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| | **First stage** | | |
| **No.** | **1st semester** | **Lecture title** | **Hours** |
| | Title of the course: **Human Biology** Course number: 111<br>**Objectives**: Study the human body composition, types of cell structures, types of tissues, bone, skeleton, joints and muscle as well as the nutrition. Human biology also explains in details the different body systems and human genetics. At the end of the course the student should be able to describe the human body composition, body systems structure and function, and human genetics such as the mendelain inheritance, division of chromosomes, and terms such as allel, locus homo and heterozygous. | | |
| 1 | Human Biology | Biology | 2 |
| | | Cell | 2 |
| | | Tissues, bone and cartilages | 3 |
| | | Nervous system (central & peripheral) | 4 |
| | | Nutrition | 2 |
| | | Digestive system (Mouth, Esophagus, Stomach) | 2 |
| | | Digestive system (intestine) | 1 |
| | | Excretory system & respiration | 3 |
| | | Human genetics (chromosomes & semi-lethal genes) | 3 |
| | | Skin | 2 |
| | | Circulatory system | 3 |
| | | Immunity (Inflammation, immunity & the blood , immunity to disease) | 3 |
| | Title of the course: ***Principles of Pharmacy Practice*** Course number: **112**<br>Reference text: Pharmaceutical Calculation by Stoklosa<br>**Objectives**: Involves brief information about old pharmacy. It teaches kinds of numbers, abbreviations that are commonly used in prescriptions and their meanings. In this course the students will understand the components of typical prescription, the different unit systems and the relation between these systems. Students will also be familiar with the methods and tools of measuring weights and volumes, and how to calculate doses on different bases and know how to reduce or enlarge formulas; they will be able to describe values in percentage and ratio strength. | | |
| | Principles of Pharmacy Practice | Some fundamentals of measurements and calculations. | 4 |
| | | Interpretation of prescription or medication | |
| | | The metric system. | 4 |

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| 2 | | Calculation of doses. | 4 |
| | | Reducing and enlarging formulas. | 4 |
| | | Density, specific gravity and specific volume. | 4 |
| | | Percentage and ratio strength calculation. | 6 |
| | Title of the course: ***Analytical Chemistry*** Course number: **113**<br>**Reference text: Fundamentals of Analytical Chemistry by Stook and West.**<br>**Objectives**: To provide students with a sound theoretical back ground in chemical principles that is essential to practice chemical analysis. It enables students to understand the importance of judging the accuracy and precision of experimental data and techniques of quantitative analysis, and also to show that theory frequently serves as a useful guide to the solution of analytical problems. | | |
| 3 | Analytical Chemistry | Review of elementary concept important to analytical chemistry: Strong and weak electrolytes; important weight and | 4 |
| | | The evaluation of analytical data: Definition of | 1 |
| | | An introduction to gravimetric analysis: Statistical analysis of data; rejection of data; | 9 |
| | | The scope of applications of gravimetric analysis: Inorganic precipitating agents; organic | 4 |
| | | An introduction to volumetric methods of analysis: Volumetric calculations; acid-base equilibria and pH calculations. | 5 |
| | | Buffer solutions: Theory of neutralization titrations of simple system. | 3 |
| | | Theory of neutralization titrations of complex system; Precipitation titrations. | 5 |
| | | Calculation of pH in complex system; Volumetric methods based on complex system. | 4 |
| | | Equilibria in oxidation-reduction system; theory of oxidation-reduction titrations. | 6 |
| | | Spectrophotometric analysis: An introduction to optical methods of analysis; Methods based on absorption of radiation. | 4 |

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| | **Title of the course: Mathematics and Biostatistics Course number: 115**<br>Reference text: 1. Finny RI, Thomas GB (Eds.); Calculus and Analytical Geometry.<br>**Objectives**: Gives students the ability to deal with the concept of Mathematics and Statistic, emphasizes the knowledge and skill required to efficiently discharge the duties and responsibilities of the pharmacist. The course deals with the concept of basic Mathematics and application of Biostatistics in the medical field. Upon completion of the course students will be able to understand the applications of statistics in medical field. | | |
| 5 | **Mathematics and Biostatistics** | Mathematics: General concepts; coordinate and graph in plane; inequality; absolute value or magnitude; function and their graphs; displacement function; slope and equation | 6 |
| | | Limits and continuity: Limits; theorem of limits; limit involving infinity; continuity; continuity | 4 |
| | | Derivatives: Line tangent and derivatives; differentiation rules; derivative of trigonometric function; | 6 |
| | | Integration: Indefinite integrals; rules for indefinite integrals; integration formulas for basic trigonometric function; definite integrals; properties of definite | 6 |
| | | Biostatistics: General concepts of statistics; statistical methods; statistical theory; applied statistics; statistical operations. | 2 |
| | | 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 | 6 |
| | | The concept of central tendency: Mean of sample and mean of population; median; mode; measure of central tendency; review questions | 6 |

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| | | Deviations and variation: Deviation; dispersion and variability; standard deviation and variance; coefficient of variations; standard error; correlation analysis.(regression model and sample regression equation); application of | 9 |
| | Title of the course: **Medical Terminology** Course number: 116<br>Reference text: Edward CC, (Ed.); A Short Course in Medical Terminology; 1st Ed.; Lippincott Williams and Wilkins; 2008.<br>Objective: In this course, students will learn to pronounce, spell, and define medical and pharmaceutical terms used in health care settings. It will use a word-building strategy that helps them discover connections and relationships among word roots, prefixes, and suffixes. They will learn the meaning of each part of a complex medical and pharmaceutical term and be able to put the parts together and define the term. | | |
| | **Medical Terminology** | Basic word roots and common suffixes | 1 |
| 6 | | More word roots, suffixes and prefixes related to pharmaceutical sciences (pharmacognosy, clinical pharmacy, | 1 |
| | | Basic anatomical terms and abnormal conditions | 2 |
| | | The genitals and urinary tract | 1 |
| | | The gastrointestinal tract | 1 |
| | | The heart and cardiovascular system | 1 |
| | | Symptoms, diagnoses, treatments, communication | 2 |
| | | Growth and development, and body | 1 |
| | | Gynecology, pregnancy, and childbirth | 1 |
| | | The eye and the respiratory tract | 1 |
| | | The nervous system and behavioral disorders | 2 |
| | | Blood and immunity | 1 |
| | **Reference : John and Liz Soars, New Headway Plus, Oxford: Oxford** | | |
| | | Hello | 4 |
| | | Your world | 4 |
| 7 | | All about you | 5 |

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| | **English** | Family and friends | 4 |
| | | The way I live | 5 |
| | | Every day | 4 |
| | | My favorites | 4 |

| **First stage** | | | |
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| **No.** | **2nd semester** | **Lecture title** | **Hours** |
| | Title of the course: ***Human Anatomy*** Course number: 127<br>Reference text: 1- Clinical Anatomy by Regions (Richard S. Snell 8th ed. 2010).<br>**Objective**<br>Credit hours/week: Theory 1 lab1<br>Study the position of different organs in the thoracic and abdominal cavity including: digestive system, circulatory system, lymphatic system, respiratory system, urinary system, reproductive system, endocrine system, nervous system and | | |
| 1 | **Human Anatomy** | **Circulatory system:**<br>Location of vascular system (Heart, Arteries, Veins) | 1 |
| | | **Circulatory system:**<br>Location of lymphatic system (Lymphatic capillary). | 1 |
| | | **Lymphoid tissue:**<br>location of the (Thymus gland, Spleen & Lymph nodes) | 1 |
| | | Lymphoid nodule (MALT) & Tonsils | 1 |
| | | **Nervous system:**<br>Central & Peripheral nervous system by location | 1 |
| | | **Respiratory system:**<br>-Conducting portion (Nose, Nasopharynx, Trachea Bronchus & Bronchioles).<br>-Respiratory portion (Lung) | 1 |

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| | | **Digestive system:**<br>-location of different parts of digestive tract (GIT) (Oral cavity, Mouth, Esophagus & Stomach)<br>-Small intestine, Large intestine, Rectum & Anus. | 2 |
| | | **Digestive system:**<br>Glands associated with the digestive tract by location (Salivary glands, Pancreas, Liver & Gall bladder). | 1 |
| | | **Endocrine system:**<br>-location of the pituitary gland<br>-location of the Adrenal, Thyroid, Parathyroid, Islet of Langerhans & Pineal glands. | 1 |
| | | **Male reproductive system:**<br>-location of the testes.<br>-Excretory genital ducts<br>-Excretory genital glands (Seminal vesicles, Prostate & Cowper's glands) | 2 |
| | | **Female reproductive system:**<br>-location of ovary, Oviduct, Uterus & Vagina. | 2 |
| | | **Urinary system:**<br>-location of the (kidney & nephrone)<br>- location of the (Ureter, Bladder & Urethra). | 1 |
| | Title of the course: ***Pharmaceutical Calculation*** Course number: **128 Reference text: Pharmaceutical Calculations by Stoklosa**<br><br>**Objectives**: It involves computation of pharmaceutical ingredients, dosage forms, pharmaceutical formulations of extemporaneous compounding, and biological parameters of drug substances. The course teaches calculations for dilution and concentration of different types of liquids and those involved in preparing isotonic solutions, electrolyte solutions and intravenous admixtures. | | |
| | **Pharmaceutical Calculations by Stoklosa** | Dilution and concentration of pharmaceutical preparations. | 10 |
| | | Isotonic solutions. | 6 |
| | | Electrolyte solutions (milliequivalents, millimoles and milliosmoles). | 6 |
| | | Constituted solutions, I.V admixtures and flow rate calculations. | 8 |

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| | Title of the course: ***Medical Physics*** Course number: **129**<br><br>**Reference text: Physics for Biology and Medical Students, 2nd ed.**<br><br>**Objectives**: Gives students the ability to deal with the concepts of physics, emphasizes the knowledge and skills required to efficiently discharge the duties and responsibilities of the pharmacist. The course deals with the concept of basic physics and application of physics in the medical field. Upon completion of the course the students will be able to understand the physical terminology and abbreviation used to describe the lecture, and the application in medical field. | | |
| **3** | **Medical Physics** | General concepts: Method of physics and standards; thermodynamics system and system properties; conservation of energy principle; application of thermodynamics; the Zeroth law. | 3 |
| | | Pressure; temperature and temperature scales (Celsius, Fahrenheit, Kelvin); equation of state; ideal gas and real gas; general law of gases; clauses equation and Vander Waales equation; equilibrium and types of equilibrium; compressibility factor, coefficient of volume expansion, elastic coefficient (bulk modulus). | 6 |
| | | Heat and energy; work and mechanical forms of work; power; the 1st law of thermodynamics; Boyles and Charles law; practice exercises. | 3 |
| | | The 2nd law of thermodynamics; reversible and irreversible process; entropy and enthalpy; internal energy; heat capacity and adiabatic process; the relation between pressure, volume, and temperature in adiabatic | 6 |
| | | Fundamental of physics: Kinetic theory of a gas; electromagnetic waves; Maxwell equations; physical optics. | 6 |
| | | Radiation: Kirshoffs law; planks law; Stefan-Boltzman law; Wiens law; Black body and Albedo; Heat transfer (radiation, convection, conduction). | 6 |
| | | Production of X-Ray and X-Ray spectra; absorption of X-Ray; U.V and IR effects; medical and biological effects of radiation; radiotherapy. | 3 |

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| | Title of the course: ***Organic Chemistry*** **I** Course number: **1210**<br>Reference text:<br>***1- Organic Chemistry by Robert T. Morrison and Robert N. Boyd.***<br>***2- Organic Chemistry by McCurry; 5th ed. Thomason learning; CA,USA; 2000.***<br>**Objectives**: To enable students to understand the chemistry of carbon, and the classification, properties and reactions of organic compounds. It includes understanding the basic structure and properties of alkanes, alkenes and alkynes, in addition to the principles of stereochemistry and features of aromatic compounds. | | |
| | **Organic Chemistry I** | Introduction. | 3 |
| | | Alkanes and methane. | 6 |
| | | Alkenes I and II | 5 |
| | | Alkynes and dienes. | 5 |
| | | Stereochemistry I & II | 8 |
| | | Alcohols and ethers. | 8 |
| | | Alkyl halides. | 6 |
| | | Cycloalkanes. | 4 |
| | Title of the course: ***Histology*** Course number: 127 1-<br>Refrances text Basic Histology by Luiz Carlos 11th ed. (2005)<br>**Objectives:**INTRODUCTION<br>Histology is one of the most useful courses that the first class student in college of pharmacy will take in the department of clinical laboratory sciences. It brings together a lot of the information the student have already acquired about cells and organs, and it points him in the fascinating direction of development and differentiation. In fact, histology is the core subject in the study of microscopic anatomy, and cell and together with ultrastrucural study of subcellular histology. What is more, contemporary medical researcher is utterly dependent on histology.<br>OBJECTIVES | | |
| | | **Circulatory system:**<br>Structure of the vascular system (Heart wall, Arteries, Veins & Capillaries) | 2 |
| | | **Circulatory system:**<br>Structure of the lymphatic system (Lymphatic capillary). | 1 |
| | | **Lymphoid tissue:**<br>Structure & function of the (Thymus gland, Spleen & Lymph nodes) | 1 |
| | | Lymphoid nodule (MALT) & Tonsils | 1 |
| | | **Nervous system:**<br>Central & Peripheral nervous system | 3 |

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| 11 | Histology | **Respiratory system:**<br>-Conducting portion (Nose, Nasopharynx, Trachea Bronchus & Bronchioles).<br>-Respiratory portion (Lung) | 3 |
| | | **Digestive system:**<br>-Digestive steps.<br>-General structure of the digestive tract (GIT) (Oral cavity, Mouth, Esophagus & Stomach)<br>-Small intestine, Large intestine, Rectum & Anus. | 3 |
| | | **Digestive system:**<br>Glands associated with the digestive tract (Salivary glands, Pancreas, Liver & Gall bladder0. | 1 |
| | | **Endocrine system:**<br>-General structure of the pituitary gland<br>-Histophysiologies of the pituitary gland. | 2 |
| | | **Endocrine system:**<br>-General structure of the Adrenal, Thyroid, Parathyroid, Islet of Langerhans & Pineal glands. | 2 |
| | | **Male reproductive system:**<br>-General structure of the testes.<br>-Stages of spermatogenesis. | 2 |
| | | **Male reproductive system:**<br>-Excretory genital ducts-Excretory genital glands (Seminal vesicles, Prostate & Cowper'sglands) | 1 |
| | | **Female reproductive system:**<br>-General structure of ovary, Oviduct, Uterus & Vagina.<br>-Stages of follicle development.-Ovulation | 3 |
| | | **Urinary system:**<br>-Structure & Function of the (kidney & nephrone)<br>-Histology of the nephrone (filtration, absorption & excretion).<br>- Structure of the (Ureter, Bladder & Urethra). | 3 |
| | | **The skin** Thick & Thin skin | 2 |
| | Reference text : **(John and Liz Soars, New Headway Plus, Oxford: Oxford** | | |
| | | Where I live | 4 |
| | | Times past | 5 |
| | | We had a great time | 4 |

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| | **English** | I can do that | 4 |
| | | Please and thank you | 4 |
| | | Here and now | 4 |
| | | It's time to | 5 |

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| | **Department of Clinical Laboratory Sciences** |
| | Title of the course: ***Practical Human Biology*** |
| | Level: 1st Class, 1st Semester |
| | **credit hour/week : 1** |
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| | Reference text: ***Lab Manual for Practical Human Biology Adopted by the Department*** |
| | |
| | **Objectives**: Study the human body composition, types of cell structures, types of tissues, bone, skeleton, joints and muscle as well as the nutrition. Human biology also explains in details the different body systems and human genetics. |
| | At the end of the course the student should be able to describe the human body composition, body systems structure and function, and human genetics such as the Mendelian inheritance, division of chromosomes, and terms such as allele, locus, homo and heterozygous. |
| **No** | **Lecture title** |
| 1 | The microscope |
| 2 | The cells |
| 3 | Cell division (Mitosis) |
| 4 | Cell division (Meiosis) |
| 5 | The tissues (Single epithelial tissue) |
| 6 | Connective tissue |
| 7 | Muscular tissue |
| 8 | Nervous tissue |
| 9 | Bone & Cartilage |
| 10 | Digestive system(digestion) |
| 11 | Digestive system (Small & Large intestine) |
| 12 | Blood |
| 13 | The Chromosome |
| 14 | Excretory system |
| 15 | Skin |

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| | **Department of Clinical Laboratory Sciences** | |
| | Title of the course: ***Human Anatomy*** | |
| | Level: 1st Class, 2nd Semester | |
| | Credit hours: **1** | |
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| | Reference text: ***1- Clinical Anatomy by Regions (Richard S. Snell 8th ed. 2010).*** | |
| | | |
| | **Objectives**: To study the histological and anatomical structure of the human body. It is meant primarily to give the student a foundation for advanced study in health care, physiology, pathology, and other fields related to health and fitness. At the end of the course the student should be familiar with the gross anatomical and the histological description of the human body. | |
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| **No** | **Lecture title** | **hours** |
| 1 | **Circulatory system:** | 2 |
| | Location of vascular system (Heart, Arteries, Veins) | |
| 2 | **Circulatory system:** | 2 |
| | Location of lymphatic system (Lymphatic capillary). | |
| 3 | **Lymphoid tissue:** | 2 |
| | location of the (Thymus gland, Spleen & Lymph nodes) | |
| 4 | Lymphoid nodule (MALT) & Tonsils | 2 |
| 5 | **Nervous system:** | 2 |
| | Central & Peripheral nervous system by location | |
| 6 | **Respiratory system:** | 2 |
| | -Conducting portion (Nose, Nasopharynx, Trachea Bronchus & Bronchioles). | |
| | -Respiratory portion (Lung) | |
| 7 | **Digestive system:** | 4 |
| | -location of different parts of digestive tract (GIT) (Oral cavity, Mouth, Esophagus & Stomach) | |
| | -Small intestine, Large intestine, Rectum & Anus. | |
| 8 | **Digestive system:** | 2 |

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| | Glands associated with the digestive tract by location (Salivary glands, Pancreas, Liver & Gall bladder). | |
| | | |
| 9 | **Endocrine system:** | 2 |
| | -location of the pituitary gland | |
| | -location of the Adrenal, Thyroid, Parathyroid, Islet of Langerhans & Pineal glands. | |
| 10 | **Male reproductive system:** | 2 |
| | -location of the testes. | |
| | -Excretory genital ducts | |
| | -Excretory genital glands (Seminal vesicles, Prostate & Cowper's glands) | |
| 11 | **Female reproductive system:**<br>**-location of ovary, Oviduct, Uterus & Vagina.** | 4 |
| 12 | **Urinary system:** | 4 |
| | -location of the (kidney & nephrone) | |

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| | **Department of Pharmaceutical Chemistry** | |
| | Title of the course: ***Practical Analytical Chemistry*** Course number: **113** | |
| | Level: 1st Class, 1st Semester | |
| | Credit hours/week : **1** | |
| | | |
| | Reference text: ***Hand book for Analytical Chemistry lab adopted by department*** | |
| **No** | **Lecture title** | **hours** |
| 1 | Demonstration of some laboratory equipments. | 2 |
| 2 | Separation and identification of group 1 cations (individual test). | 2 |
| 3 | Analysis of group 1 cataions mixture. | 4 |
| 4 | Preparation and standardization of an acid. | 2 |
| 5 | Determination of the percentage of acetic acid. | 2 |
| 6 | Analysis of sodium carbonate and sodium hydroxide mixture. | 2 |
| 7 | Determination of chloride by the Mohr method. | 2 |
| 8 | Determination of chloride by the Volhard method. | 2 |
| 9 | Preparation and standardization of 0.1N $KMnO_4$. | 4 |
| 10 | Determination of ferrous form of iron in Mohr's salt. | 2 |
| 11 | Determination of total hardness in tab water. | 2 |
| 12 | Gravimetric determination of Nickel. | 4 |

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| | **Department of PHARMACOGNOSY** | |
| | Title of the course: ***Practical Computer Sciences*** | |
| | Level: 1st Class, 1st Semester | |
| | Credit hours/week : **1** | |
| | | |
| | Reference text: ***Lab Manual for Practical Computer Science Adopted by the Department.*** | |
| | | |
| | **Objectives**: Gives students the ability to deal with the concept of computer science, emphasizes the knowledge and skill required to efficiently discharge the duties and responsibilities of the pharmacist. The course deals with the concept of basic computer and application of it in human life and medical field. Upon completion of the course students will be able to understand the computer terminology and abbreviations used to describe the lecture, and the application programming languages. | |
| | | |
| **No** | **Lecture title** | **hours** |
| 1 | Microsoft Word applications | 8 |
| 2 | Microsoft Excel applications | 8 |
| 3 | Application of programs for statistical evaluation of data. | 8 |
| 4 | Basics for chemical and biological drawings. | 6 |

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| | **Department of Clinical Laboratory Sciences** | |
| | Title of the course: ***Histology*** | |
| | Level: 1st Class, 2nd Semester | |
| | Credit hours/week : **1** | |
| | ***2- Atlas of Human Histology. By Victor P Eroschenko.10th (2005) & 11th (2008) ed.*** | |
| **No** | **Lecture title** | **hours** |
| 1 | Circulatory system (Artery & Vein) | 2 |
| 2 | Lymphatic system (Thymus gland & spleen) | 2 |
| 3 | Lymphatic system (Lymph node & Islet of Langerhans) | 2 |
| 4 | Nervous system (Cerebral & cerebrum cortex) | 2 |
| 5 | Nervous system (Spinal cord) | 2 |
| 6 | Respiratory system (Trachea & lung) | 2 |
| 7 | Digestive system (Tongue, Esophagus & Stomach) | 2 |
| 8 | Digestive system (Small & Large intestine) | 2 |
| 9 | Digestive system Digestive system | 2 |
| | -Accessory glands of the digestive system (liver & Pancreas) | 2 |
| 10 | Endocrine system (Pituitary & Thyroid gland) | 2 |
| 11 | Endocrine system (Adrenal & pineal gland) | 2 |
| 12 | Male reproductive system (Testes & prostate gland) | 2 |
| 13 | Female reproductive system (Ovary & Uterus) | 2 |
| 14 | Urinary system (Kidney & Urinary bladder) | 2 |
| 15 | Skin (Thick & Thin skin) | 2 |

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| | **Department of Clinical Laboratory Sciences** | |
| | Title of the course: ***Practical Medical Physics*** | |
| | Level: 1st Class, 2nd Semester | |
| | Credit hours/week: **1** | |
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| | Reference text: ***Lab Manual for Practical Physics Adopted by the Department*** | |
| | **Objectives**: Gives students the ability to deal with the concepts of physics, emphasizes the knowledge and skills required to efficiently discharge the duties and responsibilities of the pharmacist. The course deals with the concept of basic physics and application of physics in the medical field. Upon completion of the course the students will be able to understand the physical terminology and abbreviation used to describe the lecture, and the application in medical field. | |
| **No** | **Lecture title** | **hours** |
| 1 | Explain how to plot graph and make laboratory report. | 2 |
| 2 | Optical Fiber Loss (bend) Measurement. | 2 |
| 3 | Simple pendulum. | 2 |
| 4 | Spectral photometric | 2 |
| 5 | Density of liquid. | 2 |
| 6 | The focal length of convex lens. | 2 |
| | application computer in medical physics | 2 |
| 7 | Measurement of Viscosity of liquids. | 2 |
| 8 | Ostwald´s Viscometer: find viscosity of unknown; find the molecular weight; find concentration of unknown substance. | 4 |
| 9 | Measuring surface tension (by capillary rise method and traveling microscope). | 2 |
| 10 | Measuring surface tension (differential height capillary method). | 2 |
| 11 | Decay curve and half life. | 2 |
| 12 | Boyle's Law. | 2 |
| 13 | Speed of sound. | 2 |
| 14 | Laser application for measurement of single slit. | 2 |

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| | **Department of Pharmaceutical Chemistry** | |
| | Title of the course: ***Organic Chemistry* I** | |
| | Level: 1st Class, 2nd Semester | |
| | Credit hours/week: **1** | |
| | Reference text: ***Hand book for practical organic chemistr*** | |
| **No** | **Lecture title** | **hours** |
| 1 | Determination of melting point (Known sample). | 2 |
| 2 | Determination of melting point (quiz and unknown). | 2 |
| 3 | Determination of boiling point (known sample). | 2 |
| 4 | Determination of boiling point (quiz and unknown). | 2 |
| 5 | Elemental analysis (explanation of basic concepts). | 2 |
| 6 | Elemental analysis (known quantity and quality sample). | 2 |
| 7 | Solution and filtration techniques (explanation of basic concepts). | 2 |
| 8 | Re-crystallization (known sample). | 2 |
| 9 | Re-crystallization (quiz and unknown sample). | 2 |
| 10 | Extraction technique (known sample). | 2 |
| 11 | Extraction technique (quiz and unknown). | 2 |
| 12 | Distillation techniques (known samples). | 2 |
| 13 | Distillation techniques (quiz and unknown). | 2 |
| 14 | Sublimation technique (known sample). | 2 |
| 15 | Sublimation technique (quiz and unknown). | 2 |

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| | **Department of Pharmaceutics** | |
| | Title of the course***Pharmaceutical Calculation*** | |
| | Level: 1st Class, 2nd Semester | |
| | Credit hours/week : **1** | |
| | Reference text: ***lab Manual for Practical Pharmaceutical CalculationAdopted by the Department.*** | |
| | **Objectives**: It involves computation of pharmaceutical ingredients, dosage forms, pharmaceutical formulations of extemporaneous compounding, and biological parameters of drug substances. The course teaches calculations for dilution and concentration of different types of liquids and those involved in preparing isotonic solutions, electrolyte solutions and intravenous admixtures. | |
| **No** | **Lecture title** | **hours** |
| 1 | Demonstration of different glass wares and equipment's used in the field of pharmacy. | 2 |
| 2 | Pharmaceutical measurements. | 2 |
| 3 | Volume measurements. | 2 |
| 4 | Preparation of aromatic waters. | 4 |
| 5 | Preparation of simple solutions. | 4 |
| 6 | Reducing and enlarging prescription contents. | 6 |
| 7 | Percentages in calculating prescription contents. | 4 |
| 8 | Stock solutions and dilution technique during dispensing technique. | 6 |

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| | **Department of Clinical Laboratory Sciences** | |
| | Title of the course: ***Human Anatomy*** Course number: 127 | |
| | Level: 1st Class, 2nd Semester | |
| | Credit hours/week : 1 Laboratory:1 | |
| | **Objectives:** To study the positions of differents organs in thoracic and abdominatl cavity.including digestive, circulatory,lymphatic, respiratory, urinary, reproductive, endocrine, nervous systems and skin | |
| | Reference text: | |
| | ***1- Clinical anatomy by regions (Richard S. Snell 8th ed. 2010*** | |
| ***Lecture No.*** | ***Subjective*** | ***No. of Hours*** |
| 1 | **Circulatory system:** | 2 |
| | locationof the vascular system (Heart , Arteries, &Veins | |
| 2 | **Circulatory system:** | 2 |
| | location of the lymphatic system (Lymphatic capillary). | |
| 3 | **Lymphoid tissue:** | 2 |
| | location& function of the (Thymus gland, Spleen & Lymph nodes) | |
| 4 | Lymphoid nodule (MALT) & Tonsils | 2 |
| 5 | **Nervous system:** | 2 |
| | Central & Peripheral nervous system by location | |
| 6 | **Respiratory system:** | 2 |
| | -Conducting portion (Nose, Nasopharynx, Trachea Bronchus & Bronchioles). | |
| | -Respiratory portion (Lung) | |
| 7 | **Digestive system:** | 4 |
| | -Digestive steps. | |
| | **General location B29of the digestive tract (GIT) (Oral Mouth, Esophagus & Stomach)** | |
| | -Small intestine, Large intestine, Rectum & Anus. | |
| 8 | **Digestive system:** | 2 |
| | Glands associated with the digestive tract (Salivary glands, Pancreas, Liver & Gall bladder0. | |
| 9 | **Endocrine system:** **-General locationof the pituitary gland thyroid parathyroid ,adrenal gland pineal gland and islet of langer hans** | 2 |
| 10 | **Male reproductive system:** | 2 |
| | **General locationof the testes. Excretory genital ducts-Excretory genital glands (Seminal vesicles, Prostate & Cowper's glands)** | |
| | | |
| 11 | **Female reproductive system:** | 4 |
| | -General locationof ovary, Oviduct, Uterus & Vagina. | |
| | | |
| | | |
| 12 | **Urinary system:** | 4 |
| | -location& Function of the (kidney & nephrone) | |
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