

جدول المناهج الدراسية /الدراسات الاولى للعام الدراسي 2016-2017

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		نظري	عملي				
Circulatory system: Location of vascular system (Heart, Arteries, Veins) Circulatory system: Location of lymphatic system (Lymphatic capillary). Lymphoid tissue:location of the (Thymus gland, Spleen & Lymph nodes) Lymphoid nodule (MALT) & Tonsils Nervous system: Central & Peripheral nervous system by location Respiratory system:-Conducting portion (Nose, Nasopharynx, Trachea Bronchus & Bronchioles).- Respiratory portion (Lung) Digestive system:-location of different parts of digestive tract (GIT) (Oral cavity, Mouth, Esophagus & Stomach)-Small intestine, Large intestine, Rectum & Anus. Digestive system:Glands associated with the digestive tract by location (Salivary glands, Pancreas, Liver & Gall bladder). Endocrine system:-location of the pituitary gland -location of the Adrenal, Thyroid, Parathyroid, Islet of Langerhans & Pineal glands. Male reproductive system:-location of the testes. -Excretory genital ducts . -Excretory genital glands (Seminal vesicles, Prostate & Cowper's glands) Female reproductive system:-location of ovary, Oviduct, Uterus & Vagina	3	2	2	Human Biology	الاولى	العلوم المختبرية السريية	1

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Some fundamentals of measurements and calculations. Interpretation of prescription or medication orders. The metric system. Calculation of doses. Reducing and enlarging formulas. Density, specific gravity and specific volume. Percentage and ratio strength calculation.	2	-----	2	Principles of Pharmacy Practice	الاولى	الصيدلانيات	2

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Demonstration of some laboratory equipments. Separation and identification of group 1 cations (individual test). Analysis of group 1 cations mixture. Preparation and standardization of an acid. Determination of the percentage of acetic acid. Analysis of sodium carbonate and sodium hydroxide mixture. Determination of chloride by the Mohr method. Determination of chloride by the Volhard method. Preparation and standardization of 0.1N KMnO₄. Determination of ferrous form of iron in Mohr's salt. Determination of total hardness in tap water. Gravimetric determination of Nickel.	4	2	3	Analytical Chemistry	الأولى	الكيمياء الصيدلانية	3

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Microsoft Word applications Microsoft Excel applications Application of programs for statistical evaluation of data. Basics for chemical and biological drawings.	3	2	2	Computer Sciences	الاولى	العلوم المختبرية السريية	4

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Mathematics: General concepts; coordinate and graph in plane; inequality; absolute value or magnitude; function and their graphs; displacement function; slope and equation for lines. Limits and continuity: Limits; theorem of limits; limit involving infinity; continuity; continuity conditions. Derivatives: Line tangent and derivatives; differentiation rules; derivative of trigonometric function; practice exercises. Integration: Indefinite integrals; rules for indefinite integrals; integration formulas for basic trigonometric function; definite integrals; properties of definite integrals; practice exercises. Biostatistics: General concepts of statistics; statistical methods; statistical theory; applied statistics; statistical operations. Probability concepts: Properties of probability; Set theory and set notation (basic notation); counting techniques-permutations and combinations; calculating the probability of an events; probability distribution of discrete variable: binomial distribution	3	----	3	Mathematics and Biostatistics	الاولى	العلوم المختبرية السريية	5

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Basic word roots and common suffixes More word roots, suffixes and prefixes related to pharmaceutical sciences (pharmacognosy, clinical pharmacy, pharmaceuticals,...etc) Basic anatomical terms and abnormal conditions The genitals and urinary tract The gastrointestinal tract The heart and cardiovascular system Symptoms, diagnoses, treatments, communication qualifiers, and statistics Growth and development, and body orientation Gynecology, pregnancy, and childbirth The eye and the respiratory tract The nervous system and behavioral disorders Blood and immunity	1	-----	1	Medical Terminology	الاولى	الادوية والسموم	6

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Circulatory system: Location of vascular system (Heart, Arteries, Veins) Circulatory system: Location of lymphatic system (Lymphatic capillary). Lymphoid tissue: location of the (Thymus gland, Spleen & Lymph nodes) Lymphoid nodule (MALT) & Tonsils Nervous system: Central & Peripheral nervous system by location Respiratory system: -Conducting portion (Nose, Nasopharynx, Trachea Bronchus & Bronchioles). -Respiratory portion (Lung) Digestive system: -location of different parts of digestive tract (GIT) (Oral cavity, Mouth, Esophagus & Stomach) -Small intestine, Large intestine, Rectum & Anus. Digestive system: Glands associated with the digestive tract by location (Salivary glands, Pancreas, Liver & Gall bladder). Endocrine system: -location of the pituitary gland -location of the Adrenal, Thyroid, Parathyroid, Islet of Langerhans & Pineal glands	2	2	1	Human anatomy	الاولى	العلوم المختبرية السريية	7

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Demonstration of different glass wares and equipments used in the field of pharmacy. Pharmaceutical measurements. Volume measurements. Preparation of aromatic waters. Preparation of simple solutions. Reducing and enlarging prescription contents. Percentages in calculating prescription contents. Stock solutions and dilution technique during dispensing technique.	3	2	2	Pharmaceutical Calculations	الاولى	الصيدلانيات	8

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Explain how to plot graph and make laboratory report. Optical Fiber Loss (bend) Measurement. Simple pendulum. Spectral photometric Density of liquid. The focal length of convex lens. application computer in medical physics Measurement of Viscosity of liquids. Ostwald's Viscometer: find viscosity of unknown; find the molecular weight; find concentration of unknown substance. Measuring surface tension (by capillary rise method and traveling microscope). Measuring surface tension (differential height capillary method). Decay curve and half life. Boyle's Law. Speed of sound. Laser application for measurement of single slit.	3	2	2	Medical Physics	الاولى	العلوم المختبرية السريية	9

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Determination of melting point (Known sample). Determination of melting point (quiz and unknown). Determination of boiling point (known sample). Determination of boiling point (quiz and unknown). Elemental analysis (explanation of basic concepts). Elemental analysis (known quantity and quality sample). Solution and filtration techniques (explanation of basic concepts). Re-crystallization (known sample). Re-crystallization (quiz and unknown sample). Extraction technique (known sample). Extraction technique (quiz and unknown). Distillation techniques (known samples). Distillation techniques (quiz and unknown). Sublimation technique (known sample). Sublimation technique (quiz and unknown).	4	2	3	Organic Chemistry	الاولى	الكيمياء الصيدلانية	10

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Circulatory system: Structure of the vascular system (Heart wall, Arteries, Veins & Capillaries) Circulatory system: Structure of the lymphatic system (Lymphatic capillary). Lymphoid tissue: Structure & function of the (Thymus gland, Spleen & Lymph nodes) Lymphoid nodule (MALT) & Tonsils Nervous system: Central & Peripheral nervous system Respiratory system: -Conducting portion (Nose, Nasopharynx, Trachea Bronchus & Bronchioles). -Respiratory portion (Lung) Digestive system: -Digestive steps. -General structure of the digestive tract (GIT) (Oral cavity, Mouth, Esophagus & Stomach) -Small intestine, Large intestine, Rectum & Anus. Digestive system: Glands associated with the digestive tract (Salivary glands, Pancreas, Liver & Gall bladder). Endocrine system: -General structure of the pituitary gland -Histophysiology of the pituitary gland. Endocrine system: -General structure of the	3	2	2	Histology	الاولى	العلوم المختبرية السريية	11

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
The meaning of truth and freedom and development Mvhomeanma on the humanitarian level The legal basis for human rights The constitutional basis for human rights and democracy Personal rights and freedoms in the Islamic law The ruling Islamic specifications Personal rights and freedoms in international conventions Rights and freedoms and democracy, according to historical civilizations Political rights and freedoms in the Islamic law Political rights and freedoms in international conventions Political rights and freedoms of the Iraqi constitution in force Intellectual rights and freedoms in the Islamic law Intellectual rights and freedoms in international conventions	1	-----	1	Human Rights	الاولى	العلوم المختبرية السريية	12

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Aromatic Hydrocarbons (includes benzene, electrophilic aromatic substitution, arenas and their derivatives). Carboxylic acids: properties and reactions. Functional derivatives of carboxylic acids. Amines I and II. Aldehydes and ketones (include also aldol and Claisen condensation); Classification, reactions and properties. Phenols. ☐	4	2	3	Organic Chemistry II	الثانية	الكيمياء الصيدلانية	13

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Orientation to the laboratory. Rules of conduct and general safety. Microscopic techniques. Bright-field light microscope. Examination of stained microorganisms; Smear preparation and simple staining; Gram staining. The hanging drop slide and bacterial motility; Acid-fast staining procedure. Bacterial spores and endospores staining; Microbiological culture media and sterilization; Methods of inoculation and isolation of pure culture. Action of dyes and antibiotics; Enzymes assays for some specific microbial enzymes. Assays for specific metabolic activities; Acid and gas production from: Carbohydrate fermentation; Triple sugar iron agar test; IMVIC tests. Systemic bacteriology: Staphylococci spp. Streptococci species. Salmonella species. Shigella species. Pseudomonas species. Proteus species	4	2	3	Medical Microbiology	الثانية	العلوم المختبرية السريرية	14

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Introduction to physical pharmacy Expression of concentrations in pharmaceutical preparations. Two component systems containing liquid phases. Three component systems. Tie linear for three component systems. Buffer solutions	4	2	3	Physical Pharmacy I	الثانية	الصيدلانيات	15

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Experiments on respiratory system (respiratory rate and volumes). Introduction to blood physiology. Blood typing and blood transfusion. Tutorial. Packed cell volume. Determination of hemoglobin concentration. Blood indecies. Determination of bleeding time and clotting time. Tutorial. Blood pressure. Effect of exercise on blood pressure. Electrocardiogram (ECG). Tutorial and review.	4	2	3	Physiology I	الثانية	الادوية والسموم	16

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
/	1	-----	1	Democracy	الثانية	العلوم المختبرية السريية	17

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
/	2	-----	2	Arabic language	الثانية	العلوم المختبرية السريية	18

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Patient-Centered Communication in Pharmacy Practice Principles and Elements of Interpersonal Communication Nonverbal type of communication. Barriers to communication. Listening and empathic responding during communication. Assertiveness. Interviewing and assessment. Helping patients to manage therapeutic regimens. Patient counseling; counseling check list; point-by-point discussion; counseling scenario. Medication safety and communication skills. Strategies to meet specific needs. Communicating with children and elderly about medications. Communication skills and inter-professional collaboration. Electronic communication in healthcare. Ethical behavior when communicating with patients.	2	-----	2	Communication skill	الثانية	الصيدلة السريرية	19

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Heterocyclic system: Classes of heterocyclic systems; general structures; properties; Occurrence in nature and in medicinal products. Five-membered ring heterocyclic compounds: pyrrole; furan and thiophen. Source of pyrrole, furan and thiophen. Electrophilic substitution in pyrrole, furan and thiophen: Reactivity and orientation. Six-membered ring heterocyclic compounds: Structure & reactions of pyridine. Saturated five-membered heterocyclic compounds. Heterocyclic of five & six member rings with two & three heteroatoms.	3	2	2	Organic Chemistry III	الثانية	الكيمياء الصيدلانية	20

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Introduction. Intestinal protozoa (Amoeba, Balantidium, Giardia, Chilomastix) Haemoflagellates: Leshmania spp.; Trypanosome spp. Sporozoa: Malarial parasites of human; Toxoplasma. Helminthes: Classification, Flukes: Hepatic flukes, Blood flukes (Schistosoma spp). Tap worms: Taenia spp., Echinococcus (Hydatid cyst). Nematods: Ascaris, Entrobis. Virology: Introduction, Comparison between viruses and bacteria and other microbes; Classification of viruses; Replication; Chemotherapy; Herpes viridae; Orthomyxo viruses; Paramyxo viruses; Retro viruses; Hepato viruses; Oncogenic viruses.	3	2	2	Medical Virology and Parasitology	الثانية	العلوم المختبرية السريرية	21

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Solubility Solubilization by complexation. Solubilization by surface active agents Determination of solubility product constant determination of partition coefficient Kinetics Measurement of surface tension Viscosity	4	2	3	Physical Pharmacy II	الثانية	الصيدلانيات	22

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Differential W.B.C count Total W.B.C. count Tutorial Red blood cell counting Platelets counting Erythrocyte sedimentation rate (ESR) Tutorial Insulin regulation of blood glucose Renal physiology Some experiments on vision Tutorial and review	4	2	3	Physiology II	الثانية	الادوية والسموم	23

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
General Introduction: The Scope of Pharmacognosy, definitions and basic principles. Drugs from natural sources, crud drugs, official and non-official drugs. Classification of natural products. Plant nomenclature and taxonomy. Production of crude drugs: Cultivation, collection, drying and storage. Deterioration of crude natural products. Chemistry of natural drug products. Quality control: Evaluation of natural products; macroscopical evaluation; physical evaluation; chemical evaluation; biological evaluation; spectroscopical evaluation. Phytochemical investigation of herbal products: Extraction of the plant material; Separation and isolation of constituents; characterization of the isolated compounds. Separation technique: Introduction; Mechanisms of separation and classification based on the type of technique; paper chromatography; Thin layer chromatography; Ion-exchange chromatography; Gel filtration chromatography; Column chromatography; Gas chromatography; HPLC; Electrophoresis; Affinity chromatography. Traditional plant medicines as a source of new drugs. Bioassay-guided fractionation	4	2	3	Pharmacognocoy I	الثانية	العقاقير والنباتات الطبية	24

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Atomic and molecular structure/ Complexation. Essential and trace ions: Iron, copper, sulfur, iodine. Non essential ions: Fluoride, bromide, lithium, gold, silver and mercury. Gastrointestinal agents: Acidifying agents. Antacids. Protective adsorbents. Topical agents. Dental agents. Radiopharmaceutical preparations. Radio opaque and contrast media.	3	2	2	Inorganic Pharmaceutical Chemistry	الثالثة	الكيمياء الصيدلانية	25

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Cardio-active glycosides Anthraquinone glycosides. Saponin glycosides. Tannins. Volatile oils Isolation of piperine from black pepper. Isolation of belladonna alkaloids and their identification. Isolation of caffeine from tea.	3	2	2	Pharmacognoc II	الثالثة	العقاقير والنباتات الطبية	26

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Solutions (into body cavity, oral and external use). Syrups: Preparation techniques and quality evaluation. Elixirs: Preparation techniques and quality evaluation. Spirits: Preparation techniques and quality evaluation. Suspensions: Preparation techniques and quality evaluation. Dispersion of oils in inhalations.	4	2	3	Pharmaceutical Technology I	الثالثة	الصيدلانيات	27

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Effects of acids on carbohydrates: Molish test; Bials test; Anthron test; Seliwanoffs test; Mucic acid test. Classification of carbohydrates according to reducing properties: Benedicts test; Fehlings test; Barfoed test. Classification of carbohydrates according to reducing properties: Iodine test; Osazone test. Determination of unknown carbohydrates sample. Color reactions of proteins: Biuret test; Ninhydrin test. Color reactions of proteins: Millons test; Hopkins-Cole test; unoxidized sulfur test. Solubility of proteins (effects of acid, neutral salts, heavy metals, and alkaloidal reagents). Determination of unknown sample of proteins. Experiments on solubility of lipids. Acrolin test for lipids; Soap; Studying properties of soap. Determination of saponification number. Properties of lipids: Iodine test for lipids. Properties of enzymes: Effects of heat on enzymes. Properties of enzymes: Effect of concentration	4	2	3	Biochemistry I	الثالثة	العلوم المختبرية السريية	28

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
General introduction and slide preparation. Cell injury and degenerations. Growth disturbances. Inflammation. Thrombosis. Neoplasia. Disorders of respiratory system. Disorders of the cardiovascular system Disorders of renal system. Liver disorders. Disorders of the gastrointestinal tract. Disorders of the central nervous system. Disorders of the reproductive system. Disorders of skeletomuscular system. Disorders of endocrine system.	4	2	3	Pathophysiology	الثالثة	العلوم المختبرية السريية	29

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Drug distribution. Acid- base properties. Statistical prediction of pharmacological activity. QSAR models. Molecular modeling (Computer aided drug design). Drug receptor interaction: force involved. Steric features of drugs. Optical isomerism and biological activity. Calculated conformation. Three- dimensional quantitative structure activity relationships and databases. Isosterism. Drug-receptor interaction and subsequent events. General pathways of drug metabolism: Sites of drug biotransformation; Role of cytochrome P450 mono-oxygenases in oxidative biotransformation; Oxidative reactions; Reductive reactions; Hydrolytic reactions; Phase II reactions. Factors affecting drug metabolism.	4	2	3	Organic Pharmaceutical Chemistry I	الثالثة	الكيمياء الصيدلانية	30

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
General introduction to Pharmacology. Pharmacokinetics. Drug Receptor interaction and Pharmacodynamics. The autonomic nervous system (ANS). Cholinergic system. Adrenergic system. Principal of antimicrobial therapy. β- lactam and other cell wall synthesis inhibitor antibiotics Protien synthesis inhibitors Quinolones, Folate antagonists, and urinary tract antiseptics. Antimycobacterium drugs Antifungal drugs. Antiprotozoal drugs. Anthelmintic drugs. Antiviral drugs.	3	-----	3	Pharmacology I	الثالثة	الادوية والسموم	31

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Emulsions; purpose of emulsification; methods of emulsification; emulsifying agents; HLB system; stability of emulsions. Lotions; liniments and collodions. Suppositories. Powdered dosage forms. Semisolid dosage forms. Incompatibilities in pharmaceutical dosage forms.	4	2	3	Pharmaceutical Technology II	الثالثة	الصيدلانيات	32

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Bioenergetics. Biologic oxidation. The respiratory chain and oxidative phosphorylation. Over view of metabolism. Citric acid Cycle. Glycolysis. Metabolism of glycogen. Gluconeogenesis. Pentose phosphate pathway and other pathways of hexose metabolism. Biosynthesis of fatty acids. Oxidation of fatty acids. Metabolism of acylglycerol and sphingolipids. Lipid transport and storage. Cholesterol synthesis, transport, and excretion. Biosynthesis of the Nutritionally Nonessential Amino Acids. Catabolism of Proteins & of Amino Acid Nitrogen Catabolism of the Carbon Skeletons of Amino Acids. Conversion of Amino Acids to Specialized Products. Porphyrins & Bile Pigments	4	2	3	Biochemistry II	الثالثة	العلوم المختبرية السريية	33

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Alkaloids: Introduction; Physical and chemical properties; pyridine, piperidine alkaloids; tropane alkaloids. Alkaloids: Quinoline tropan alkaloids; iso-quinoline alkaloids; imidazole alkaloids; indole alkaloids. Alkaloids: Steroidal alkaloids; lupinane alkaloids; alkaloidal amines; purine alkaloids. Antibiotics: Natural sources; biosynthetic pathways, isolation and purification. .phytotherapy :Introduction , principles,medicinal plants in selected health care systems.Important natural products & phytomecines used in pharmacy & medicine	3	2	2	Pharmacognocoy III	الثالثة	العقاقير والنباتات الطبية	34

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Introduction to Pharmacy Ethics (Theoretical considerations). Code of Ethics for Pharmacists. Common Ethical Considerations in Pharmaceutical Care Practice (Beneficence, Autonomy, Honesty, Informed Consent, Confidentiality, Fidelity). Interprofessional Relations. Making ethical decisions. Ethical issues related to clinical pharmacy research. Ethical problems in the pharmacist's clinical practice. Preventing misuse of medicines. Case studies in pharmacy ethics.	1	-----	1	Pharmacy Ethics	الثالثة	الصيدلة السريية	35

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Introduction to CNS pharmacology. CNS stimulants. Anxiolytic and Hypnotic drugs. General and Local Anesthetics. Antidepressant drugs. Antipsychotic (neuroleptic) drugs. Opioid analgesics and antagonists. Treatment of neurodegenerative diseases. Antiepileptic Drugs. Diuretics. The treatment of heart failure (HF). Antiarrhythmic drugs. Antianginal Drugs. Antihypertensive drugs. Drugs affecting the blood. Antihyperlipidemic drugs. Gastrointestinal and antiemetic drugs. Drugs acting on the respiratory system.	4	2	3	Pharmacology II	الرابعة	الادوية والسموم	36

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Cholinergic agents, cholinergic receptors and their subtypes. Cholinergic agonists; stereochemistry and structure-activity relationships (SAR); products; cholinesterase inhibitors. Cholinergic blocking agent; structure-activity relationships (SAR); Solanaceous alkaloid and analogues; synthetic cholinergic blocking agents and products; ganglionic blocking agents (neuromuscular blocking agents). Analgesic agents (SAR of morphine, SAR of meperidine type molecules; SAR of methadone type compounds; N-methylbezomorphans, antagonist type analgesics in benzomorphans). Analgesic receptors, endogenous opioids; Products; Antitusive agents; Anti-inflammatory analgesics. Adrenergic agents (Adrenergic neurotransmitters); Adrenergic receptors; Drugs affecting Adrenergic neurotransmission; Sympathomimetic agents; Adrenergic receptor antagonists. CNS depressant; Benzodiazepines and related compounds; Barbiturates; CNS depressant with skeletal muscle relaxant properties; Antipsycotics; Anticonvulsants. CNS Stimulants	4	2	3	Organic Pharmaceutical Chemistry II*	الرابعة	الكيمياء الصيدلانية	37

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Communication with patients. Respiratory system in practice (part I): Cough. Respiratory system in practice (part II): Common cold. G.I.T system in practice (part I): Constipation. G.I.T system in practice (part II): Diarrhea and IBS. GIT system in practice (part III): GERD& indigestion. Skin conditions in practice (part I): Hair loss; cold sore and athlete's foot. Skin conditions in practice (part II): Dandruff, Eczema and mouth ulcer. Skin conditions in practice (part III): warts and scabies. Pediatrics in practice: Oral thrush; colic; pinworm and napkin rash. Minor eye disorders in practice. CNS system: Insomnia, motion sickness, obesity and nicotine replacement therapy (NRT). Drug Information sources for pharmacist. An update in reclassification of OTC drugs. Collective practice.	3	2	2	Clinical Pharmacy I*	الرابعة	الصيدلة السريرية	38

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Introduction to biopharmaceutics. Biopharmaceutic aspects of products; drug absorption; mechanisms of absorption; physicochemical factors; dissolution rate; effects of excipients; type of dosage forms. One compartment open model. Multicompartment models. Pharmacokinetics of drug absorption. Bioavailability and bioequivalence. Clearance of drugs from the biological systems. Hepatic elimination of drugs. Protein binding of drugs. Intravenous infusion Multiple dosage regimens. Non-linear pharmacokinetics. Dosage adjustment in renal diseases.	3	2	2	Biopharmaceutics	الرابعة	الصيدلانيات	39

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
General items & ICD10 Predisposing factors of infectious diseases Cardiovascular diseases Gastrointestinal diseases Skin diseases -Sexually transmitted diseases Oncogenic diseases Respiratory infections Family planning include maternal infections, vaccination -Immunology General introduction innate & adaptive immunity -antigen characteristics B&T cells complements Hypersensitivity types Oncogenic immunity -Auto immune diseases Immune deficiency diseases	2	-----	2	Public Health*	الرابعة	العلوم المختبرية السريية	40

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Hormones of the pituitary and thyroid glands. Insulin and oral hypoglycemic drugs. Adreno-corticosteroids. The gonadal hormones and inhibitors. Autacoids and autacoid antagonists Non-steroidal anti-inflammatory drugs (NSAIDs) and other anti-inflammatory agents. Drugs used in erectile dysfunction. Drugs used in osteoporosis. Drugs used in the management of obesity. Cancer Chemotherapy: Anticancer drugs and immunosuppressants.	2	-----	2	Pharmacology III	الرابعة	الادوية والسموم	41

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
β-Lactam antibiotics (Penicillins); β-Lactamase inhibitors; Cephalosporins and Monobactams. Aminoglycosides and Chloramphenicol; Tetracyclines; Macrolides; Lincomycins and Polypeptides; Antiviral agents (properties of viruses, viral classification, products). Sulfonamides (chemistry, nomenclature, mechanism of action, resistance, toxicity, side effects, metabolism, protein binding, distribution and SAR); products; Sulfones. Anti-neoplastic agents: Alkylating agents; Antimetabolites; Antibiotics; Plant products; Miscellaneous compounds. Hormones and related compounds; Future anti-neoplastic agents; Monoclonal antibodies; Gene therapy of cancer.	4	2	3	Organic Pharmaceutical Chemistry III	الرابعة	الكيمياء الصيدلانية	42

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Introduction to the concept of clinical pharmacy- its activities and professional responsibilities.(including current state of clinical pharmacy in Iraq) . an overview of pharmaceutical care practice (the patient care process). Hematologic disorders: Anemia and sickle cell disease. Hypertension. Ischemic heart diseases Heart failure. Peripheral vascular diseases. - Asthma. Chronic obstructive pulmonary disease (COPD). Diabetes mellitus & Diabetic ketoacidosis (DKA) . Peptic ulcer disease. Tuberculosis Infective meningitis Respiratory tract infections GIT infections Gout and hyperuricemia Rheumatoid arthritis (RA) and osteoarthritis (OA) Osteoporosis and other metabolic bone disease. Infectious Endocarditis	3	2	2	Clinical Pharmacy II*	الرابعة	الصيدلة السريرية	43

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Introduction: general consideration; host factor, environmental factors of toxic effects. Carcinogenesis. Mutagenesis: Target organs and systemic toxicology; Respiratory system, Liver, Kidney, Skin, Nervous system, cardiovascular system, Blood. Toxic substances: Food additive and contaminants, Pesticides, Metals, Radiation and radio active materials, plants, Solvents, Environmental toxicology: Air pollution, water and soil pollutants, Gases (Tear gas, Pepper spray), CO, Cyanide(H₂S).	3	2	2	General Toxicology	الرابعة	الادوية والسموم	44

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
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. Milling; pharmaceutical application; size measurement methods; theory and energy of comminution; types of mills; factors influencing milling; selection of mill techniques; specialized drying methods. Drying: definition; purpose; humidity measurement; theory of drying; drying of solids, and classification of dryer; specialized drying methods. 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). Sterilization; validation of methods; microbial death kinetics; methods of sterilization (thermal and non-thermal); mechanisms; evaluation. Pharmaceutical dosage form design; pre-formulation; preliminary	4	2	3	Industrial Pharmacy I	الرابعة	الصيدلانيات	45

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Cholinergic agents, cholinergic receptors and their subtypes. Cholinergic agonists; stereochemistry and structure-activity relationships (SAR); products; cholinesterase inhibitors. Cholinergic blocking agent; structure-activity relationships (SAR); Solanaceous alkaloid and analogues; synthetic cholinergic blocking agents and products; ganglionic blocking agents (neuromuscular blocking agents). Analgesic agents (SAR of morphine, SAR of meperidine type molecules; SAR of methadone type compounds; N-methylbezomorphans, antagonist type analgesics in benzomorphans). Analgesic receptors, endogenous opioids; Products; Antitusive agents; Anti-inflammatory analgesics. Adrenergic agents (Adrenergic neurotransmitters); Adrenergic receptors; Drugs affecting Adrenergic neurotransmission; Sympathomimetic agents; Adrenergic receptor antagonists. CNS depressant; Benzodiazepines and related compounds; Barbiturates; CNS depressant with skeletal muscle relaxant properties; Antipsycotics; Anticonvulsants. CNS Stimulants	2	-----	2	Organic Pharmaceutical Chemistry IV	الخامسة	الكيمياء الصيدلانية	46

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Pharmaceutical dosage forms: Tablets; role in therapy; advantages and disadvantages; formulation; properties; evaluation; machines used in tableting; quality control; problems; granulation, and methods of production; excipients, and types of tablets. Tablet coating; principles; properties; equipments; processing; types of coating (sugar and film); quality control, and problems. Capsules: Hard gelatin capsules; materials; production; filling equipments; formulation; special techniques. Soft gelatin capsules: Manufacturing methods; nature of capsule shell and content; processing and control; stability. Micro-encapsulation; core and coating materials; stability; equipments and methodology. Modified (sustained release) dosage forms; theory and concepts; evaluation and testing; formulation. Liquids: Formulation; stability and equipments. Suspensions: Theory; formulation and evaluation. Emulsions: Theory and application; types; formulation; equipments and quality control.	4	2	3	Industrial Pharmacy II	الخامسة	الصيدلانيات	47

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Interpretation of Lab. data. Acute coronary syndrome. Arrhythmias Thrombosis Dyslipidemia Stroke Shock Liver cirrhosis Viral hepatitis Inflammatory bowel diseases Acute renal failure (ARF) Chronic renal failure (CRF)	3	-----	3	Applied Therapeutics I	الخامسة	الصيدلة السريية	48

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Disorders of Carbohydrates metabolism, Hyperglycemia & Diabetes mellitus, Hypoglycemia. Disorders of lipid metabolism. Liver Function Tests. Kidney Function Tests. Diagnostic enzymology. Hypothalamus & pituitary endocrinology, disorders of anterior pituitary hormones, disorders of adrenal gland, hypopituitarism. Reproductive system, disorders of gonadal function in males & females, biochemical assessment during pregnancy. Tumor markers. Drug interaction with laboratory Tests. Disorders of calcium metabolism Acid- Base Disorders.	4	2	3	Clinical Chemistry	الخامسة	العلوم المختبرية السريية	49

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Diagnostic test basics, collecting & transporting specimens, venipuncture, urine specimen, stool specimen. Biochemical tests: Fasting blood glucose, Post-prandial glucose, Oral glucose tolerance test. Blood urea, Blood creatinine, Creatinine clearance, Uric acid. Cholesterol, Lipoproteins, triglycerides. Blood proteins, Bilirubin. Calcium, Inorganic phosphate, Serum chloride Alkaline phosphatase, Acid phosphatase, Alanine aminotransferase, Aspartate aminotransferase, Lactate dehydrogenase, Creatine phosphokinase. Serological tests: VDRL, ASO- Titer, Hepatitis tests. C-reactive protein test, Rheumatic factor test, Rosebengal test, Typhoid fever test(Widal test), Pregnancy Test. General urine examination, urine specimen collection. Hematological tests: RBC count, Hb, PCV, RBC indices, WBC count, Platelets count. Blood typing, Coombs test, Bleeding time, ESR. Microbiological tests: culture and sensitivity tests. Staining methods	2	4	-----	Clinical Laboratory Training	الخامسة	العلوم المختبرية السريرية	50

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Initial Evaluation and Management of the Poisoned Patient. Including pediatric poisoning and special consideration in the geriatric patient Drug Toxicity: Over the counter drugs; caffeine; theophylline; antihistamine and decongestant; non-steroidal anti-inflammatory drugs; vitamins. Prescription Medications: Cardiovascular drugs; beta blockers; ACE inhibitors; Digoxin; Calcium channel blocker; Antiarrhythmic agents; hypoglycemic drugs; Opioids; CNS depressants; tricyclic antidepressants; anti-cholinergic phenothiazines; CNS stimulant. Drug of Abuse: Opioids; Cocaine; phencyclidine; marijuana; Lysergic acid. Chemical and Environmental Toxins: Hydrocarbones; Household toxins; Antiseptic; Disinfectants; Camphor; moth repellents. Botanicals and plants-derived toxins: Herbal preparation; Toxic plants; Poisonous mushrooms.	3	2	2	Clinical Toxicology	الخامسة	الادوية والسموم	51

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		نظري	عملي				
/	1	1	-----	Project	الخامسة	جميع فروع الكلية	52

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Course overview, Changes in health care delivery, overview of pharmacoeconomics. Cost determination. Evaluation of outcomes and effectiveness, types of pharmacoeconomic analyses: Cost effectiveness analyses (CEA), cost minimization analyses (CMA). Methods of data collection and analyses, modeling (decision analyses). 1st mid-term examination. Incremental analyses; case studies. Evaluation outcomes: Utility and quality of life; types of pharmacoeconomic analyses, cost utility analyses (CUA). Evaluation outcomes: Net benefit, cost utility analyses (CBA), compare and contrast CEA, CUA and CBA. Methods of data collection and analyses: Statistical/Econometric modeling. 2nd mid-term examination. Drug-focused versus disease-focused frame work for conducting pharmacoeconomic analyses. Critical review of pharmacoeconomic and	2	-----	2	Pharmacoeconomic	الخامسة	الصيدلة السريرية	53

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Thyroid and parathyroid disorders	2	-----	2	Applied Therapeutics II	الخامسة	الصيدلة السريية	54
Contraception							
Endometriosis							
Menstruation related disorders							
Hormonal replacement therapy (HRT)							
Cancer treatment and chemotherapy							
Leukemias							
Lymphomas and Multiple myeloma							
HSCT(Hematop. Stem- cell- Transplantation).							
Breast and prostate cancers							
Adverse effects of chemotherapy							
Human immunodeficiency viruse							
Multiple seclerosis							
Adrenal gland disorders							

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Course Overview Review of basic pharmacokinetic (PK)- Review of basic pharmacodynamic (PD) Clinical PK equations and calculations Clinical PK in special population and cases Clinical PK/PD for Antibiotics (e.g., Aminoglycosides, Vancomycin Clinical PK/PD for Cardiovascular agents (e.g., Digoxin, Lidocaine, Procainamide/N-Acetyl Procainamide Clinical PK/PD for Anticonvulsants (e.g., Phenytoin, Carbamazepine, Valproic Acid, Phenobarbitone/Primidone, Ethosuximide Clinical PK/PD for Immunossprasants (e.g., Cyclosporine, Tacrolimus Clinical PK/PD of other drugs (e.g., Lithium, Theophylline, Anticancer agents, Anticoagulats	3	2	2	Therapeutic Drug Monitoring (TDM)	الخامسة	الصيدلة السريية	55

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
UV / visible spectroscopy; Sample handling and instrumentation; Characteristic absorption of organic compounds; Rules for calculation of lambda max and application; Application of UV/visible; spectroscopy; Problems and solutions. Infra Red spectroscopy (theory and H-bonding effect; Sampling techniques and interpretation of spectra; Characteristic group frequencies of organic compounds; Application of IR spectroscopy; Problems and solutions. H1 –Nucleomagnetic Resonance (NMR) and C13-NMR spectroscopy; Introduction, the nature of NMR absorption, chemical shifts and factors affecting them, information obtained from NMR spectra, more complex spin-spin splitting patterns, application of H1-NMR spectroscopy; C13-NMR spectroscopy: introduction and characteristics, DEPT C13- NMR spectroscopy. Mass spectroscopy: Introduction and interpreting Mass spectra; interpreting Mass spectra fragmentation patterns, Mass behavior of some common functional groups. elemental microanalysis CHNSO	4	2	3	Advanced Pharmaceutical Analysis	الخامسة	الكيمياء الصيدلانية	56

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Internal medicine departmt Department of surgery Department of gynaecology part1 obstetric 2	2	4	-----	Hospital Training	الخامسة	العلوم المختبرية السريية	57

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Pharmaceutical consideration: The need for the dosage form. General consideration for the dosage form. Pre-formulation; physical description, microscopic examination. Melting point; phase rule; particle size; polymorphism; solubility. Permeability; pH; partition coefficient; pka; stability; kinetics; shelf life. Rate reaction; enhancing stability. Formulation consideration: Excipients; definition and types; appearance; palatability; flavoring. Sweetening; coloring pharmaceuticals; preservatives; sterilization; preservatives selection. Biopharmaceutical considerations: Principle of drug absorption; dissolution of the drugs. Bioavailability and bioequivalency; FDA requirements. Assessment of bioavailability; bioequivalence among drug products. Pharmacokinetic principles: Half life; clearance; dosage regimen considerations.	2	-----	2	Dosage Form Design	الخامسة	الصيدلانيات	58

المفردات	وحدات المادة	ساعات المادة		اسم المادة	مرحلة	القسم	ت
		عملي	نظري				
Biotechnology - introduction Formulation of biotechnology product (biopharmaceutical consideration) Microbial consideration- sterility-pyrogen viral decontamination Excipients of parenteral products - solubility enhancer-anti adsorption agents buffer components-preservatives – osmotic agents Route of administration Parenteral route Oral route Alternative routes (nasal- pulmonary-rectal-buccal transdermal) Pharmacokinetic of peptides and proteins Introduction Elimination of proteins (proteolysis-excretion- metabolism) ٢	1	-----	1	Pharmaceutical Biotechnology	الخامسة	الصيدلانيات	59