 4th Class, 1st Semester<br>Credit hours/week : **Theory 3 Laboratory 1**<br>Reference text: ***Wilson and Gisvold Textbook of Organic Medicinal and Pharmaceuti Chemistry; Delgado JN, Remers WA, (Eds.); 10th ed., 2004.***<br>**discovery and development of new agents for The course is devoted to the :Object translating the drug structural formula into therapeutic treating diseases, and ena pharmaceutical Additionally, it focuses on the methods of preparation for some ef agents.** | | |
| **Organic Pharmaceutical Chemistry II** | Cholinergic agents, cholinergic receptors and their | 3 |
| | Cholinergic agonists; stereochemistry and structure-activity | 5 |
| | Cholinergic blocking agent; structure-activity relationships (SAR);<br>Solanaceous alkaloid and analogues; synthetic cholinergic blocking agents and products; ganglionic blocking agents (neuromuscular blocking | 5 |
| | Analgesic agents (SAR of morphine, SAR of meperidine type<br>molecules; SAR of methadone type compounds; N- | 5 |
| | Analgesic receptors, endogenous opioids; Products; Antitusive | 5 |
| | Adrenergic agents (Adrenergic neurotransmitters); Adrenergic<br>receptors; Drugs affecting Adrenergic neurotransmission; Sympathomimetic | 8 |
| | CNS depressant; Benzodiazepines and related compounds;<br>Barbiturates; CNS depressant with skeletal muscle relaxant properties; Antipsychotics; | 7 |
| | CNS Stimulants | 3 |
| | Steroidal & nonsteroidal hormones | 4 |
| Title of the course**: Clinical Pharmacy I**<br>Level: 4th Class, 1st Semester<br>Credit hours/week : Theory 2 lab:- 1<br>Reference Text: ALISON BLENKINSOPP, PAUL PAXTON(eds), Symptoms in the Pharmacy. A Guide to the Management of Common Illness, 6th edition.<br>Lor waterfield, Community Pharmacy Hand Book, 5th edition | | |
| | Introduction to community pharmacy. | 1 |
| | Respiratory problems: Cough, Common cold, allergic rhinitis, Otitis media, Laryngitis | 3 |

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| **Clinical Pharmacy1** | G.I.T problemse: Diarrhea, Constipation, Heart burn and indigestion, IBS and | 4 |
| | Pediatric care practice : Oral thrush, pinworms and | 2 |
| | Skin conditions: Acne, Scabies, Psoriasis, Hair loss, Fungal infection, Eczema and Dermatitis , Dandruff, | 5 |
| | Women's health care: Cystitis and vaginal thrush, primary dysmenorrhea and Premenstrual syndrome | 2 |
| | CNS related problems: Headache, Insomnia, Motion sickness, Nausea and vomiting | 3 |
| | - Eye problems | 1 |
| | ENT problems | 1 |
| | Oral hygiene, mouth ulcer | 1 |
| | Obesity and body weight control. | 1 |
| | - Pain and musculoskeletal disorders | 1 |
| | Nicotine replacement therapy ( NRT). | 1 |
| | Dietary supplements | 1 |
| | An update in reclassification of OTC drugs ( simvastatin, Tamusotisin & | 2 |
| | Medication adherence and errors. | 1 |

Title of the course: ***Biopharmaceutics*** Course number: **414**
Level: 4th Class, 1st Semester
Credit hours/week : **Theory 2** **Laboratory 1**
Reference text: ***Shargel L, Yu AB, (Eds.), Applied Biopharmaceutics and Pharmacokinetics.***

**Objectives**: The coarse deals with the physical and chemical properties of drug substance, dosa and the biological effectiveness of the drug or drug product upon administration, including drug availability in the human or animal body from a given dosage form. The pharmacokinetic part coarse deals with the time-coarse of the drug in the biological system, and quantification of dru concentration pattern in normal subjects and in certain disease states.

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| **Biopharmaceutics** | Introduction to biopharmaceutics. | 2 |
| | Biopharmaceutic aspects of products; drug absorption; mechanisms of absorption; physicochemical factors; dissolution rate; effects of excipients; type of dosage | 6 |
| | One compartment open model. | 2 |
| | Multicompartment models. | 2 |

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| | Pharmacokinetics of drug absorption. | 2 |
| | Bioavailability and bioequivalence. | 2 |
| | Clearance of drugs from the biological systems. | 2 |
| | Hepatic elimination of drugs. | 2 |
| | Protein binding of drugs. | 2 |
| | Intravenous infusion | 2 |
| | Multiple dosage regimens. | 2 |
| | Non-linear pharmacokinetics. | 2 |
| | Dosage adjustment in renal diseases. | 2 |
| Title of the course: **Public Health** Course number: **415**<br>Level: 4th Class, 1st Semester<br>Credit hours/week : **Theory 2**<br>Reference text: ***Lucas AO, Gilles HM, (Eds), Short Textbook of Public Health Medici the Tropic, (4th Ed), 2003.***<br>**Objectives**: This course enables the students to understand the principles of public healt the art of preventing disease, promoting health and prolonging life, through organized e society. | | |
| **Public Health** | Introduction: The scope and concerns of public health, health care system in Iraq | 1 |
| | Measuring, Monitoring, and Evaluating the Health of a | 1 |
| | Population screening and public health | 1 |
| | Prevention and control of non-communicable diseases | 1 |
| | Principles of infectious disease control | 1 |
| | National immunization plan of Iraq. | 1 |
| | Communicable diseases (infections through the gastro-intestinal tract, Infections through skin and mucous membranes, Infections through the respiratory tract) | 1 |
| | Prevention and control of public health hazards ( Tobacco, alcohol, Public health aspects of illicit psychoactive drug use) | 1 |

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| | Major health problems (Obesity, Physical activity and health, Public mental health and suicide, Dental public health, Sexually transmitted infections, Chronic | 2 |
| | Nutritional disorders | 1 |
| | Family health | 1 |
| | Environmental health | 1 |
| | Occupational health | 1 |
| | Travel health | 1 |
| | Introduction: a historic background of pharmacy practice. | 1 |
| | Pharmacy Practice and the health care system | 2 |
| | Health promotion in community pharmacy | 1 |
| | Introduction to Pharmaceutical care | 1 |
| | Pharmaceutical care planning | 2 |
| | Community pharmacy management | 1 |
| | Hospital pharmacy service. | 1 |
| | Biosafety in pharmacy practice | 2 |
| | Formulary management and Regulatory affairs | 2 |
| | Rational Use of Drugs | 2 |
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| **2nd semester** | **Lecture title** | **hours** |
| Title of the course: Communication Skills Course number: 215<br>Level: 4th Class, 2st Semester<br>Credit hours: Theory 2<br><br>Reference text: 1-Robert S. Beardsley, (ed.); Communication Skills in Pharmacy Practice.<br><br>**Objectives: Communication skill is one of the missions of pharmacy care practice, aims to develop a conventional relationship between pharmacist and patients, in which information is exchanged, hold in confidence and used to optimize patient care through appropriate drug therapy. This course is intended to pharmacist provide better care to patients, and focus on communication skills necessary to** | | |
| **Communication Skills** | Principles and Elements of Interpersonal Communication | 2 |
| | Nonverbal type of communication. | 2 |
| | Barriers to communication. | 2 |
| | Listening and empathic responding during communication. | 2 |
| | Assertiveness. | 2 |
| | Interviewing and assessment. | 2 |
| | Helping patients to manage therapeutic regimens. | 2 |
| | Patient counseling; counseling check list; point-by-point discussion;<br>counseling scenario. | 2 |
| | Medication safety and communication skills. | 2 |
| | Strategies to meet specific needs. | 2 |
| | Communicating with children and elderly about medications. | 2 |
| | Communication skills and inter-professional collaboration. | 2 |
| | Electronic communication in healthcare. | 2 |
| | Ethical behavior when communicating with patients. | 2 |
| | Travel health | 1 |
| | Health insurance | 1 |

**Department of Pharmacology and Toxicology**

Title of the course: ***Pharmacology* III** Course number: **426**

Level: 4rd Class, 2nd Semester

Credit hours/week: **Theory 2 hours**

Reference text: ***Lipincott Pharmacology 3rd Edition, 2006***

**Objectives**: To introduce the pharmacy students to various drug groups affecting endocrine systems and their use in correcting abnormalities in the endocrine functions. Moreover the course will cover the drugs used in the management of neoplastic diseases, bone disorders, obesity and erectile dysfunction. Inflammatory agents and the anti-inflammatory drugs will also be covered during this course.

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| **Pharmacology III** | Hormones of the pituitary and thyroid glands. | 3 |
| | Insulin and oral hypoglycemic drugs. | 4 |
| | Adreno-corticosteroids. | 3 |
| | The gonadal hormones and inhibitors. | 3 |
| | Autacoids and autacoid antagonists | 3 |
| | Non-steroidal anti-inflammatory drugs (NSAIDs) and other anti-inflammatory agents. | 3 |
| | Drugs used in erectile dysfunction. | 2 |
| | Drugs used in osteoporosis. | 2 |
| | Drugs used in the management of obesity. | 2 |
| | Cancer Chemotherapy: Anticancer drugs and immunosuppressants. | 5 |

Title of the course: ***Organic Pharmaceutical Chemistry*** **III** Course number: **427**
Level: 4th Class, 2nd Semester
Credit hours/week : **Theory 3** **Laboratory 1**
Reference text: ***Wilson and Gisvold Textbook of Organic Medicinal and Pharmaceutical Chemistry; Delgado JN, Remers WA, (Eds.); 10th ed., 2004.***

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| **Organic Pharmaceutical Chemistry III** | β-Lactam antibiotics (Penicillins); β-Lactamase inhibitors; Cephalosporins and Monobactams. | 9 |
| | Aminoglycosides and Chloramphenicol; Tetracylines; Macrolides; Lincomycins and Polypeptides; Antiviral agents (properties of viruses, viral classification, products). | 9 |
| | Sulfonamides (chemistry, nomenclature, mechanism of action, resistance, toxicity, side effects, metabolism, protein binding, distribution and SAR); products; Sulfones. | 4 |
| | Anti-neoplastic agents: Alkylating agents; Antimetabolites; Antibiotics; Plant products; Miscellaneous compounds. | 17 |
| | Hormones and related compounds; Future anti-neoplastic agents; Monoclonal antibodies; Gene therapy of cancer. | 6 |

Title of the course**: Clinical Pharmacy II**
Level: 4th Class, 2nd Semester
hours/week : Theory 2 hours Lab 1
Reference Text: Roger Walker, Clive Edwards (eds), Clinical Pharmacy & Therapeutics

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| **Clinical Pharmacy II** | Introduction to the concept of clinical pharmacy- its activities and professional responsibilities.( including current state of clinical pharmacy in Iraq) . | **1** |
| | overview of pharmaceutical care practice (the patient care process). | **1** |
| | Hematologic disorders: Anemia and sickle cell disease. | **2** |
| | Hypertension. | **2** |
| | Ischemic heart diseases | **2** |
| | Heart failure. | **2** |
| | Peripheral vascular diseases. | **1** |
| | - Asthma. | **2** |
| | Chronic obstructive pulmonary disease ( COPD ). | **1** |
| | Diabetes mellitus & Diabetic ketoacidosis (DKA) . | **2** |
| | Peptic ulcer disease. | **2** |
| | Tuberculosis | **1** |
| | Infective meningitis | **1** |

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| | Respiratory tract infections | **2** |
| | GIT infections | **1** |
| | Gout and hyperuricemia | **1** |
| | Rheumatoid arthritis (RA) and osteoarthritis (OA) | **2** |
| | Osteoporosis and other metabolic bone disease. | **1** |
| | Infectious Endocarditis | **1** |
| | Surgical antibiotic prophylaxis | **1** |
| | Urinary tract infection (UTI) | **1** |
| Title of the course: ***General Toxicology*** Course number: **429**<br>Level: 4th Class, 2nd Semester<br>Credit hours/week : **Theory 2 Laboratory 1**<br>Reference text: ***Casarett and Doull, Toxicology, the Basic Science of Poisons; latest edition.***<br>**Objectives**: To study the principle of exposure to different chemicals and environmental factors, their sources, mechanisms of toxicity and their risk to human being; it enables students to understand the required measures to protect living organisms against the suspected toxic hazards. | | |
| **General Toxicology** | Introduction: general consideration; host factor, environmental factors of toxic effects. | 3 |
| | Carcinogenesis. | 3 |
| | Mutagenesis: | 1 |
| | Target organs and systemic toxicology; Respiratory system, Liver, Kidney, Skin, Nervous system, cardiovascular system, Blood. | 16 |
| | Toxic substances: Food additive and contaminants, Pesticides, Metals, Radiation and radio active materials, plants, Solvents, | 15 |
| | Environmental toxicology: Air pollution, water and soil pollutants, Gases (Tear gas, Pepper spray), CO, Cyanide($H_2S$). | 7 |

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| Title of the course: ***Industrial Pharmacy* I** Course number: **4210**<br>Level: 4th Class, 2nd Semester<br>Credit hours/week : **Theory 3 Laboratory 1**<br>Reference text: ***The Theory and Practice of Industrial Pharmacy by Leon Lachman et al.***<br>**Objectives**: The subject aim to teach pharmacy students the steps and lines upon which the preformulation processing of pharmaceutical dosage forms. This fundamental coarse provide the required principles to integrate knowledge of Pharmaceutical Technology in preformulation of perfect dosage form. It includes milling, mixing, drying and filtration, besides sterilization to achieve a proper processing of dosage forms. | | |
| **Industrial Pharmacy I** | Principles of pharmaceutical processing; mixing; fluid mixing; flow characteristics; mechanisms of mixing; mixing equipments; batch and continuous mixing; mixer selection; solid mixing theory and particulate solid variables; forces and mechanisms. | 7 |
| | Milling; pharmaceutical application; size measurement methods; theory and energy of commenution; types of mills; factors influencing milling; selection of mill techniques; specialized drying methods. | 7 |
| | Drying: definition; purpose; humidity measurement; theory of drying; drying of solids, and classification of dryer; specialized drying methods. | 7 |
| | Clarification and filtration: Theory; filter media; filter aids; selection of drying method; non-sterile and sterile operations; integrity testing; equipments and systems (commercial and laboratory). | 7 |
| | Sterilization; validation of methods; microbial death kinetics; methods of sterilization (thermal and non-thermal); mechanisms; evaluation. | 7 |
| | Pharmaceutical dosage form design; pre-formulation; preliminary evaluation; bulk characterization; solubility and stability analysis. | 3 |
| | Pharmaceutical dosage forms; sterile products; development; formulation; production; processing; quality control. | 7 |
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| | **Department of Clinical Pharmacy** | |
| | Title of the course**: Clinical Pharmacy I** | |
| | Level: 4th Class, 1st Semester | |
| | Credit hours/week : 1 | |
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| **.No** | **Practice Title** | **Hours/week** |
| 1 | Communication with patients. | 2 |
| 2 | Respiratory system in practice (part I): Cough. | 2 |
| 3 | Respiratory system in practice (part II): Common cold. | 2 |
| 4 | G.I.T system in practice (part I): Constipation. | 2 |
| 5 | G.I.T system in practice (part II): Diarrhea and IBS. | 2 |
| 6 | GIT system in practice (part III): GERD& indigestion. | 2 |
| 7 | Skin conditions in practice (part I): Hair loss; cold sore and athlete's foot. | 2 |
| 8 | Skin conditions in practice (part II): Dandruff, Eczema and mouth ulcer. | 2 |
| 9 | Skin conditions in practice (part III): warts and scabies. | 2 |
| 10 | Pediatrics in practice: Oral thrush; colic; pinworm and napkin rash. | 2 |
| 11 | Minor eye disorders in practice. | 2 |
| 12 | CNS system: Insomnia, motion sickness, obesity and nicotine replacement therapy (NRT). | 2 |
| 13 | Drug Information sources for pharmacists. | 2 |
| 14 | An update in reclassification of OTC drugs. | 2 |
| 15 | Collective practice. | 2 |

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| | **Department of Pharmaceutics** | |
| | Title of the course: ***Practical Biopharmaceutics*** | |
| | Level: 4th Class, 1st Semester | |
| | Credit hours/week : **1** | |
| | Reference text: ***Lab Manual for Practical Biopharmaceutics Adopted by the Department.*** | |
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| | **Objectives**: The coarse deals with the physical and chemical properties of drug substance, dosage form and the biological effectiveness of the drug or drug product upon administration, including drug availability in the human or animal body from a given dosage form. The pharmacokinetic part of the coarse deals with the time-coarse of the drug in the biological system, and quantification of drug concentration pattern in normal subjects and in certain disease states. | |
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| **No.** | **Practice Title** | **Hours/week** |
| 1 | Communication with physician and patient counseling. | 2 |
| 2 | Drugs for anemia and related disorders. | 2 |
| 3 | Cardiovascular drugs in practice part I. | 2 |
| 4 | Cardiovascular drugs in practice part II. | 2 |
| 5 | Cardiovascular drug in practice part III. | 2 |
| 6 | Drugs for asthma and COPD in practice. | 2 |
| 7 | Antimicrobial drugs in practice part I. | 2 |
| 8 | Antimicrobial drugs in practice part II. | 2 |
| 9 | Antimicrobial drugs in practice part III. | 2 |
| 10 | Collective practice number I. | 2 |
| 11 | Drugs acting on CNS part I. | 2 |
| 12 | Drugs for musculoskeletal and joints diseases. | 2 |
| 13 | Drugs for endocrine system part I (Diabetes Mellitus). | 2 |
| 14 | Drugs for endocrine system part II (other endocrine drugs). | 2 |
| 15 | Collective practice number I. | 2 |

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| **Department of Pharmaceutical Chemistry** | |
| Title of the course: ***Practical Organic Pharmaceutical Chemistry* II** | |
| Level: 4th Class, 1st Semester | |
| Credit hours/week : **1** | |
| Reference text: ***Lab Handbook for Practical Pharmaceutical Chemistry Adopted by the Department*** | |
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| **Lecture title** | **hours** |
| 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 ***p***-chlorobenzene sulfonyl chloride. | 2 |
| Hydrolysis of ***p***-chlorobenzene sulfonyl chloride to sulfanilamide. | 2 |
| Assay of sulfa drugs (known sample). | 2 |
| Assay of sulfa drugs (unknown sample). | 2 |

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| | **Department of Pharmacology and Toxicology** | |
| | Title of the course: ***Practical Pharmacology* II** | |
| | Level: 4th Class, 1st Semester | |
| | Credit hours/week: **1** | |
| | Reference text: ***Lab Manual for Practical Pharmacology Adopted by the Department*** | |
| | **Objectives**: To teach students the practice of application of Pharmacological principles in animal, and to understand the bases for evaluation of the pharmacological activity of drugs and chemicals in experimental animals. | |
| **No** | **Lecture title** | **hours** |
| 1 | Routs of drug administration | 4 |
| 2 | Onset and duration of drugs (Barbiturates ) | 2 |
| 3 | Absorption and excretion of drugs | 2 |
| 4 | Effect of parasympathomimetics on gland secretions | 2 |
| 5 | Drugs and human eye. | 4 |
| 6 | The effects of drugs on IOP rabbits | 2 |
| 7 | Evaluation of opioid analgesics | 2 |
| 8 | Evaluation of NSAIDs | 4 |
| 9 | Evaluation of anti-parkinsonian drugs | 2 |
| 10 | Evaluation of anti- convulsant drugs | 2 |
| 11 | The effects of drugs and their antagonists on isolated rats ileum | 2 |
| 12 | The effects of drugs and their antagonists on isolated rabbits ileum | 2 |

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| | **Department of Pharmaceutical Chemistry** | |
| | Title of the course: ***Practical Organic Pharmaceutical Chemistry*** **III** | |
| | Level: 4th Class, 2nd Semester | |
| | Credit hours/week : **1** | |
| | Reference text: ***Lab Handbook for Practical Organic Pharmaceutical Chemistry Adopted by the Department*** | |
| | **Objectives**: | |
| **No** | **Lecture title** | **hours** |
| 1 | Cannizaro reaction (part I). | 2 |
| 2 | Cannizaro reaction (part II). | 2 |
| 3 | Re-crystallization of benzoic acid. | 2 |
| 4 | Assay of ascorbic acid (known sample). | 2 |
| 5 | Assay of ascorbic acid (unknown sample). | 2 |
| 6 | Synthesis of Phenol. | 4 |
| 7 | Assay of phenol (known sample). | 2 |
| 8 | Assay of phenol (unknown sample). | 2 |
| 9 | Synthesis of chlorbutanol. | 4 |
| 10 | Synthesis of paracetamol. | 4 |

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| | **Department of Pharmacology and Toxicology** | |
| | Title of the course: ***General Toxicology*** | |
| | Level: 4th Class, 2nd Semester | |
| | Credit hours/week : **1** | |
| | Reference text: ***Lab Manual for Practical General Toxicology Adopted by the Department*** | |
| | **Objectives**: To study the principle of exposure to different chemicals and environmental factors, their sources, mechanisms of toxicity and their risk to human being; it enables students to understand the required measures to protect living organisms against the suspected toxic hazards. | |
| **No** | **Lecture title** | **hours** |
| 1 | General introduction to practical toxicology. | 2 |
| 2 | Acute toxicity study, determination of LD50. | 4 |
| 3 | Drug toxicity on liver. | 4 |
| 4 | Nicotine toxicity. | 4 |
| 5 | Pesticide toxicity. | 4 |
| 6 | Metal toxicity | 4 |
| 7 | Blood toxicity. | 4 |
| 8 | Drug-induced toxicity. | 4 |

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| | **Department of Pharmaceutics** | |
| | Title of the course: ***Industrial Pharmacy* I** | |
| | Level: 4th Class, 2nd Semester | |
| | Credit hours/week : **1** | |
| | Reference text: ***Lab Manual for Practical Industrial Pharmacy Adopted by the Department.*** | |
| | **Objectives**: The subject aim to teach pharmacy students the steps and lines upon which the preformulation processing of pharmaceutical dosage forms. This fundamental coarse provide the required principles to integrate knowledge of Pharmaceutical Technology in preformulation of perfect dosage form. It includes milling, mixing, drying and filtration, besides sterilization to achieve a proper processing of dosage forms. | |
| **No** | **Lecture title** | **hours** |
| 1 | Introduction in industrial pharmacy and pre-formulation. | 2 |
| 2 | Effervescent granules: Preparation and characterization. | 4 |
| 3 | Flow properties and rheology of granules. | 4 |
| 4 | Tablet dosage form: Preparation and characterization. | 4 |
| 5 | Evaluation of tablets. | 4 |
| 6 | Preparation of children aspirin by wet granulation method. | 4 |
| 7 | Sustained release dosage forms: Preparation and characterization. | 4 |
| 8 | Coating techniques of tablets. | 4 |

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| **Department of Clinical Pharmacy** | | |
| Title of the course: **clinical Pharmacy II** | | |
| Level: 4th Class, second Semester | | |
| Credit hours/week : 1 | | |
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| **No** | **practice** | **Week/hours** |
| 1 | Communication with physician and patient counseling. | 2 |
| 2 | Drugs for anemia and related disorders. | 2 |
| 3 | Cardiovascular drugs in practice part I: diuretics, β_ blockers, ACE- inhibitors and Ag II receptor blockers. | 2 |
| 4 | Cardiovascular drugs in practice part II: nitrates, $Ca^{2+}$-channel blockers, α-blockers, and anti-hyperlipidemic drugs. | 2 |
| 5 | Drugs for asthma and COPD in practice. | 2 |
| 6 | Antimicrobial drugsin practice part I: β-lactam antibiotics, tetracyclines and aminoglycosides. | 2 |
| 7 | Antimicrobial drugs in practice part II: macrolides, sulphonamides, quinolones, and other miscellaneous antibiotics. | 2 |
| 8 | Antimicrobial drugs in practice part III: antivirals and antifungals. | 2 |
| 9 | Drugs for endocrine system part I (Diabetes Mellitus). | 2 |
| 10 | Drugs for endocrine system part II: thyroid disorders, corticosteroids, and hormones used in gynecological disorders. | 2 |
| 11 | Drugs acting on CNS (antimigraine drugs, analgesics and antiemetics) and musculoskeletal disorders (NSAIDS and bisphosphonates). | 2 |
| 12 | Drugs for GI disorders: peptic ulcer disease and inflammatory bowel disorders. | 2 |
| 13 | Drugs for ENT and skin disorders. | 2 |
| 14 | Contraception. | 2 |
| 15 | Collective practice. | 2 |