Unıversıty Of Pharmacy

Faculıty Of Pharmacy

Course Informatıon

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
AIT103	History I for International Students	(2,0,0)	2	2	Compulsory
Origins and rise of Ottoman Empire, Ottoman Administrative System, Ottoman Society, Law and Education, Revolts and Reform Attempts in Ottoman Empire, Reforms Through 19th Century, Military and Administrative Reforms, Reign of Abdülhamid II, Young Ottomans and Ottomanism, First Constitutional Era, Second Constitutional Era, Political Struggle for Power, The Ideologıcal Debates: 1913-1918, Ottoman Empire and Fırst World War I					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
AIT104	History II for International Students	(2,0,0)	2	2	Compulsory
The Aarmistice of Moundros and Its Aftermath, The National Resistance Movement and Mustafa Kemal Pasha, The Great National Assembly and the Treaty of Sevres, Great Offensive, Treaty of Lausanne and Sheikh Sait Rebellion, Declaration Of The Turkish Republic, The Major Periods in the Political History of Turkey I, The Major Periods in the Political History of Turkey II, Women and Nationbuilding in the early Turkish Republic I, Women and Nationbuilding in the early Turkish Republic II					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
CAR100	Career Planning	(1,0,0)	0	2	Compulsory
Students enroll in this course at the beginning of the second semester of the first year to prepare for business life after graduation.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
CHM101	General Chemistry	(3,0,0)	3	4	Compulsory
In this course, it is aimed to teach students the basic concepts and principles in chemistry. For this purpose, the topics covered in the curriculum are: Matter and Its Properties, Atom and Atomic Theories, Chemical Compounds, Chemical Reactions, Aqueous Solution Reactions, Gases, Electron Structure of Atom, Periodic Table, Chemical Kinetics, Chemical Equilibrium, Acids and Bases.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
ENG101	English I	(3,0,0)	3	4	Compulsory
Talking about biographies, asking and answering about general knowledge, talking about past events, talking about technology in the future, asking for permission/making a request, formal phone conversations, informal phone conversations, making an appointment, talking about products, checking understanding/ asking for clarification. Note: This course is offered by the departments in which the medium of instruction is English.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
ENG102	English II	(3,0,0)	3	4	Compulsory
Health matters, restaurant problems-complaints and responses, talking about computer problems, reporting the news and the weather, product problems- complaints at the store, talking about the future possibilities, health problems and herbs, job qualifications and working conditions. Note: This course is offered by the departments in which the medium of instruction is English.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
ENG201	English III- Oral Communication Skills	(3,0,0)	3	3	Compulsory
To transfer the four basic skills necessary for language learning to the students with appropriate methods and techniques, to develop the language skills necessary for their own discipline, to increase their vocabulary to a level that can follow the departmental courses and to make the use of Academic English effective.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
ENG202	English IV- Academic Writing Skills	(3,0,0)	3	3	Compulsory
To transfer the four basic skills necessary for language learning to the students with appropriate methods and techniques, to develop the language skills necessary for their own discipline, to increase their vocabulary to a level that can follow the departmental courses and to make the use of Academic English effective.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MTH133	Mathematics	(3,0,0)	3	4	Compulsory

Function, array and function types; limit and continuity, derivative and its applications; logarithm and logarithmic and exponential functions and their properties; integral and integral techniques; integral applications; differential equations; matrix algebra, determinants and linear equations; solutions of systems of linear equations.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF101	Anatomy	(3,0,0)	3	3	Compulsory

Introduction to anatomy, general terms and concepts, upper extremity; lower extremity; throax anatomy and diaphragm; heart and circulatory system, nasal larynx; trachea and lungs, anterior abdominal wall peritoneum; oral cavity, pharynx; oesohagus, stomach, small and large intestines, livers, biliary tract and portal system; pancreas and spleen; female and male genital organs, urinary system; skull skeleton; facial anatomy; scalp and mimic muscles, anterior and lateral neck regions, entrance to the nervous system, medula spinalist bulb, pons and mesencephalon, cerebellum, cranial nerves; diencephalon, telencephalon, cerebrospinal fluid, ventricles, meninges and sinuses; central nervous system vessels, entry to the atomic nervous system, atomic nervous system: sympathetic-parasympathetics; orbita and its contents, eye and visual pathways; ear hearing and balance pathways, endocrine glands.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF103	Histology	(2,0,0)	2	2	Compulsory

Students acquire basic information about histology and associate this information with other branches of science; To introduce the concept of cell and four basic tissues, to comprehend the organization of cells and four basic tissues, to discuss the histological structures of systems and their related organs and to reveal the structural and functional importance of the integrity of the systems by associating these structural features with their functions. Introduction to histology and terminology, microscope and microscopic techniques, cells and organelles, cell membrane, nucleus-nucleolus, intracellular transport systems, cytoskeleton, Epithelial Tissue, Connective Tissue, Cartilage Tissue, Bone Tissue, Muscle Tissue, Nervous Tissue, Systems and Basic Features; Blood and Cardiovascular System, Respiratory System, Gastrointestinal System, Endocrine and Genital Systems, Urinary System.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF105	Physiology	(3,0,0)	3	3	Compulsory

Cell physiology; blood physiology; muscle physiology; nervous system physiology; circulatory physiology; respiratory physiology; excretory physiology; digestive physiology; endocrine physiology; sensory physiology.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF107	Bioistatistics	(2,0,0)	2	3	Compulsory
Biostatistics provides active learning of basic statistics and research-related behaviors, skills and knowledge required at the research level. After taking this course, the student learns to use and interpret the basic statistical techniques used in scientific research, to present the data at hand, and to learn the basic concepts of hospital statistics. Biostatistics lessons are taught interactively, and the flow of the lesson is shaped according to the notifications received from the students. This course; It aims to provide students with statistical methods and the ability to use these methods while conducting research in the field of health services.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF108	Medical and Molecular Biology	(2,0,0)	2	4	Compulsory
During the course, first of all, the basic functions of the cell, starting from the cell membrane, organelles, cell division and cycle, and cell death will be discussed. Then, genetic material and replication of genetic material will be mentioned and genetic disorders, cancer, DNA technology and stem cell applications will be mentioned.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF109	Organic Chemistry I	(3,0,0)	3	4	Compulsory
Introduction to organic chemistry and basic topics are explained. Atomic and molecular orbitals, hybridization, chemical bonds, isomers, resonance structures, acids and bases, stereochemistry, chemical reactions, basic reaction types, alkanes, alkenes, alkynes, aromaticity and benzene, alkyl halides, nomenclature, formation and chemical properties are given.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF110	Analytical Chemistry I	(3,0,0)	3	4	Compulsory
The aim of this course is to provide students with theoretical knowledge about the basic classical analytical techniques applied for quantitative and qualitative analysis. The following topics will be covered: Gravimetric analysis methods, titrimetric analysis methods, chemistry of aqueous solutions, theory of neutralization titrations, titration curves of complex acid/base systems, precipitation titrimetry, complexation titrations, introduction to electrochemistry, and applications of standard electrode potentials.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF111	Analytical Chemistry I Laboratory	(0,0,3)	1	3	Compulsory
It is aimed that students have practical knowledge about basic qualitative and quantitative analysis in analytical chemistry. The following experiments will be carried out: Analysis of Group I cations, Analysis of Group VII anions, gravimetric analysis (measurement of coke density and calibration of glassware), neutralization titrations (strong acid/strong base and strong acid/weak base titrations), precipitation titration (determination of potassium bromide) , and complexation titrations (determination of calcium amount by titration and determination of water hardness).					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF113	Pathology	(3,0,0)	3	4	Compulsory
Introduction to pathology; inflammation and reparation; cellular response to injurious factors; circulatory disorder pathology and hypertension; neoplasia; drug effects.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF117	Social Pharmacy	(2,0,0)	2	3	Compulsory
Social pharmacy can be defined as a discipline that deals with drugs and drug use from social, behavioral and human perspectives. The aim of the Social Pharmacy course is to show the responsibilities of the pharmacy profession on drug issues at the social level. Social Pharmacy emphasizes the social factors that affect drug use and enables the pharmacist to perceive their active social role in health care. It enables the pharmacist to understand the patient's beliefs and attitudes and guides the pharmacist to give the best healthcare service. It enables the pharmacist to internalize the medical ethical rules. It helps rational drug use by aiming to obtain the right drug at an affordable price. Course content: History of pharmacy, public health, health and disease behaviors, health psychology, pharmacoepidemiology and social epidemiology, deontology and bioethics, main principles of pharmacy communication, pharmacoeconomics, clinical pharmacy. As a result, the aim of the course is to explain the place of social and behavioral sciences in the pharmacy profession in detail.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF118	Introduction to Pharmacy	(0,1,0)	0	1	Compulsory
In this course, information about the history of pharmacy, pharmacy education and pharmacy departments, internships will be given. The rules of the faculty and the university, as well as career opportunities in pharmacy will be explained.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF201	Analytical Chemistry II	(3,0,0)	3	4	Compulsory

It is aimed that students have theoretical knowledge about basic qualitative and quantitative analyzes in analytical chemistry. The following topics will be covered: introduction to spectrometric methods, components of optical devices, atomic absorption (AAS) and emission spectrometry (AES), ultraviolet/visible spectrometry (UV/VIS), infrared spectroscopy (IR), chromatographic separations, high performance liquid chromatography (HPLC), gas (GC), supercritical fluid (SFC) and thin layer chromatography (TLC), capillary electrophoresis (CE) and some extraction techniques.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF202	Analytical Chemistry II Laboratory	(0,0,3)	1	3	Compulsory

It is aimed that students have practical knowledge about basic qualitative and quantitative analysis in analytical chemistry. The following experiments will be performed: Basic statistics in analytical chemistry, acid, base and buffers, development of standard addition and calibration curves, thin layer chromatography (TLC), high performance liquid chromatography (HPLC) (determination of caffeine in beverages), atomic absorption (AAS) and emission spectrometry (AES) (determination of calcium in drinking water).

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF203	Biochemistry	(3,0,0)	3	3	Compulsory

To examine the chemical building blocks of the cell, which is the structural and functional unit of living systems, and the reactions in which they participate. General Characteristics of Carbohydrates, Classification of Carbohydrates, Glucose Metabolism, Glycogen Metabolism, Gluconeogenesis, Digestion of Carbohydrates, Carbohydrate Metabolism Disorders, General Characteristics of Lipids, Classification of Lipids, Lipid Metabolism, Digestion of Lipids, Lipid Metabolism Disorders, Amino Acids, Protein Classification, Classification of Proteins Protein Metabolism Disorders, General Properties of Enzymes, Classification of Enzymes, Mechanisms of Action of Enzymes, Use of Enzymes in Diagnosis and Prognosis, Vitamins and Coenzymes, General Properties of Hormones, Effects of Hormones, Classification of Hormones, Nucleic Acids.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF207	Pharmaceutical Botany	(2,0,0)	2	4	Compulsory
The aim of the Pharmaceutical Botany course is to teach the scientific names of medicinal, poisonous, economically useful plants (food, spice, dye, textile, etc.) and their introductory botanical properties. The botanical features of medicinal, poisonous and beneficial plants, algae, lichen, edible and poisonous mushrooms, their growth and distribution, recognition in nature and their active substances and medicinal and other uses are taught. Flora, herbarium, protection of nature and the environment are also covered.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF208	Pharmaceutical Botany Laboratory	(0,0,2)	1	3	Compulsory
Naming plants, defining their morphological and anatomical features, preparing and storing herbarium specimens, learning the structures of plants such as roots, stems, leaves, flowers and fruits, and examining these structures in medicinal plant groups. General concepts related to the identification of important plants (medicinal plants) in pharmacy, determination of the families of Coniferae and Angiospermae plants that are important in terms of pharmacy in the flora of Turkey and Northern Cyprus.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF209	Organic Chemistry II	(2,0,0)	2	3	Compulsory
Introduction and reactions of functional groups, alcohols, phenols, ethers, epoxides, carbonyl group, aldehydes and ketones, carboxylic acids and their derivatives, amines, naming of organic compounds, obtaining organic compounds and chemical properties are explained.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF210	Pharmacy Regulations and Deontology	(2,0,0)	2	3	Compulsory

Basic legislation that will be needed during pharmacy practices, pharmacy business management and professional ethical principles that will guide during professional practices, Pharmacy Legislation; Laws, Regulations, Regulations, Directives are given and discussed with examples. In addition, basic principles of Pharmacy Ethics and ethical decision making process are explained. Education and training regulations, internship directives, student discipline regulations, undergraduate and graduate education in pharmacy, pharmacy-pharmacist concepts, duties, responsibilities, national and international institutions and organizations related to pharmacy, ministry of health, ministry of labor and social security, turkish pharmacists union, region chambers of pharmacists, world health organization, international pharmacy federation, various foreign pharmacy associations, health and disease concepts, drug, drug active substance, drug excipient concepts, classification of drugs, pricing of drugs, pharmacy concept, pharmacy warehouse concept, promotion of the pharmaceutical industry, health duties and responsibilities of the pharmacist in prevention and treatment, the concept of prescription, the concept of deontology and ethics, the concept of research and publication in pharmacy, the introduction of important pharmacy journals.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF212	Clinical Biochemistry	(2,0,0)	2	4	Compulsory

Examination of biochemical mechanisms in health and disease, prevention of diseases, diagnosis and differential diagnosis, tests in monitoring prognosis and treatment, medical interpretations of laboratory results. Carbohydrate metabolism disorders, Lipid metabolism disorders, Proteins, Amino acids, Diseases that can be seen with Structure Disorders, Disorders of Iron Porphyrin and Hemoproteins, Ions, Metals Balance and Balance Disorders, Kidney, Liver Functions and Diseases and Their Evaluation, Enzyme Activities That May Increase in Diseases , Serum Proteins and Changes and Connections of Diseases, Hereditary Diseases and Biochemistry.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF215	Microbiology	(3,0,0)	3	3	Compulsory

Training is provided in order for the pharmacist to whom the patient first applies for health problems, to have information about microorganisms-drugs, to be knowledgeable about infections, to guide the patient, to be an educator on public health issues, and to be knowledgeable and authorized in pharmaceutical companies. Around the pharmacist, in health institutions; medicine, microorganism, cosmetics, preventive treatment services, information, guidance competence and gains are aimed. Introduction to microbiology, General bacteriology, General mycology, General virology, Sterilization, antisepsis and disinfection, antimicrobial agents and their mechanisms of action, antibiotic resistance mechanisms, infectious diseases, introduction to immunology, drug-cosmetics-microorganism connections, the place of the pharmacist in microbiology.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF216	Pharmaceutical Information Managment	(2,0,0)	2	2	Compulsory
The main aim of the course is to develop a clear understanding of the fundamentals of pharmaceutical and medical knowledge management; students will gain knowledge and experience on the fundamentals of pharmaceutical and medical information management. Basic concepts and definitions related to pharmaceutical and medical information management, information needs and information seeking behaviors in pharmaceutical and medical information management, information resources, information technology in pharmaceutical and medical information management, information and information management in pharmaceutical and medical sciences, developing professional and managerial skills, advances in pharmaceutical and medical information management, medical knowledge in the pharmaceutical industry, research knowledge in the pharmaceutical industry, legal and ethical requirements in pharmaceutical and medical information management, career development in pharmaceutical and medical information management.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF219	Communication Skills in Pharmacy	(1,0,0)	1	2	Compulsory
To ensure that pharmacist candidates are informed about interpersonal communication, and to become knowledgeable and conscious in communicating effectively with various patient groups and healthcare professionals.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF222	First Aid in the Pharmacy	(2,0,0)	1	2	Compulsory
In this course, first aid principles, basic first aid practices, assessment of accident environment and casualty transfer, drowning, coma, artificial respiration, heart massage, first aid in bleeding, cold-related epilepsy, bites, fractures, bandages and splints, and then first aid regulations are examined. General health status of the patient, vital signs (blood pressure, pulse, fever, respiration), medical first aid, cardiac, pulmonary, basic life support, airway, respiratory, circulation, gastrointestinal, emergency, endocrine, immunological emergencies, pediatric emergency, first aid surgery, gynecology and obstetrics, fractures and injuries, trauma, shock, wound care, bleeding control, environmental emergency situations, chemical and physical agents, poisoning, legal sanctions, emergency care are mentioned.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF255	Reading Scienitific Literature	(2,0,0)	2	3	Elective

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
Within the scope of this course, students will have experimental/theoretical knowledge and experience about their project in the field of pharmacy. During the course, students will gain the skills of literature review, problem solving skills, method learning and/or development, data acquisition, interpretation and sharing the results with their stakeholders as written and oral presentations. In this context, this course aims to identify the relevant problem or gap in the field of pharmacy in the literature, to seek a solution to the identified problem or gap, to determine the method/ways to reach a solution, to obtain experimental and/or theoretical data, to analyze data and to interpret these data by comparing them with the literature. and presenting the results in national and/or international project format by discussing them.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF263	Instrumental Methods for Phytopharmaceuticals	(2,0,0)	2	3	Elective
To learn the basic information and concepts necessary for reliable qualitative and quantitative chemical analysis, and to acquire knowledge about the theory of instrumental techniques used in chemical analysis, the working principles of the devices used and the correction of possible malfunctions in use.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF290	Pharmacy Practice I (annual)	(0,4,0)	2	4	Compulsory
Obtaining information about the general appearance of the pharmacy where the internship is held (Parts of the pharmacy, its location-including how the drugs are arranged-, the location of the cabinets, etc.), identifying the pharmacy on a small sketch, learning the notebooks in the pharmacy and what they are used for, getting information about magistral preparations (how they are prepared, The packaging used, the label etc.), the scales in the pharmacy, the scales found, the balance controls, the information about the red and green prescription drugs and the red and green prescriptions in the pharmacy, grouping the non-pharmaceutical products sold in the pharmacy (cosmetics, dermocosmetic, dressing material) , perfumery, perfumery, etc.) and the product, learning the names of the products sold in the pharmacy (used as medicine) that can be sold without a prescription, diagnosis of a patient with a prescription and a non-prescription, the drugs taken by the patient, the patient's dialogue with the pharmacist, and the pharmacist's recommendations to the patient. learn about the sample					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF301	Pharmacognosy I	(2,0,0)	2	4	Compulsory

Definition of pharmacognosy, introduction to pharmacognosy, history of pharmacognosy, definitions of primary (glucides, lipids, amino acids, peptide, protein and enzymes) and secondary metabolism products (phenylpropane derivatives; coumarin, flavonoid, anthranoid, tannin etc.), physical and chemical properties, separation methods, qualitative and quantitative analysis methods, biological activities and drugs rich in these substances, their use among the public and their pharmacological properties are given.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF302	Pharmacognosy I Laboratory	(0,0,3)	1	3	Compulsory

Definition of microscope, microscopic analysis in theory, quantitative microscopy (=measurement under microscope); Plant cells and tissues, microscopic analysis: Ergastic substances (crystals: single, twin, sand-shaped, raffits, starch, aleurone); Leaf elements (examples of glandular and covering hairs; some examples of epidermis and stomata), root, rhizome and bark elements (investigation of related examples), fruit and seed elements (examples of related elements); analysis of unknown powder drug; Total Qualitative Analysis: Diagnostic methods; saponins, anthranoids, cyanogenetic heterosides, tannins; application of chromatography, diagnosis of simple proteins; Identification of enzymes.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF303	Pharmaceutical Technology I	(3,0,0)	3	4	Compulsory

The aim of this course is to enable students to recognize Pharmaceutical Technology, to understand the basic concepts and basic processes required for the preparation of a drug formulation and the ways of administration, to make the necessary calculations for the preparation of formulations and to solve the problems in this regard, to comprehend the related dose and maxima dose terms and to make calculations, To have knowledge about water and other excipients, which are the basic components of drug preparation, to have sufficient knowledge about solution and solution types and to have sufficient skills about solution preparation, to learn all the techniques required for the preparation of single-phase systems and to make the necessary controls, Medicines in children and the elderly To understand the design of the formulations, to understand the pre-formulation studies, to know the veterinary drugs, and to know the packaging materials and sought-after features and drug licensing in pharmaceuticals.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF304	Pharmaceutical Technology I Laboratory	(0,0,3)	1	3	Compulsory

The aim of this course is to enable students to understand the preparation of a drug formulation and the basic processes required for it. In addition, to be able to comprehend the terms of dose and maxima dose, to make the necessary calculations and maximal dose calculations for the preparation of formulations. One of the objectives of the course is to have sufficient knowledge about solution, aromatic water, syrup, lemonade, infusion and decoction type preparations and to have sufficient skills about the preparation of these types of preparations. Demostration, Pharmaceutical Calculations, Weighing, Aromatic Water, Inhalation Type Solution, Iodized Solution-I, Iodized Solution-II, Dilute Hydrogen Peroxide Solution, Anhydrous Phosphate Oral Solution (Joulie Solution), Lemonades, Syrups, Elixirs, Infusions, Decoctions, Decoctions .

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF305	Pharmaceutical Chemistry I	(2,0,0)	2	4	Compulsory

In this course, physicochemical and structural properties of drugs, general metabolic reactions of drugs, examples of central nervous system drugs, general anesthetics, sedative-hypnotics, tranquilizers, neuroleptics, antidepressants, antiepileptics, analgesic drugs and their classification, synthesis, structure-activity relationships and metabolism of drugs are explained.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF306	Pharmaceutical Chemistry I Laboratory	(0,0,3)	1	3	Compulsory

In this course, it is aimed to teach the synthesis of various active pharmaceutical ingredients, separation techniques and purification techniques in the laboratory environment. Laboratory safety, synthesis of active pharmaceutical ingredients, filtration, extraction, distillation, etc. laboratory separation techniques are taught

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF307	Public Health	(2,0,0)	2	3	Compulsory
In this course, students will first learn the important concepts and principles of public health. The importance of pharmacists in the field of public health will be discussed and examples of public health services expected to be provided by pharmacists will be covered in detail. The main determinants of health will be taught and the effects of these determinants on health problems will be discussed, along with important examples from around the world. Students will then learn the concept of epidemiology; the importance of epidemiology in public health; They will gain a better understanding of patient-oriented pharmacy services by learning about the epidemiology of chronic and infectious diseases and disease epidemiology in different parts of the world. Other important issues in the field of public health; for example, immunization; health promotion; protection of personal and public health; environmental health; family planning and birth control will be given and discussed.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF310	Pharmacognosy II	(2,0,0)	2	4	Compulsory
Definitions, physical, chemical properties and structures, diagnostic and separation methods, activities of steroids and terpenoids from herbal secondary metabolites, and drugs rich in these substances, essential oils; Biological uses and pharmacological properties among the public are given.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF311	Pharmacognosy II Laboratory	(0,0,3)	1	2	Compulsory
Theoretical information about identification and experiments; Theoretical explanation of isolation techniques, qualitative and quantitative analysis methods, classification of essential oils and fixed oils; determination of essential oil by volumetric and gravimetric methods; determination of fixed oil, some experiments of fixed oils, index determination of fixed oils; Pharmacopoeia analysis in O. Thymi, total aldehyde determination in O. Citri and I.T.K.; Determination of total alcohol content in O. Menthae and İ.T.K.; Identification of fixed oils by thin layer chromatography, determination of terpene number in O. Menthae, Valepotriate-bearing drugs and Valepotriates in İ.T.K. Anethole isolation by column chromatography from O. Foeniculi.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF312	Pharmaceutical Technology II	(2,0,0)	2	3	Compulsory
To be able to prepare and evaluate suspensions, emulsions, creams, ointments and suppositories that are prescribed or ocucinal. To provide accurate information to patients so that these dosage forms can be used appropriately. Colloidal dispersions, surface and interfacial events, suspensions,					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
emulsions, suppositories, applications in rheology and pharmacy, preparations applied to the skin, transdermal therapeutic systems, aerosols					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF313	Pharmaceutical Technology II Laboratory	(0,0,3)	1	2	Compulsory
The aim of this course is to enable students to understand the concepts of semi-solid dosage forms and modern drug delivery systems, to understand preparation techniques, and to comprehend related calculation methods. It is one of the objectives of the course to have sufficient knowledge about lotion, lip paint, suspension, emulsion, gel, liniment, ointment, ovule and suppository type preparations and to have sufficient skills about the preparation of these types of preparations. Demonstration, Lotion preparation, Suspension preparation, Oral emulsion preparation, Emulsion Determining the type of liniment, Preparation of gel, Preparation of ointment, Preparation of oily cream (kold cream), Preparation of stearate cream, Preparation of ovule, preparation of destructionusen suppository, Preparation of aftershave lotion, Preparation of lip paint, Preparation of cleansing cream, Homework presentation					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF314	Pharmaceutical Chemistry II	(2,0,0)	2	3	Compulsory
The aim of this course; Drugs effective on autonomic nervous system and cardiovascular system, Antiarrhythmic drugs, Antianginal and vasodilator drugs, Antihypertensive drugs, Diuretic drugs, Drugs used in water-electrolyte and acid-base balance disorder, Antihyperlipidemic drugs, Hemostatic and anticoagulant drugs, Antiplatelet drugs, thrombolytics , antianemics, plasma substituted compounds, steroidal and peptide hormones, proteins, enzymes and drugs acting on the gastrointestinal system, Antidiabetic Drugs, Antihistamines and Drugs Used in Ulcer Treatment, Antiemetic Drugs, Laxative and Purgatives, basic properties of antidiabetic drugs, their mechanism of action, structure- The aim of this course is to give basic information about effect relations, synthesis and biotransformations and to inform students.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF315	Pharmaceutical Chemistry II Laboratory	(0,0,3)	1	2	Compulsory
In line with the purpose of this course, students are taught theoretically and practically separation and purification techniques and techniques for determining some physical properties of drug molecules. These are: separation of solid-solid and liquid-liquid mixtures, Density (solid and liquid), determination of boiling and melting point, measurement of refraction index, determination of specific rotation (refractometry), pharmacopoeia analysis.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF316	Toxicology	(3,0,0)	3	3	Compulsory
Definition and classification of toxicology. Giving basic information about the exposure routes of therapeutic agents and xenobiotics, their toxic effects mechanisms and treatment approaches in poisonings. Introduction to basic toxicology, Identification and classification of toxic effects according to their source, Therapeutic drug monitoring and adverse drug reactions (drug interactions), Toxic alcohol and solvents, Drug abuse and hallucinogens, Toxicity of sympathomimetics, Toxic gases and particles, Toxicities of metals, Threats to public safety Pathogenic toxins and chemicals, NSAIDs toxicities, Phytotoxicology and natural toxins, Pesticide toxicology, Risk assessment and regulatory toxicology.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF318	Cosmetic	(2,0,0)	2	2	Compulsory
At the undergraduate level, students are introduced to the science of cosmetology, they understand that the foundations of this science are based on the principles of pharmaceutical technology, and the content, preparation, applications, etc. of cosmetics. It is aimed to have basic knowledge about the subjects.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF320	Toxicology Laboratory	(0,0,3)	1	2	Compulsory
To give basic information about toxicology laboratory applications, to have in vivo and in vitro toxicological tests and related applications. Introduction, Laboratory animals and acute toxicity test systems, Analysis of toxic substances in water (ammonia, nitrate), Analysis of toxic substances in milk (salicylic acid, formaldehyde, starch), Teratogenic effect of diazinon on chicken embryo, Evaluation of experimental teratogenicity results, Determination of cyanide in various samples, Group studies (Toxicity tests: Acute and chronic toxicity, In vitro toxicity tests, Famous toxicological cases, Isolation techniques in toxicological analyzes, Evaluation of deaths due to poisoning).					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF323	Pharmacology II	(5,0,0)	3	3	Compulsory
Non-steroidal anti-inflammatory drugs (NSAIDs), Pharmacological properties of drugs that affect the gastrointestinal system, respiratory system and cardiovascular system.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF333	Pharmacology III	(3,0,0)	3	3	Compulsory
Pharmacological properties of drugs affecting endocrine and central nervous system diseases and chemotherapeutics.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF390	Pharmacy Practice II	(0,4,0)	2	4	Compulsory
Researching pharmacopoeias and resource books in the pharmacy, learning and reporting the materials in the pharmacy that must be kept in order to open a pharmacy, writing down the chemicals and drugs (with their Turkish and Latin names) in the laboratory of the pharmacy, learning how to dispose of expired drugs in the pharmacy, Learning to write the drugs that need to be sold with a red and green prescription in the pharmacy (name, company and price), learning to write the drugs that are sold with purple and orange prescriptions, information about natural origin products, nutraceuticals and herbal medicines if they are sold, registering a prescription to the system under the control of a pharmacist. learning, learning the drugs/substances that are available-sold in the pharmacy and that need to be kept in the cold.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF400	Pharmaceutical Technology III	(3,0,0)	3	3	Compulsory
The aim of this course is to enable students to explain the concepts and preparation methods of solid dosage forms and modern drug delivery systems, to comprehend the general properties and processes of powder technology, which is the building block of these systems, to define the relevant formulations, to have knowledge about all the substances included in its composition, including excipients. To be able to understand the preparation techniques, to comprehend the relevant calculation methods, to design and prepare different formulations for different administration routes, to learn the controls made on the finished product and the concept of dissolution rate and to evaluate them, to have knowledge about the factors affecting the stability of these systems and to make them relevant. to evaluate the techniques.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF401	Colloquium	(0,1,0)	0	1	Compulsory
The program consists of a series of lectures. Successful Pharmacists, Lecturers and/or businessmen trained in different fields of Pharmacy Professions are invited to share their experiences. The aim of the course is to enrich the professional life perspectives of the students who will be brought to life in the near future.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF402	Pharmacognosy III	(2,0,0)	2	3	Compulsory
Alkaloids-general, alkaloid biosynthesis and expression reactions; protoalkaloids and related drugs; pyridine and piperidine alkaloids and their derived drugs; Tropan alkaloids and the drugs from which they are obtained; Quinoline alkaloids and the drugs they are obtained from; Opium alkaloids; Aporfin, pyrrolizidine and quinolizidine alkaloids and the drugs they are obtained from; Purine alkaloids and their derived drugs.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF403	Pharmacognosy III Laboratory	(0,0,3)	1	2	Compulsory
Recognition Reactions of Alkaloids, Colorimetric Quantification of Solanaceae Alkaloids, Determination of Total Alkaloids in C. Chinae, Chromatographic Identification of Alkaloids in Preparations, Extraction of Caffeine from Black Tea and Pharmacopeia Analysis, Determination of Antibiotic Activity Presentation, Total Qualitative Analysis in Herbal Teas, Project					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF404	Phytotherapy	(2,0,0)	2	2	Compulsory
Phytotherapy, terminology and relevant national and international organizations, which are the most well-known and common complementary treatment methods, are introduced. Standardization and production of herbal medicine in pharmacy quality, medicinal teas, medicinal oils and herbal medicines are explained. Use of phytotherapeutics, doses, drug interactions and necessary warnings are given to support the body or cure diseases.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF406	Pharmaceutical Chemistry III	(2,0,0)	2	3	Compulsory
The main aim of the course is the synthesis, structure-activity relationships and reactions of biotransformations of compounds used as chemotherapeutics and their importance for drug development; Introduction to Antiinfective Drugs (Chemotherapeutics), Antiseptic and Disinfectants, Drugs Used Against Ectoparasites, Antifungal Drugs, Antihelmentic Drugs, Antibacterial Drugs, Antimycobacterial Drugs, Antibiotics, Antiviral Drugs, Antineoplastic Drugs by giving general information to the students, to form a basis on these subjects.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF407	Pharmaceutical Chemistry III Laboratory	(0,0,3)	1	2	Compulsory
In this course, the principles and applications of instrumental techniques such as ultraviolet, infrared, nuclear magnetic resonance and mass spectroscopy used in the qualitative analysis of drugs and elucidation of their structures.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF409	Clinical Pharmacy I	(2,0,0)	2	3	Compulsory
The aim of the course is to introduce patient-oriented concepts related to clinical pharmacy and pharmaceutical care, and to show the roles that the clinical pharmacist can play in rational drug use and the success of patient treatment. The following topics are given within the scope of the course: Introduction to Clinical Pharmacy, Patient Focused Concepts, Current Situation in the World and Turkey, Duties and Responsibilities of the Clinical Pharmacist, The Clinical Pharmacist's Systematic Approach to Treatment – Case Solution, The Importance of Patient Education in Clinical Pharmacy Practices, Patient Education Techniques and Compliance, Clinical Pharmacist's Approach to Pain and the Role of the Pharmacist in the Treatment, Clinical Pharmacist's Approach to the Fever Cases and the Pharmacist's Role in the Treatment, the Clinical Pharmacist's Approach to the Diarrhea and Constipation Cases and the Pharmacist's Role in the Treatment, the Instructions for Use of the Pharmaceutical Dosage Forms, the Drug Use during Pregnancy and Lactation, and the Clinical Pharmacist's Approach Respiratory Tract Infections and Clinical Pharmacist: Common Cold-Flu, Vaccination and Current Practices in Treatment, Sinusitis, Pharyngitis, Otitis media and Treatment options.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF411	Pharmaceutical Technology III Laboratory	(0,0,3)	1	2	Compulsory
The aim of this course is to enable students to understand the concepts of solid dosage forms and modern drug delivery systems, to understand preparation techniques, and to comprehend related calculation methods. One of the objectives of the course is to provide students with sufficient knowledge about tablets, capsules, lozenges, microcapsules and effervescent granule type preparations and sufficient skills about the preparation of these types of preparations. Demostration, Dust Control, Preparation of Tablet Formulation by Direct Compression Method, Dry Granulation Method, Wet Granulation Method, Tablet Control, Effervescent Granulated, Bioadhesive Tablet, Chewable Tablet, Controlled Release Tablet, Hard Lozenges, Dissolution Tests and Tablet Coating Techniques, Capsule Preparation and Controls, Microcapsules, Homework Presentation.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF412	Pharmacokinetics and Biopharmaceutics	(1,0,0)	1	2	Compulsory
Being able to learn the definitions of bioavailability and bioequivalence, Bioavailability determination methods, bioavailability test criteria, factors affecting bioavailability, bioequivalence, having knowledge about generic drugs, Pharmacokinetics: compartment models, graphic methods, linear regression, peeling method, area under the curve, calculation of pharmacokinetic parameters, To have information about intravenous infusion administration, loading dose, continuation dose.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF413	Pharmaceutical Technology IV	(3,0,0)	3	4	Compulsory
The aim of this course is to enable students to define and classify parenteral solutions, lyophilized products, other sterile preparations and dialysis solutions, to know the relevant physical concepts and physiological phenomena, to have information about all the substances in their composition, including the auxiliary substances, to comprehend the methods of obtaining them. To design and prepare formulations, to understand all related relations, especially isotonia calculation, and to solve problems, to know sterilization techniques and to make a formulation sterile, to learn and evaluate the controls made on the finished product obtained, to have knowledge about the factors affecting the durability of these systems. and to evaluate them with relevant techniques, what surgical materials are, basic materials, preparation techniques and usage principles and how to make necessary controls, basic knowledge of drug stability l to know and evaluate the concepts					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF414	Pharmaceutical Technology IV Laboratory	(0,0,3)	1	3	Compulsory
The aim of this course is to enable students to understand the concepts of parenteral dosage forms and ear nose, eye drug delivery systems, to understand preparation techniques, and to comprehend related calculation methods. One of the objectives of the course is to provide students with sufficient knowledge about ear, nose eye drops, eye wash solutions, parenteral nutrition, irrigation, infusion, dialysis solutions, ampoules and vial-type preparations, and sufficient skills in the preparation of such preparations. Demostration, Ear preparations, Nasal preparations, Eye preparations, Large volume parenteral solutions (nutritive solutions), Large volume parenteral solutions (irrigation solutions), Small volume parenteral solutions (ampoules), Small volume parenteral solutions (ampoules), Small volume parenteral solutions (vials), Homework Presentation.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF415	Pharmacy Managment and Accounting	(2,0,0)	2	3	Compulsory
Business definition, basic features of pharmacy business, Basic accounting-profitability calculation-sample invoice analysis, Cash flow statement creation-tax-personnel employment information, Location selection stock management-pharmacy programs-principles of opening a pharmacy, Laws-regulations-milk-protocolmedula-audit					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF416	Clinical Pharmacy I	(2,0,0)	2	3	Compulsory
The aim of the course is to explain the roles of clinical pharmacists in the pharmacotherapy of common acute and chronic diseases, education and follow-up of patients. The following topics are covered in the course: Clinical Use of Corticosteroids, The Role of the Clinical Pharmacist in the Treatment of Hypertension, The Role of the Clinical Pharmacist in Congestive Heart Failure Pharmacotherapy and Digoxin Monitoring, Peptic Ulcer and Helicobacter pylori, Clinical Pharmacist Approach to Gastroesophageal Reflux Disease, Clinical Pharmacist Approach to Lower Respiratory Tract Infectious Clinical Pharmacist in Asthma Treatment and Follow-up, Chronic Obstructive Pulmonary Disease and Inhaler Dosage Forms, Approach to Cases with Meningitis, Diabetes and Clinical Pharmacist Approach.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF417	Raidopharmacy	(1,0,0)	1	2	Compulsory
Basic Atom, Radiation, Definitions of Radioactivity, Types of Radiation, General Concepts of Radiopharmacy, Differences of Radiopharmaceuticals from Radiochemicals and Other Drugs, General Properties of Radiopharmaceuticals, Radiopharmaceuticals, Radiopharmaceuticals Concepts, Preparation and Production of Radionuclides and Radiopharmaceuticals, Quality Control in Radiopharmaceuticals and Radiopharmaceuticals, Quality Control of Radiopharmaceuticals GRP (Good Radiopharmaceutical Practices), Design and Development of Radiopharmaceuticals (Formulation Development)					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF418	Pharmaceutical Biotechnology	(1,0,0)	1	2	Compulsory

Pharmaceutical Biotechnology has emerged as a new research area as a result of the combination of recombinant DNA technology and traditional pharmaceutical sciences. The aim of this course; Recombinant DNA technology, transfer of genetic information from one organism to another and selection of the appropriate expression system such as bacterial cell, yeast cell, mammary cell, insect cells, transgenic animals and plants for the production of biopharmaceuticals, production and formulation of recombinant DNA technology-derived biopharmaceuticals, peptide protein carrier systems To enable them to learn pharmaceutical biotechnology concepts in the most basic and up-to-date form, such as the production of biopharmaceuticals under GMP conditions and legal regulations regarding biopharmaceuticals.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF419	Pharmaceutical Care I	(1,0,0)	1	2	Compulsory

Drug therapy, written information, patient care plan preparation and implementation, observation and evaluation of treatment results, pharmacovigilance, side effect reporting, patient registration and preservation of patient information, collaborative pharmacy, drug-related problems and pharmacist intervention, therapeutic target, patient-specific therapeutic plan creation , care for asthma patients, care for cardiovascular patients, care for gynecology patients, care for self-medicated patients, care for psychiatric patients

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF467	Veterinary Pharmacy	(2,0,0)	2	3	Elective

The aim of the course is to introduce veterinary drugs to pharmacy students and to inform them about some important rules during the marketing and use of these drugs.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF490	Pharmacy Practice III (annual)	(0,4,0)	2	4	Compulsory

Obtaining information about the duties, authorities and responsibilities of the hospital pharmacist, obtaining general information about the Drug Management System used in the hospital pharmacy and applying this system, obtaining general information about inpatient drugs, general information about giving drugs to inpatients, stock control, drug supply (tender, procurement, control), to obtain information about the commissions in which the hospital pharmacist takes charge and the functioning of the commissions; To learn the duties of the pharmacist in these commissions, to obtain information about the special drug groups prepared in the hospital and their preparations, to obtain information about the duty system in the hospital pharmacy and the duties of the hospital pharmacist on duty, to obtain information about the red, green, purple and orange prescription drugs, the control and management of these drugs, Getting information about the duties and management of the personnel working in the hospital pharmacy, getting information about the relations with the employees in the pharmacy and understanding the importance of teamwork, getting information about the relations with the managers in the hospital, getting information about the relations with the other health personnel in the hospital, Relations with the Relevant Health Institutions To obtain information about the pharmacy's sketch, plan, layout. This course, which lasts throughout the year, has a 40-hour internship requirement in groups. There are theoretical courses during the semester. The report to be written by the students at the end of the year includes theoretical and hospital internship information.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF491	Pharmacy Practice IV	(0,4,0)	2	4	Compulsory

To obtain information about the internship institution, to obtain information about the place and importance of the internship institution in the execution of the pharmacy profession, to obtain information about the mission and vision of the internship institution, and to evaluate the theoretical and practical information gained by the student after the internship.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF501	Graduation Procejt	(3,0,0)	3	9	Compulsory

The PHA 501 Graduation project course, which students will take in the 5th year 09th semester, is for students to develop and defend a research proposal or research a drug / therapeutic conflict or a pharmacy (hospital or community pharmacy) management problem and present their work to faculty and students as an oral presentation. aims to deliver in writing

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF502	Rational Drug Use	(2,0,0)	2	4	Compulsory
It aims to learn the basic principles of rational drug use, individualization of drug therapy, the application of rational drug use in common diseases, and the effect of drug interactions on rational drug use.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF504	Clinical Pharmacy Applications	(3,0,0)	3	4	Compulsory
The clinical pharmacy practice course requires 8 weeks of working in the hospital. Students work under the supervision of clinical preceptors. The main aim of this course is to introduce students to the pharmaceutical care service in the hospital, which will provide the development of basic technical skills, knowledge, practice skills, professional judgment, communication skills and competencies required for the pharmacy profession.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF589	Pharmacy Practice V Theoretical	(0,1,0)	0	2	Compulsory
The student gains the ability to carry out the activities of a pharmacy alone by participating in all the activities of the pharmacy under the responsibility of a pharmacist.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF590	Pharmacy Practice V	(0,35,0)	15	30	Compulsory
The student gains the ability to carry out the activities of a pharmacy alone by participating in all the activities of the pharmacy under the responsibility of a pharmacist.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF607	Laboratory Safety	(2,0,0)	2	3	Elective
Working in the laboratory, ensuring safety, recognizing and correct use of laboratory equipment and equipment are taught.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF617	Immunology	(2,0,0)	2	3	Elective
Learning the basic features and mechanisms of the immune system					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF618	Stem Cell	(2,0,0)	2	3	Elective
Stem cells and their types, stem cell acquisition and clinical applications, ethical discussions and legal regulations. You will be informed about molecular biology techniques and stem cell biology studies.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF756	Aromatherapy	(2,0,0)	2	3	Elective
It is aimed to learn Aromatherapy Applications and Treatment with Essential Oils.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
KPF765	Chronobiology, Chronopharmacology and Chronotherapy	(2,0,0)	2	3	Elective
Students will be provided with the consolidation of theoretical knowledge about chromatographic methods.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
PHY105	Physics	(3,0,0)	3	4	Compulsory
Measurement and units, vectors; movement in one dimension and in a plane; particle dynamics and Newton's laws; work,energy; electric field, Columb's law; Gauss's law and electric potential; capacitors and dielectrics; current and resistance; After basic topics such as magnetic field are covered, the basis for fluid mechanics and technology courses is formed.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YIT103	Turkish I for International Students	(2,0,0)	2	2	Compulsory
The Turkish Alphabet and how Phonetics is in Turkish Alphabet, how nouns are made plural in Turkish, how to form yes-no questions, how to form sentences with “there is/there are, possessives in Turkish, how to use personal pronouns, numbers and asking questions related to numbers, how to use noun states in Turkish, where and how to use present continuous tense and simple present tense.					

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
YIT104	Turkish II for International Students	(2,0,0)	2	2	Compulsary
The Turkish Alphabet and how Phonetics is in Turkish Alphabet, how nouns are made plural in Turkish, how to form yes-no questions, how to form sentences with “there is/there are, possessives in Turkish, how to use personal pronouns, numbers and asking questions related to numbers, how to use noun states in Turkish, where and how to use present continuous tense and simple present tense.					

T: Lecture Hour (hrs/week)

U: Tutorial Hour (hrs/week)

L: Lab Hour (hrs/week)