FINAL INTERNATIONAL UNIVERSITY

# FACULTY OF PHARMACY

## INTEGRATED MASTER OF PHARMACY (MPharm) Program of Courses

*Course categories: UC = University Core; FC = Faculty Core; AC = Area Core; AE = Area Elective; FE = Faculty Elective; UE = University Elective*

| Semester | Course Code | Course Title | Course Category | Hours | | | Total Credit | Pre-requisite | ECTS Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Lecture | Tutorial | Lab/Prac | | | |
| 1 | PHRM101 | INTRODUCTION TO PHARMACY AND TERMINOLOGY | AC | 2 | 0 | 0 | 2 | - | 3 |
| 1 | BIOL101 | MEDICAL BIOLOGY AND GENETICS | AC | 3 | 0 | 0 | 3 | - | 4 |
| 1 | PHYS111 | PHYSICS | AC | 2 | 0 | 0 | 2 | - | 4 |
| 1 | CHEM111 | GENERAL CHEMISTRY | AC | 3 | 0 | 0 | 3 | - | 4 |
| 1 | MATH135 | BASIC MATHEMATICS | AC | 3 | 0 | 0 | 3 | - | 3 |
| 1 | ITEC100 | INFORMATION TECHNOLOGIES | UC | 2 | 0 | 2 | 3 | - | 5 |
| 1 | ENGL121 | ENGLISH-I | UC | 3 | 0 | 0 | 3 | - | 4 |
| 1 | TUOG101 / TURK131 | TURKISH LANGUAGE-I / TURKISH AS A FOREIGN LANGUAGE-I | UC | 2 | 0 | 0 | 2 | - | 3 |
| | | **Total 8 courses** | **TOTAL:** | **20** | **0** | **2** | **21** | | **30** |
| 2 | PHRM102 | RESEARCH METHODS IN PHARMACY | AC | 2 | 0 | 0 | 2 | - | 2 |
| 2 | CHEM112 | ORGANIC CHEMISTRY-I | AC | 2 | 0 | 3 | 3 | CHEM111 | 4 |
| 2 | CHEM116 | ANALYTICAL CHEMISTRY-I | AC | 3 | 0 | 0 | 3 | CHEM111 | 4 |
| 2 | CHEM118 | ANALYTICAL CHEMISTRY LAB-I | AC | 0 | 0 | 3 | 1 | - | 2 |
| 2 | ANTY104 | HUMAN ANATOMY | AC | 3 | 0 | 0 | 3 | - | 4 |
| 2 | HESC107 | FIRST AID | FC | 2 | 0 | 0 | 2 | - | 3 |
| 2 | ENGL122 | ENGLISH-II | UC | 3 | 0 | 0 | 3 | ENGL121 | 4 |
| 2 | TUOG102 / TURK132 | TURKISH LANGUAGE-II / TURKISH AS A FOREIGN LANGUAGE-II | UC | 2 | 0 | 0 | 2 | - / TURK131 | 3 |
| 2 | UNIEXX1 | UNIVERSITY ELECTIVE | UE | X | X | X | 3 | - | 4 |
| | | **Total 9 Courses** | **TOTAL:** | **17** | **0** | **6** | **22** | | **30** |
| 3 | PHRM201 | INTRODUCTION TO PHARMACY APPLICATIONS-I | AC | 0 | 0 | 2 | 1 | - | 3 |
| 3 | PHRM203 | PHARMACEUTICAL MICROBIOLOGY AND IMMUNOLOGY | AC | 2 | 0 | 0 | 2 | - | 3 |
| 3 | PHRM205 | PHARMACEUTICAL MICROBIOLOGY AND IMMUNOLOGY LAB | AC | 0 | 0 | 2 | 1 | - | 2 |
| 3 | CHEM209 | ANALYTICAL CHEMISTRY-II | AC | 3 | 0 | 0 | 3 | - | 4 |
| 3 | CHEM211 | ANALYTICAL CHEMISTRY LAB-II | AC | 0 | 0 | 3 | 1 | - | 3 |
| 3 | CHEM213 | ORGANIC CHEMISTRY-II | AC | 2 | 2 | 0 | 3 | | 4 |
| 3 | BCHM213 | BIOCHEMISTRY-I | AC | 3 | 0 | 0 | 3 | - | 4 |
| 3 | PHYL201 | BASIC PHYSIOLOGY | AC | 3 | 0 | 0 | 3 | - | 4 |
| 3 | TARH101 / HIST111 | ATATURK'S PRINCIPLES AND HISTORY OF TURKISH REFORMS-I | UC | 2 | 0 | 0 | 2 | - | 3 |
| | | **Total 9 Courses** | **TOTAL:** | **15** | **2** | **7** | **19** | | **30** |
| 4 | PHRM202 | INTRODUCTION TO PHARMACY APPLICATIONS-II | AC | 0 | 0 | 2 | 1 | - | 3 |
| 4 | PHRM204 | PHARMACEUTICAL CHEMISTRY-I | AC | 3 | 0 | 0 | 3 | - | 3 |
| 4 | PHRM206 | PHARMACEUTICAL CHEMISTRY LAB-I | AC | 0 | 0 | 3 | 1 | - | 3 |
| 4 | PHRM208 | PHARMACEUTICAL TECHNOLOGY-I | AC | 3 | 0 | 0 | 3 | - | 3 |
| 4 | PHRM210 | PHARMACEUTICAL TECHNOLOGY LAB-I | AC | 0 | 0 | 3 | 1 | - | 2 |
| 4 | PHRM212 | PHARMACOLOGY-I | AC | 2 | 0 | 0 | 2 | - | 3 |
| 4 | PHRM214 | PHARMACEUTICAL BOTANY | AC | 2 | 0 | 0 | 2 | - | 4 |
| 4 | PHRM216 | PHARMACEUTICAL BOTANY LAB | AC | 0 | 0 | 3 | 1 | - | 2 |
| 4 | BCHM214 | BIOCHEMISTRY-II | AC | 3 | 0 | 0 | 3 | - | 4 |
| 4 | TARH102 / HIST112 | ATATURK'S PRINCIPLES AND HISTORY OF TURKISH REFORMS-II | UC | 2 | 0 | 0 | 2 | - | 3 |
| | | **Total 10 Courses** | **TOTAL:** | **15** | **0** | **11** | **19** | | **30** |
| 5 | PHRM320 | SUMMER TRAINING-I | AC | 0 | 0 | 0 | 0 | - | 2 |
| 5 | PHRM303 | PHARMACEUTICAL CHEMSITRY-II | AC | 2 | 0 | 0 | 2 | - | 2 |
| 5 | PHRM305 | PHARMACEUTICAL CHEMSITRY LAB-II | AC | 0 | 0 | 3 | 1 | - | 2 |
| 5 | PHRM307 | PHARMACEUTICAL TECHNOLOGY-II | AC | 3 | 0 | 0 | 3 | - | 3 |
| 5 | PHRM309 | PHARMACEUTICAL TECHNOLOGY LAB-II | AC | 0 | 0 | 3 | 1 | - | 2 |
| 5 | PHRM311 | PHARMACOGNOSY-I | AC | 2 | 0 | 0 | 2 | - | 2 |
| 5 | PHRM313 | PHARMACOGNOSY LAB-I | AC | 0 | 0 | 3 | 1 | - | 2 |
| 5 | PHRM315 | PHARMACOLOGY-II | AC | 2 | 0 | 0 | 2 | - | 3 |
| 5 | BCHM317 | CLINICAL BIOCHEMISTRY | AC | 2 | 0 | 0 | 2 | BCHM213, BCHM214 | 3 |
| 5 | BCHM319 | CLINICAL BIOCHEMISTRY LAB | AC | 0 | 0 | 2 | 1 | - | 2 |
| 5 | PATH351 | BASIC PATHOLOGY | AC | 2 | 0 | 0 | 2 | | 3 |
| 5 | UNIEXX2 | UNIVERSITY ELECTIVE | UE | X | X | X | 3 | - | 4 |
| | | **Total 12 Courses** | **TOTAL:** | **13** | **0** | **11** | **20** | | **30** |
| 6 | PHRM302 | PHARMACEUTICAL TOXICOLOGY-I | AC | 2 | 0 | 0 | 2 | - | 2 |
| 6 | PHRM304 | PHARMACEUTICAL CHEMISTRY-III | AC | 2 | 0 | 0 | 2 | - | 2 |
| 6 | PHRM306 | PHARMACEUTICAL CHEMISTRY LAB-III | AC | 0 | 0 | 3 | 1 | - | 2 |
| 6 | PHRM308 | PHARMACEUTICAL TECHNOLOGY-III | AC | 2 | 0 | 0 | 2 | - | 2 |
| 6 | PHRM310 | PHARMACEUTICAL TECHNOLOGY LAB-III | AC | 0 | 0 | 3 | 1 | - | 2 |
| 6 | PHRM312 | PHARMACOGNOSY-II | AC | 2 | 0 | 0 | 2 | - | 2 |
| 6 | PHRM314 | PHARMACOGNOSY LAB-II | AC | 0 | 0 | 3 | 1 | - | 2 |
| 6 | PHRM316 | PHARMACOLOGY-III | AC | 2 | 0 | 0 | 2 | - | 2 |
| 6 | PHRM318 | DEONTOLOGY AND ETHICS OF PHARMACY | AC | 2 | 0 | 0 | 2 | - | 3 |
| 6 | HESC350 | BASIC PUBLIC HEALTH | AC | 2 | 0 | 0 | 2 | | 3 |
| 6 | PHRMXX1 | AREA ELECTIVE | AE | X | X | X | 3 | - | 4 |
| 6 | UNIEXX3 | UNIVERSITY ELECTIVE | UE | X | X | X | 3 | - | 4 |
| | | **Total 12 Courses** | **TOTAL:** | **14** | **0** | **9** | **23** | | **30** |
| 7 | PHRM420 | SUMMER TRAINING-II | AC | 0 | 0 | 0 | 0 | - | 1 |
| 7 | PHRM403 | CLINICAL PHARMACY-I | AC | 2 | 0 | 0 | 2 | PHRM212 | 2 |
| 7 | PHRM405 | CLINICAL PHARMACY PRACTICE-I | AC | 0 | 0 | 2 | 1 | - | 1 |
| 7 | PHRM407 | PHARMACEUTICAL TOXICOLOGY-II | AC | 2 | 0 | 0 | 2 | - | 2 |
| 7 | PHRM409 | PHARMACEUTICAL TOXICOLOGY LAB-II | AC | 0 | 0 | 2 | 1 | - | 1 |
| 7 | PHRM411 | PHARMACEUTICAL TECHNOLOGY-IV | AC | 2 | 0 | 0 | 2 | - | 2 |
| 7 | PHRM413 | PHARMACEUTICAL TECHNOLOGY LAB-IV | AC | 0 | 0 | 3 | 1 | - | 2 |
| 7 | PHRM415 | PHARMACEUTICAL BIOTECHNOLOGY | AC | 2 | 0 | 0 | 2 | - | 2 |
| 7 | PHRM417 | PHARMACOTHERAPY | AC | 2 | 0 | 0 | 2 | - | 2 |
| 7 | PHRM419 | INSTRUMENTAL ANALYSIS | AC | 3 | 0 | 0 | 3 | | 4 |
| 7 | PHRMXX2 | AREA ELECTIVE | AE | X | X | X | 3 | - | 4 |
| 7 | PHARXX1 | FACULTY ELECTIVE | FE | X | X | X | 2 | - | 3 |
| 7 | UNIEXX4 | UNIVERSITY ELECTIVE | UE | X | X | X | 3 | - | 4 |
| | | **Total 13 Courses** | **TOTAL:** | **13** | **0** | **7** | **24** | | **30** |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8 | PHRM402 | PHARMACY LEGISLATION | AC | 2 | 0 | 0 | 2 | - | 3 |
| 8 | PHRM404 | CLINICAL PHARMACY-II | AC | 2 | 0 | 0 | 2 | - | 3 |
| 8 | PHRM406 | PHYTOTHERAPY | AC | 2 | 0 | 0 | 2 | PHRM214 | 4 |
| 8 | PHRM408 | PHARMACY MANAGEMENT | AC | 2 | 0 | 0 | 2 | - | 3 |
| 8 | PHRM410 | COSMETOLOGY | AC | 2 | 0 | 0 | 2 | - | 3 |
| 8 | PHRM412 | COSMETOLOGY LAB | AC | 0 | 0 | 3 | 1 | - | 2 |
| 8 | PHRMXX3 | AREA ELECTVE | AE | X | X | X | 3 | - | 4 |
| 8 | PHRMXX4 | AREA ELECTIVE | AE | X | X | X | 3 | - | 4 |
| 8 | PHRMXX5 | AREA ELECTIVE | AE | X | X | X | 3 | - | 4 |
| | | **Total 9 Courses** | **TOTAL:** | **10** | **0** | **3** | **20** | | **30** |
| 9 | PHRM520 | SUMMER TRAINING-III | AC | 0 | 0 | 0 | 0 | - | 1 |
| 9 | PHRM501 | GRADUATION PROJECT-I | AC | 2 | 0 | 0 | 2 | - | 4 |
| 9 | PHRM503 | VIROLOGY AND PARASITOLOGY | AC | 3 | 0 | 0 | 3 | - | 3 |
| 9 | PHRM505 | BIOCHEMISTRY OF THE IMMUNE SYSTEM | AC | 2 | 0 | 0 | 2 | - | 3 |
| 9 | PHRM507 | ECONOMY OF HEALTH AND MEDICINE | AC | 3 | 0 | 0 | 3 | | 4 |
| 9 | PHRM5X1 | AREA ELECTIVE | AE | X | X | X | 3 | - | 4 |
| 9 | PHRM5X2 | AREA ELECTIVE | AE | X | X | X | 3 | - | 4 |
| 9 | PHRM5X3 | AREA ELECTIVE | AE | X | X | X | 3 | - | 4 |
| 9 | PHARXX2 | FACULTY ELECTIVE | FE | X | X | X | 2 | - | 3 |
| | | **Total 9 Courses** | **TOTAL:** | **10** | **0** | **0** | **21** | | **30** |
| 10 | PHRM502 | GRADUATION PROJECT-II | AC | 2 | 0 | 0 | 2 | - | 5 |
| 10 | PHRM504 | MICROBIAL CONTROL OF PHARMACEUTICALS | AC | 2 | 0 | 0 | 2 | | 3 |
| 10 | PSYC522 | INTRODUCTION TO PSYCHOLOGICAL SCIENCES | AC | 3 | 0 | 0 | 3 | - | 3 |
| 10 | SOWO100 | COMMUNITY SERVICE PRACTICES | UC | 1 | 0 | 2 | 2 | - | 3 |
| 10 | PHRM5X4 | AREA ELECTIVE | AE | X | X | X | 3 | - | 4 |
| 10 | PHRM5X5 | AREA ELECTIVE | AE | X | X | X | 3 | - | 4 |
| 10 | PHRM5X6 | AREA ELECTIVE | AE | X | X | X | 3 | - | 4 |
| 10 | UNIEXX5 | UNIVERSITY ELECTIVE | UE | X | X | X | 3 | - | 4 |
| | | **Total 7 Courses** | **TOTAL:** | **8** | **0** | **2** | **21** | | **30** |
| | | | **GRAND TOTAL:** | **135** | **2** | **58** | **210** | | **300** |

**Area Elective and Faculty/School Elective courses**

| No | Course Code | Course Title | Course Category | Hours | | | Total Credit | Pre-requisite | ECTS Credit |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Lecture | Tutorial | Lab/Prac. | | | |
| **1** | PHRM322 | VOCATIONAL LATIN | AE | 3 | 0 | 0 | 3 | | 4 |
| **2** | PHRM323 | CLASSIFICATION OF PHARMACEUTICALS | AE | 3 | 0 | 0 | 3 | | 4 |
| **3** | PHRM324 | HISTORY OF PHARMACY | AE | 3 | 0 | 0 | 3 | | 4 |
| **4** | PHRM325 | OUT OF PRESCRIPTION MEDICINES | AE | 3 | 0 | 0 | 3 | | 4 |
| **5** | PHRM326 | APPLICATIONS OF COMPUTER SOFTWARES IN PHARMACY | AE | 3 | 0 | 0 | 3 | | 4 |
| **6** | PHRM421 | CONCEPTS ABOUT NATURAL MEDICINES | AE | 3 | 0 | 0 | 3 | | 4 |
| **7** | PHRM422 | BIOCHEMICAL SOURCES OF DISEASES | AE | 3 | 0 | 0 | 3 | | 4 |
| **8** | PHRM423 | MEDICAL PLANTS USED WITHIN THE PUBLIC | AE | 3 | 0 | 0 | 3 | | 4 |
| **9** | PHRM424 | INDUSTRIAL PHARMACY | AE | 3 | 0 | 0 | 3 | | 4 |
| **10** | PHRM425 | PATIENT SAFETY AND MEDICAL MISTAKES | AE | 3 | 0 | 0 | 3 | | 4 |
| **11** | PHRM426 | PHARMACOVIGILANCES | AE | 3 | 0 | 0 | 3 | | 4 |
| **12** | PHRM427 | GOOD MANUFACTURING PRACTICE | AE | 3 | 0 | 0 | 3 | | 4 |
| **13** | PHRM428 | RECOMBINANT DNA TECHNOLOGY AND VACCINE PRODUCTION | AE | 3 | 0 | 0 | 3 | | 4 |
| **14** | PHRM429 | OXIDATION AND ANTIOXIDATION | AE | 3 | 0 | 0 | 3 | | 4 |
| **15** | PHRM521 | RATIONAL MEDICINE APPLICATIONS | AE | 3 | 0 | 0 | 3 | | 4 |
| **16** | PHRM522 | NUTRACEOTICS AND FOOD SUPPLEMENTS | AE | 3 | 0 | 0 | 3 | | 4 |
| **17** | PHRM523 | CASE REPORT IN CLINICAL BIOCHEMISTRY | AE | 3 | 0 | 0 | 3 | | 4 |
| **18** | PHRM524 | CELL CULTURE TECHNIQUES | AE | 3 | 0 | 0 | 3 | | 4 |
| **19** | PHRM525 | MEDICINES KNOWLEDGE AND CLINICAL PHARMACY PRACTICES | AE | 3 | 0 | 0 | 3 | | 4 |
| **20** | PHRM526 | PHARMACEUTICAL AND PALLIATIVE CARE | AE | 3 | 0 | 0 | 3 | | 4 |
| **21** | PHRM527 | RESEARCH IN MEDICINES | AE | 3 | 0 | 0 | 3 | | 4 |
| **22** | PHRM528 | CANCER BIOCHEMISTRY | AE | 3 | 0 | 0 | 3 | | 4 |
| **23** | PHRM529 | GRAVIMETRIC METHODS USED IN THE ANALYSIS OF MEDICINES | AE | 3 | 0 | 0 | 3 | | 4 |
| **24** | PHRM531 | PATIENT EDUCATION AND FOLLOW UP | AE | 3 | 0 | 0 | 3 | | 4 |
| **25** | PHRM532 | SOCIAL PHARMACOANTHROPOLOGY | AE | 3 | 0 | 0 | 3 | | 4 |
| **32** | PSYC385 | BEHAVIOURAL SCIENCE AND COMMUNICATION | FE | 2 | 0 | 0 | 2 | | 3 |
| **33** | LAWF350 | MEDICAL LAW | FE | 2 | 0 | 0 | 2 | | 3 |
| **34** | HESC355 | INTRODUCTION OF NUTRITION | FE | 2 | 0 | 0 | 2 | | 3 |
| **35** | HESC349 | PREVENTATIVE HEALTH | FE | 2 | 0 | 0 | 2 | | 3 |

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| **General Goal of the Program** | Pharmacy Undergraduate Program is planned for 5 years with compulsory and elective courses, laboratory applications and graduation project, to increase the |
| **Program Outputs** | Individuals who graduated from Final International University Pharmacy Undergraduate Program; |
| | 1. Gains the ability to prepare solutions and analyze the unknown within the scope of pharmacy basic sciences, |
| | 2. Recognizes pharmaceutical products of natural and synthetic origin used in the diagnosis, treatment and prevention of diseases, |
| | 3. Knows drug dosing and prepares drug forms (tablet, capsule, injectable etc.), |
| | 4. Learns drug formulations and can develop new formulations, |
| | 5.Learns toxic components, drug toxicology and analysis, |
| | 6. Learns biochemical mechanisms and the relationship between nutrition, disease and health, |
| | 7. Interprets the causes and effects of metabolic diseases in clinical biochemistry and evaluates laboratory findings, |
| | 8. Recognizes medicinal plants and pharmaceutical products and criticizes the advantages and disadvantages of their use, knows the instrumental analyzes used in |
| | 9. Learns rational drug use, |
| | 10. Analyzes drug-drug interactions and pharmacological pathways of their application and makes risk assessment |
| | 11. Knows the preparation, raw material formulations and production techniques of cosmetic products |
| | 12. Knows human anatomy and physiology, knows the distribution, absorption, metabolism and excretion of drugs, |
| | 13. Knows Pharmacy Deontology, |
| | 14. Have the necessary knowledge about medical first aid, |
| | 15. Can comment on pharmacy management and health law |

**COURSE DESCRIPTIONS**

**Course Descriptions – I: All Area Core and Faculty/School Core courses offered by the department of the program.**

| Course Code | Course Title | Credit | ECTS | Course | Pre-requisite | Teaching Language |
|---|---|---|---|---|---|---|
| **PHRM101** | **INTRODUCTION TO PHARMACY AND TERMINOLOGY** | (2, 0, 0)2 | 3 | AC | - | English |

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|---|---|---|---|---|---|---|
| **Course Content** | The aim of this course is to inform the student starting pharmacy education about pharmacy practices, terminology, education and career paths and to explain the definition of pharmacist and pharmacy and their functions within the professional healthcare team. It covers prescription systems and drug procurement and evaluation and gives information about pharmacopoeias and formulas. Explains work and career opportunities and ganizations related to pharmacy on the basis of the Turkish Republic of Northern Cyprus and international. It covers important pharmaceutical terms found in pharmacy, pharmaceutical sciences and literature, medicine, medical field. Explains prefixes, suffixes and root words with a system-based approach. Defines singular and plural forms of medical and pharmaceutical terms and largely defines them and puts them into practice. | | | | | |
| **BIOL101** | **MEDICAL BIOLOGY AND GENETICS** | (3, 0, 0)3 | 4 | AC | - | English |
| **Course Content** | The medical biology and genetics course introduces students to the principles and modern concepts of biology. The main focus of the course is cell and molecular biology, which is essential for understanding medical conditions. Main topics scientific methodology, scientific research and analysis, universal properties and internal organization of the cell, membrane structure, organelles, DNA and chromosome structure and function, genome, genetic diversity of genomes, DNA replication, repair, recombination, transcription and translation, control of gene expression, mechanism of cell division, genetic disorders. At the end of the course, students are expected to be equipped with basic knowledge about the cellular organization of living systems and molecular genetics and the molecular basis of mutation, cell damage, cellular repair. | | | | | |
| **CHEM111** | **GENERAL CHEMISTRY** | (3, 0, 0)3 | 4 | AC | - | English |
| **Course Content** | This lesson aims to provide pharmacy students with the fundamental principles and concepts of chemistry. The main topics include atoms and atomic theory, chemical compounds, chemical reactions, reactions in aqueous solutions, gases, periodic table and atomic properties, chemical bonds, liquids, solids and intermolecular forces, solutions and their physical properties, chemical kinetics, chemical equilibrium, acids and bases. At the end of this course, successful students will be able to define and explain the basic concepts of chemistry within an intellectual discipline framework, develop analytical thinking skills through effective thinking and rational and quantitative correlation, systematically solve problems in chemistry, and acquire skills to look at events around them through the approach and teaching of chemistry. | | | | | |
| **PHRM102** | **RESEARCH METHODS IN PHARMACY** | (2, 0, 0)2 | 2 | AC | - | English |
| **Course Content** | The main topics of the course are basic statistical definitions, data types, descriptive statistics, classification of data, measures of central tendency, measures of distribution, tables and graphs, probability distributions, normal, binomial and Poisson distributions, normality tests and graphs, sampling, sampling distributions and sampling of mean distribution, confidence intervals, introduction to hypothesis testing, p and alpha values, decision making process, parametric and non-parametric hypothesis testing, correlations and regression analysis, multiple linear regression, factor design: 2n and 3n design. At the end of this course, the student knows health science research methods, knows basic statistical concepts, calculates appropriate descriptive statistics, creates appropriate tables and graphs, knows basic theoretical distributions and sample distribution, selects and applies the appropriate hypothesis test, and comments. | | | | | |
| **CHEM112** | **ORGANIC CHEMISTRY-I** | (3, 0, 0)3 | 4 | AC | CHEM111 | English |
| **Course Content** | The aim of this course is to teach students the fundamental concepts of organic chemistry, structural properties of organic compounds, their synthesis and basic reactions. At the end of this course, the student is expected to be able to recognize the structural properties of organic compounds and write characteristic reactions and mechanisms specific to this structure. Additionally, the goal is to develop the ability of the student to use the basic organic chemistry knowledge gained in future education periods and professional life. Structure and bonding, alkanes, alkenes and alkynes, reactions of alkenes and alkynes, aromatic compounds, stereochemistry, organohalides, nucleophilic substitutions and eliminations, alcohols, phenols, ethers | | | | | |
| **CHEM116** | **ANALYTICAL CHEMISTRY-I** | (3, 0, 0)3 | 4 | AC | CHEM111 | English |
| **Course Content** | General concepts in analytical chemistry will be presented. The aim of the course is to give the basic concepts of Analytical Chemistry theoretically and practically. Aqueous solution chemistry, solubility, selective precipitation, gravimetric analysis, acids, bases, buffer solutions, volumetric analysis principles, acid-base titrations, carbonate-bicarbonate titrations, precipitation titrations, oxidation-reduction titrations and complexometric titrations, balances and weighing, introduction to solutions, concentrations of solutions, separation and purification processes, law of effect of masses, hydrolysis, solubility product and precipitation, crystallization, introduction to electrochemistry and coordination chemistry are the main topics of the course. At the end of this course, students will have theoretical knowledge about qualitative and quantitative analysis in analytical chemistry. | | | | | |
| **CHEM118** | **ANALYTICAL CHEMISTRY LAB-I** | (0, 0, 3)1 | 2 | AC | - | English |
| **Course Content** | Laboratory experiments of qualitative analysis of group I-V cations and anions, quantitative analyzes with various titration techniques such as acid-base titration, carbonate-bicarbonate titration, oxidation-reduction titration and complex formation titration will be performed by the students. Students will have skills related to qualitative and quantitative analysis applications in analytical chemistry. The content of the course will be in the form of hands-on experiments, demonstration experiments and discussion of results. At the end of this course, students will be able to separate and determine cations and anions in mixtures; be able to perform decantation and centrifugation; be able to perform precipitation and filtration operations; will be able to develop new methods and applications; will be able to analyze real samples. | | | | | |
| **PHRM201** | **INTRODUCTION TO PHARMACY APPLICATIONS-I** | (0, 0, 2)1 | 3 | AC | - | English |
| **Course Content** | Contents of the course are the definition of pharmacy and pharmacist, computer application in the pharmacy, preparation of magistral formulation, determination and purchase of the drugs need and arrangement and placement of the pharmacy according to the Turkish legislation and regulations, obtaining information about the drug needs of the patients, drug information activities and keeping the records of the pharmacy, the official status of the pharmacy, the evaluation of its relationship with informal units. Also, the course is aimed to enable students to see the roles of pharmacists in their field during the practices to be carried out in community or hospital pharmacy and hospital services, and to help to gain the necessary experience before starting their professional life. | | | | | |
| **PHRM203** | **PHARMACEUTICAL MICROBIOLOGY AND IMMUNOLOGY** | (2, 0, 0)2 | 3 | AC | - | English |
| **Course Content** | The course is aimed to provide the basic and practical knowledge in the field of Pharmaceutical Microbiology and Immunology. Development of microbiology, place of microorganisms, bacterial cell structure, classification of microorganisms, characteristics and classification of bacteria, chlamydia, rickettsia, fungi, parasites and viruses, biological characteristics of microorganisms, genetics, nervous system, upper and lower respiratory tract, gastrointestinal and genitourinary system, skin and soft tissue, bone and joint infections, hospital infections, antimicrobial agents, disinfectants, preservatives, antiseptics, antibiotics and their mechanisms of action, resistance formation against antibiotics, principles of immunology, vaccines and immunization, industrial microbiology, microbial contamination in the pharmaceutical industry, sterile pharmaceutical products, hospital hygiene, sanitation in the pharmaceutical industry, disinfection and good manufacturing techniques are among the contents of the course. | | | | | |
| **PHRM205** | **PHARMACEUTICAL MICROBIOLOGY AND IMMUNOLOGY LAB** | (0, 0, 2)1 | 2 | AC | - | English |
| **Course Content** | The aim of the course is to introduce the microorganisms (bacteria, fungi, parasites, viruses, etc.) that make up the microbe world through laboratory work, to inform the pharmacy students about their interactions with the host cell and the main infectious diseases they cause. Course content; Microbiology laboratory rules, materials and devices used in microbiology laboratory, use of microscope, sterilization and disinfection, media used in the production of microorganisms, preparation of media, bacterial isolation and culture methods, bacterial colony types, environmental conditions affecting the growth of microorganisms, staining of bacteria and staining methods, simple and negative staining, gram staining, biochemical tests, counting methods of microorganisms and antibiogram. | | | | | |
| **CHEM209** | **ANALYTICAL CHEMISTRY-II** | (3, 0, 0)3 | 4 | AC | CHEM111 | English |
| **Course Content** | The aim of the course is to build a solid knowledge and thought background about what quantitative analysis is, which is an important part of analytical chemistry. The course content covers the principles of spectroscopy (ultraviolet visible region, fluorescent infrared atomic), chromatography (thin layer, paper and column chromatography, gas and liquid chromatography, and electrochemistry (polarography, amperometry, potentiometry, conductometry). This course will contribute to students in learning analytical thinking At the end of this course, students will gain knowledge on gravimetric analysis methods, will gain knowledge on volumetric analysis methods; will gain theoretical knowledge about quantitative analysis. | | | | | |
| **CHEM211** | **ANALYTICAL CHEMISTRY LAB-II** | (0, 0, 3)1 | 3 | AC | - | English |
| **Course Content** | The content of the course includes the practical performance of qualitative and quantitative analyzes of organic and inorganic substances by various chromatographic, spectroscopic and electrochemical methods. Students will gain practical skills by applying various instrumental analysis methods (UV-GB spectroscopy, atomic spectroscopy, thin layer, paper, ion exchange and column chromatography, potentiometry, conductometry and refractometry) and will learn the methods, applications of chemical analysis and calculation. At the end of this course, students will use chemicals safely for workers and the environment; will produce many inorganic substances by synthesis from starting materials; identify and calculate some moisture problems in crystallization processes; will calculate the yield of the synthesis reaction; will be in a position to use a ball mill for experimental studies. | | | | | |
| **CHEM213** | **ORGANIC CHEMISTRY-II** | (3,2, 0)4 | 5 | AC | | English |
| **Course Content** | The aim of this course is to teach students the fundamental concepts of organic chemistry, structural properties of organic compounds, their synthesis and basic reactions. At the end of this course, the student is expected to be able to recognize the structural properties of organic compounds and write characteristic reactions and mechanisms specific to this structure. Additionally, the goal is to develop the ability of the student to use the basic organic chemistry knowledge gained in future education periods and professional life. Aldehydes and ketones, carboxylic acids and derivatives, carbonyl alpha substitution and condensation reactions, amines, spectroscopy, biomolecules, carbohydrates, amino acids, peptides and proteins | | | | | |
| **BCHM213** | **BIOCHEMISTRY-I** | (3, 0, 0)3 | 4 | AC | - | English |

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| **Course Content** | The main aim of this course is the complete study of chemical events in living cells at the molecular level, to inform about the molecular basis and control of physiological functions of the organism. In order to achieve this, the structures and metabolisms of a large number of molecules in cells and their regulation through enzymes and hormones will examine. The main topics are water and pH, the structure of carbohydrates, lipids, amino acids, proteins and nucleic acids, enzymes including the mechanism of action, regulation of enzyme kinetics of enzyme activity, coenzymes, bioenergetics and oxidative phosphorylation. At the end of the course, the basic biochemical functions that occur on a cell basis in the human body will be understood. |

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| **PHRM202** | **INTRODUCTION TO PHARMACY APPLICATIONS-II** | (0, 0, 2)1 | 3 | AC | - | English |
| **Course Content** | The student has information about the purchase of drug, the drugs needed in the pharmacy, the organization and location of the pharmacies, the necessary records and files stored in the pharmacy, the pharmacological classification of drugs, pharmacological terms (inflammation, histamine effect, etc.) pharmacological forms (syrup, gel, capsule, etc.), improves communication skills with patients. As a result of this course, students will understand the role of the pharmacist in hospital; prepares and presents a case report of a patient who has been observed and followed up in the hospital; prepares evaluation reports of cases followed in different hospital services; prepares a “patient profile” for people with chronic diseases in community pharmacies; have information about the most common questions in community pharmacies. | | | | | |
| **PHRM204** | **PHARMACEUTICAL CHEMISTRY-I** | (3, 0, 0)3 | 3 | AC | CHEM112 | English |
| **Course Content** | Within the scope of the course, it is aimed to explain the synthesis and development of new chemical compounds suitable for therapeutic use, the biological properties of the drugs used today, the structure-activity relationships and the metabolism of drugs. This course includes active drug types, receptors and drug-receptor interactions, chelation, stereochemical factors, structure-activity relationships, dissolution, partition coefficient, ionization, surface activity, bioisosterioism, drug metabolism, drug discovery, introduction to CNS drugs, general and local anesthetics, sedative and hypnotic drugs, tranquilizing agents and neuroleptic drugs, antidepressant and antiepileptic drugs, antiparkinsonian drugs gives information about analgesic and anti-inflammatory drugs, quantitative structure-effect relationships. | | | | | |
| **PHRM206** | **PHARMACEUTICAL CHEMISTRY LAB-I** | (0, 0, 3)1 | 2 | AC | - | English |
| **Course Content** | Practical work is carried out on the synthesis of certain drugs and pharmaceutical raw materials, laboratory techniques such as filtration, crystallization, extraction, distillation, reaction types such as esterification, acylation, nitration, bromination and diazotization. Synthesis of drug active or action agents, laboratory safety, filtration, crystallization, extraction, distillation and similar laboratory working techniques, esterification, acylation, nitration, bromination, oxidation, diazotization, etc. reactions are among the content of the course.The purpose of the Pharmaceutical Chemistry I Laboratory course is to provide the students with information about the synthesis and purification of some active pharmaceutical ingredients and action substances under laboratory conditions. | | | | | |
| **PHRM208** | **PHARMACEUTICAL TECHNOLOGY-I** | (3, 0, 0)3 | 3 | AC | - | English |
| **Course Content** | This course includes an introduction to dosage forms and basic metrology calculations associated with pharmacy. It covers a range of physics topics such as phase diagrams, solubility, solutions, and kinetics. In addition, related unit operations, pharmaceutical purified water and preparation methods of pure water are also given to the student. Upon completion of this course, students will have knowledge of the basic calculations, processes and techniques used in Pharmaceutical Technology. Students who successfully complete this course know pharmacopoeia, prescription and dose calculations; have knowledge about the production, controls and properties of pharmaceutical water; knows the basic procedures used in pharmacy; have knowledge about solutions, colloids, suspensions, emulsions and aerosols. | | | | | |
| **PHRM210** | **PHARMACEUTICAL TECHNOLOGY LAB-I** | (0, 0, 3)1 | 2 | AC | - | English |
| **Course Content** | In this course, by creating a scientific infrastructure, with appropriate and important technological applications; It is aimed to teach dosage form design, basic (conventional) dosage forms and therapeutic applications. This course again focuses on biopharmaceutical issues and the physicochemical basis of various dosage forms. Discussion topics include basic information such as preformulation factors (melting point, solubility, viscosity, melting, particle and solid state properties), rheology, pharmaceutical solutions, colloids and dispersions, suspensions, emulsions, ointments, aerosols, suppositories. The principles and technologies applied in the preparation of pharmaceutical dosage forms are also presented to the students. These include product design, formulation, production, magisterial production, quality control, and clinical application of various dosage forms. Students completing this course will learn extraction techniques, enzyme, hormone preparations. | | | | | |
| **PHRM212** | **PHARMACOLOGY-I** | (2, 0, 0)2 | 3 | AC | - | English |
| **Course Content** | Objectives of the course, to teach the basic concepts of pharmacology, to introduce the drug administration methods, the processes related to the absorption, distribution and elimination of drugs, the mechanisms of action of drugs, dose-concentration relationships, receptors and drug-receptor relationships, basic principles of drug effects, interactions between drugs, the factors that change the drug effect, the undesirable effects of drugs, pharmacogenetics, autocoids as well as the general principles of chemotherapy. The aim of the course is to inform students about basic pharmacokinetic and pharmacodynamic concepts of drugs and introduce the principles of chemotherapy and the points to be considered during treatment with chemotherapeutic agents, antibacterial, antiviral, antifungal, antiparasitic and anticancer drugs and their use and undesirable effects. | | | | | |
| **PHRM214** | **PHARMACEUTICAL BOTANY** | (2, 0, 0)2 | 4 | AC | - | English |
| **Course Content** | Course Content, general concepts, naming and classification of plants. Diagnosis of medicinal plants and drugs, biologically active compounds and uses. Cryptogam plants used in vaccine, serum and antibiotic production and classification. Bacteriophyta, Cyanophyta, Mycophyta, Pteridophyta, Spermatophyta; Gymnospermae and Angiospermae. Features and comparison of monocot and dicot plants, Families important for pharmacy, Plants important in pharmacy according to their use and effects, drugs and active substances, Importance of medicinal plants in pharmacy, distribution and usage of medicinal plants in Turkey. The aim of the course is to introduce, scientifically and practically, the plants used as medicine or giving drugs to pharmacist candidates, in other words, plants with medical and economic importance as well as beneficial and poisonous plants. | | | | | |
| **PHRM216** | **PHARMACEUTICAL BOTANY LAB** | (0, 0, 3)1 | 3 | AC | - | English |
| **Course Content** | Course Content, Preliminary Information; General concepts related to naming plants, defining their morphological features, preparing and storing herbicides, and identifying important plants in pharmacy: Root, stem, metamorphosis, leaf, flower, fruit and examination; General concepts related to the identification of medicinal plants and identification of medicinal plants: The families of Coniferae and Angiospermae plants that are important in pharmacy and flora of Turkey and Cyprus will be determined. The Objective of the Course is to enable students to learn the morphological and anatomical features and family determinations of medicinal plants practically in order to scientifically identify the herbal source used as medicine or giving drugs. | | | | | |
| **BCHM214** | **BIOCHEMISTRY-II** | (3, 0, 0)3 | 4 | AC | BCHM213 | English |
| **Course Content** | Course contents, mitochondrial entry pathways of cytoplasmic NADH, oxidative phosphorylation; alternative catabolic pathways for glucose; pentose phosphate pathway, glutathione; glucuronate pathway; amino acid catabolism; oxidation and energy balance of fatty acids, formation and utilization of ketone bodies; gluconeogenesis; glycogen synthesis and degradation; synthesis of lipids; protein synthesis and control; posttranslational modifications; metabolic coordination; neural and hormonal control mechanisms; signaling, secondary messengers; metabolism of lipids, proteins, nucleic acids and their control, function and replication of information macromolecules, hormones and hormone action mechanisms and integration of metabolisms, vitamins, hemostasis, thrombosis, biological membranes, transport mechanisms. The students are expected to have knowledge about the biochemical synthesis and degradation pathway in humans and different control mechanisms in these pathways. | | | | | |
| **PHRM320** | **SUMMER TRAINING-I** | (0, 0, 0)0 | 2 | AC | - | English |
| **Course Content** | The aim of this course is to enable students to see the roles of pharmacists in their field during the practices to be carried out in community pharmacy and to help them gain the necessary experience before starting their professional life. As a result of this course, students will understand the role of the pharmacist in hospital services; students learn about the most common questions in community pharmacies; can prepare a “patient profile” for people with chronic diseases in community pharmacies; applies the profession of pharmacy with its wide professional knowledge and skills; students understand the pharmacist's roles in different parts of the pharmaceutical industry and/or the professional routines of a community pharmacist. | | | | | |
| **PHRM303** | **PHARMACEUTICAL CHEMSITRY-II** | (2, 0, 0)2 | 2 | AC | - | English |
| **Course Content** | The aim of the course is to give information about the chemical properties, structures, synthesis, mechanisms of action and biotransformations of drugs affecting the nervous system, cardiovascular system and autocoids. Adrenergic agents, adrenergic blocking agents, cholinergic agents, cholinergic blocking agents, cardiac glycosides, antiarrhythmics, antianginal and vasodilator agents, antihypertensives, antihyperlipidemics, coagulation and anticoagulant agents, antianemic drugs, thrombolytics, antiagretic agents and diuretics are the main subjects. As a result of this course, students recognize the chemical structures and properties of nervous system, cardiovascular system, antiallergic drugs and antidiabetic drugs; explains the mechanism of action and structure-activity relationships of these drugs; proposes synthesis methods for said drugs, discusses the metabolism pathways of these drugs; follows up-to-date books and publications on the subject. | | | | | |
| **PHRM305** | **PHARMACEUTICAL CHEMSITRY LAB-II** | (0, 0, 3)1 | 2 | AC | - | English |
| **Course Content** | In this course, paper, thin layer, column and high pressure liquid chromatography techniques and their applications in drug analysis, separation of solid-solid and liquid-liquid mixtures, determination of some physical parameters such as density, boiling and melting point, measurement of refractive index and specific rotation, determination of drug metabolism and pharmacopeia analysis will be done. The main aim of the course is to give students the oretical information and practical examples about the separation and purification methods of drugs. Also, students work on the determination of metabolites of some drug molecules and their pharmacopoeia analysis. Students who take this course will gain theoretical and practical experience in the separation of mixed drugs in the laboratory and control of their purity. | | | | | |

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| **PHRM307** | **PHARMACEUTICAL TECHNOLOGY-II** | (3, 0, 0)3 | 3 | AC | - | English |
| **Course Content** | Rheology, colloidal dispersions, aerosols, suspension type preparations and technology, emulsion type preparations and technology, ointment type preparations and technology, transdermal drug delivery systems and suppository type preparations and technology and cosmetics are the main topics of the course. The aim of the course is to inform students about biphasic systems, semi-solid dosage forms and formulation, functions and quality control of cosmetics, as well as semisolid pharmaceutical dosage forms and radiopharmaceuticals such as Ointments, gels and suppositories, GMP, Validation, contamination, sterilization, injectable dosage forms and hospital It is aimed to give information about pharmacy | | | | | |
| **PHRM309** | **PHARMACEUTICAL TECHNOLOGY LAB-II** | (0, 0, 3)1 | 2 | AC | - | English |
| **Course Content** | In the Pharmaceutical Technology II Laboratory course, suspensions, sedimentation volume, viscosity in suspensions, emulsions, liniments, intravenous emulsions, suspensions in HLB, triple phase diagrams, ointments and drug releases, sedimentation volume, redispersibility and particle size distribution analysis, ointments, suppositories and drug release form suppositories, vaginal suppository formulations and properties of semi-solid systems will be covered throughout the course. The purpose of Pharmaceutical Technology.II Laboratory course is to design, practically prepare and control semi-solid dosage forms (ointment, paste, suppository, gel and similar) and two-phase systems (suspension and emulsion). | | | | | |
| **PHRM311** | **PHARMACOGNOSY-I** | (2, 0, 0)2 | 2 | AC | - | English |
| **Course Content** | This course covers the definition and history of pharmacognosy, definitions of primary (lipids, amino acids, protein and enzymes) and secondary metabolism products (phenylpropane derivatives; coumarin, tannin etc.), physical and chemical properties, separation methods, qualitative and quantitative analysis, ways and purposes of use among the public, chemistry of biological drugs, inorganic compounds, organic acids, plant enzymes, lipids, carbohydrates, monosaccharide derivatives, isolation identification of sugars, plant material. Course objective is aimed to give information about classification, isolation, identification, pharmacological effects, uses of homogeneous and heterogeneous polysaccharides, tannins, glycosides and biological origin drugs containing the above components, the primary and secondary metabolism products and sources used as drugs and pharmaceutical raw materials in terms of pharmacy and emphasize their importance in treatment. | | | | | |
| **PHRM313** | **PHARMACOGNOSY LAB-I** | (0, 0, 3)1 | 2 | AC | - | English |
| | Definition of microscope, examination under microscope, microscopic analysis and examinations in theory, quantitative microscopy (measurement under microscope and measurement in plant cells and tissues with a microscope), plant cells and tissues: Ergastic substances (crystals: single, twin, sand-shaped, raffits, starch); Leaf elements (examples of glandular and covering hairs; some examples of epidermis and stomata), root, rhizome and bark elements, fruit and seed elements (investigation and examples of related elements); microscopic examination of powdered herbal medicines, chemical identification of active components of saponins, anthraquinides, cyanogenetic and cardiac glycoids, tannins, proteins and their chromatographic applications will be performed. The course will give information about the anatomical structure of powder drugs and to identify and quantify some secondary metabolites. | | | | | |
| **PHRM315** | **PHARMACOLOGY-II** | (2, 0, 0)2 | 3 | AC | - | English |
| **Course Content** | Information on the mechanisms of action, side effects, use, contraindications and drug interactions of antiparasitic, antineoplastic, antiviral and immunomodulatory drugs, autacoids and drugs that affect the respiratory system are discussed. The aim of the course is to give knowledge about the neurochemical properties of the autonomic nervous system, the basic mechanisms regulating the functioning of the cardiovascular system and the drugs that affect this system. At the end of this course, students have knowledge about antiparasitic, antineoplastic, antiviral and immunomodulatory drugs; learns autocoids and related drugs; learns the mechanism of action, side effects, use and contraindications of drugs acting on the autonomic nervous system, the cardiovascular system and the respiratory system. | | | | | |
| **BCHM317** | **CLINICAL BIOCHEMISTRY** | (2, 0, 0)2 | 3 | AC | BCHM213, BCHM214 | English |
| **Course Content** | The content of the course includes the practical performance of qualitative and quantitative analyzes of organic and inorganic substances by various chromatographic, spectroscopic and electrochemical methods. Students will gain practical skills by applying various instrumental analysis methods (UV-GB spectroscopy, atomic spectroscopy, thin layer, paper, ion exchange and column chromatography, potentiometry, conductometry and refractometry) and will learn the methods, applications of chemical analysis and calculation. At the end of this course, students will use chemicals safely for workers and the environment; will produce many inorganic substances by synthesis from starting materials; identify and calculate some moisture problems in crystallization processes; will calculate the yield of the synthesis reaction; will be in a position to use a ball mill for experimental studies. | | | | | |
| **BCHM319** | **CLINICAL BIOCHEMISTRY LAB** | (0, 0, 2)1 | 2 | AC | - | English |
| **Course Content** | Basic techniques in biochemical analysis, hematological tests, quantitative tests for carbohydrates, proteins and total lipids in blood and urine, determination of cholesterol and lipoproteins in plasma, liver and kidney function tests, determination of ketone bodies and metabolites in urine and enzymatic tests will be performed. As a result of this course, students learn the biochemical basis of diseases and the consequences of being different from normal; learns the biochemical tests used in the diagnosis of diseases and monitoring the response to drugs; learns the ability to interpret biochemistry lab test results and patient-oriented thinking; learns the effects of drugs on diagnostic tests; gain the ability to analyze some biochemical tests | | | | | |
| **PATH351** | **BASIC PATHOLOGY** | (2, 0, 0)2 | 3 | AC | - | English |
| **Course Content** | This course aims to teach students the mechanisms of disease formation, the changes it creates in the tissue, and the undesirable effects of drugs.Information will be givenon mechanisms of cell injury and cellular changes as a result of cell injury,inflammation and inflammatory processes, the functioning of the immune system in the formation of diseases, the undesirable effects of drugs andspecific organ pathologies, basic concepts in neoplasia, etiopathogenesis of the tumor and the role of the pathologist in cancer treatment,body fluids and changes in body fluids in diseases and blood flow disorders andinfection stages,classification of infectious agents and changes in tissue caused by common infectious agents. | | | | | |
| **PHRM302** | **PHARMACEUTICAL TOXICOLOGY-I** | (2, 0, 0)2 | 3 | AC | - | English |
| **Course Content** | In this course, the history and principles of toxicology, toxicity tests and absorption, distribution and excretion and biotransformation of toxic substances, classification mechanisms of toxic effects, mutagenesis and mutagenic agents, teratogenesis and teratogenic agents, carcinogenesis, carcinogenic agents, allergic reactions and immunotoxic effects, toxicological evaluation of drugs. -drug interactions, hypersensitivity reactions to toxic substances and idiosyncratic reactions, general approach to emergency management of poisoning will be covered. The aim of this course is to inform students about basic toxicology and special toxicology. By the end of the courses, the student is expected to have acquired the necessary basic knowledge about toxicology | | | | | |
| **PHRM304** | **PHARMACEUTICAL CHEMISTRY-III** | (2, 0, 0)2 | 2 | AC | - | English |
| **Course Content** | The main topics are drugs used in the treatment of infection and tumoral diseases, antiseptics, disinfectants, antiprotozoal, antimalarial, antiaemobic, antileishmanial, antitricomonal, anthelmintic, ectoparasitic, antifungal, antiviral, antineoplastic, antibacterial antimycobacterials, sulfonamides, oxazolidones, laxatives-purgatives, antidiarrhetics, antiallergics, local anesthetics, vitamins, diagnostic compounds and hormones. The course is aimed to teach the structures of chemotherapeutic drugs, synthesis methods, structure-activity relationships, mechanisms of action and to inform students about chemotherapy. As a result of this course, students recognize the chemical structures and properties of drugs and explain the mechanism of action and structure-activity relationships of antineoplastic agents, immunomodulators, hormones and vitamins; proposes synthesis methods and discusses the metabolism pathways of the drugs; draw the formulas and show stereochemistry of the drugs based on their chemical names. | | | | | |
| **PHRM306** | **PHARMACEUTICAL CHEMISTRY LAB-III** | 0, 0, 3)1 | 2 | AC | - | English |
| **Course Content** | Fundamentals of quantitative analysis; Basic principles of quantitative analysis including titrimetric methods such as Titrimetry and Neutralization, oxido-reduction, complexometry, nitritometry and their applications in drug analysis. In addition, the principles and applications of chemical and instrumental techniques such as light, spectrophotometric methods, derivative spectroscopy, quantitative analysis of drug mixtures, ultraviolet, infrared, nuclear magnetic resonance, and qualitative analysis and structural illumination of drugs will be discussed. The aim of this course is to give basic concepts on the different methods used in the quantitative analysis of drugs. In addition, in this course, the student is expected to learn the application of quantification methods used in drug analysis. | | | | | |
| **PHRM308** | **PHARMACEUTICAL TECHNOLOGY-III** | (2, 0, 0)2 | 3 | AC | - | English |
| **Course Content** | New drug delivery systems, parenteral solutions, water for injections, pyrogenicity tests, parenteral preparations, contamination, GMP and quality assurance, ophthalmic, grinding theories and sampling methods and particle size determination methods, general properties powders definition, importance of preformulation Investigation of organoleptic and organoleptic properties, excipients used in tablet formulation, compression methods and applications, coating methods, gelatin capsules, stability, packaging materials are the main subjects. As a result of this course, students will learn about powders, tablets, hard gelatin capsules, soft gelatin capsules and coated dosage forms; knows the controls made in solid dosage forms; knows arrhenius equation, accelerated stability, shelf life calculation, stability tests and incompatibility; have knowledge about dosage forms used in veterinary treatment and packaging of pharmaceutical dosage forms. | | | | | |
| **PHRM310** | **PHARMACEUTICAL TECHNOLOGY LAB-III** | (0, 0, 3)1 | 2 | AC | - | English |
| **Course Content** | At the end of the Pharmaceutical Technology III Laboratory course, the student will be able to perform sterilization techniques (aseptic technique, thermal sterilization), combine sterile preparations and perform final product sterilization using a filtration method, calculate millimoles, milliequivalents and milliosmols of selected sterile solutions, calculate the amount of materials required to combine the selected sterile preparations. (including the ability to use E-values to prepare isotonic solutions), selection of appropriate drug containers and administration sets for sterile products, preparation of labels for sterile drug preparations that meet regulatory requirements and assist in the promotion, and correct use of the drug. | | | | | |
| **PHRM312** | **PHARMACOGNOSY-II** | (2, 0, 0)2 | 3 | AC | - | English |

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| **Course Content** | Pharmacognosy, as one of the fundamental disciplines of pharmacy, aims to develop a clear understanding of the therapeutic properties of natural products (plants, fungi, marine organisms and others) in medicine. The Pharmacognosy II course is the continuation of the Pharmacognosy course, which aims to provide students with theoretical and practical information about raw materials for natural medicines. The general properties of flavonoids, phenolic glycosides, alcohol glycosides, coumarin glycosides, tannins, lipids and waxes, tannins, terpenoids and essential oils (definition, physical properties, recognition reactions and production, quantitation, effect and use) are given and then these factors are given. Drugs carrying substances are described. | | | | | |
| **PHRM314** | **PHARMACOGNOSY LAB-II** | (0, 0, 3)1 | 2 | AC | - | English |
| **Course Content** | In the Pharmacognosy II Laboratory course, isolation techniques, quantitative and qualitative analysis, classification of essential and fixed oils, quantitative analysis of essential oils by volumetric and gravimetric methods, index determinations and TLC analysis of fixed oils and determination reactions of alkaloids, quantitative colorimetric analysis of Solanaceae alkaloids, quantitative cinnana total alkaloids. Analysis, chromatographic analysis of alkaloids in medicine, caffeine isolation from black tea and pharmacopoeia analysis, total qualitative analysis of herbal teas, project presentation will be made. Objectives of the Course It is aimed to obtain essential oil and fixed oil, to teach qualitative and quantitative pharmacopoeia analysis methods. | | | | | |
| **PHRM316** | **PHARMACOLOGY-III** | (2, 0, 0)2 | 3 | AC | - | English |
| **Course Content** | Information about the central nervous system, mechanisms of action of effective drugs, side effects, use, contraindications and drug interactions are discussed. The aim of the course is to provide the students with necessary information about the mechanisms that regulate the functioning of the central nervous system, endocrine system and gastrointestinal system and the drugs used in the treatment of diseases that occur in case of their disorders. As a result of this course, students learn about central nervous system diseases and drugs used in their treatments; learns its regulation by hormones and drugs; learns gastrointestinal system diseases and their treatment; knows birth control methods learns psychiatric and neurological diseases and their treatments. | | | | | |
| **PHRM318** | **DEONTOLOGY AND ETHICS OF PHARMACY** | (2, 0, 0)2 | 3 | AC | - | English |
| **Course Content** | The course aims to identify ethical issues they encounter during professional practice, to solve problems, and to use ethical principles on certain issues. Thus, the prestige of the pharmacy profession while providing a more accurate and higher quality pharmacy service will be protected. Turkish pharmacy laws and regulations, business ethics, good pharmacy practices, pharmaceutical industry, hospital, pharmacy and patient interactions will be discussed. Thereby, students will have information about the ethical obligations of the pharmacist; the legal dimension of the processes and critically evaluates various legal provisions in health care in terms of medical ethics; identifies and resolves ethical dilemmas that may arise in health care processes; identifies possible right-action options in ethical dilemmas and justifies their choice. | | | | | |
| **HESC350** | **BASIC PUBLIC HEALTH** | (2, 0, 0)2 | 3 | AC | - | English |
| **Course Content** | Course aims to teach meaning and scope of public health, the importance of factors affecting the health of the individual, to examine the factors affecting public health, to understand the inequalities in health by emphasizing the situation. Course covers health services and factors affecting it, obstacles that may arise in service delivery and how to remove them, rights in maternal and child health services and reproductive health, evaluation of current situation in infectious diseases, assessing health situation of health workers, the importance of environmental health, to look after people with disabilities within the framework of the social model and developing the right attitude, regulations on smoking and tobacco control, and understand and evaluate the importance of access to healthy food. | | | | | |
| **PHRM420** | **SUMMER TRAINING-II** | (0, 0, 0)0 | 2 | AC | - | English |
| **Course Content** | The purpose of the summer internship-II course is to enable students to see the roles of pharmacists in their field during their practice in community pharmacy and to help them gain the necessary experience before starting their professional life. As a result of this course, students will understand the role of the pharmacist in hospital services; learns about the most common questions in community pharmacies; students can prepare a “patient profile” for people with chronic diseases in community pharmacies; applies the profession of pharmacy with its wide professional knowledge and skills; comprehend the roles of the pharmacist in different parts of the pharmaceutical industry and/or the professional routines of a community pharmacist. | | | | | |
| **PHRM403** | **CLINICAL PHARMACY-I** | (2, 0, 0)2 | 2 | AC | PHRM212 | English |
| **Course Content** | Clinical Pharmacy I course aims to introduce students to the basic principles of clinical pharmacy, clinical cases and practice, and to show the roles that the clinical pharmacist can play in the rational use of drugs and the success of patient treatment. As a result of this course, students recognize the concepts of clinical pharmacy and patient-centered pharmacy; knows the general and specific duties of the clinical pharmacist; student learns patient education methods and understands the importance of systematic approach in patient treatment; recognizes the methods of use of different dosage forms; knows the roles of the pharmacist in the treatment of common cases in pharmacy such as pain and fever. | | | | | |
| **PHRM405** | **CLINICAL PHARMACY PRACTICE-I** | (0, 0, 2)1 | 2 | AC | - | English |
| **Course Content** | This course introduces patient care and meeting medication needs in the clinic, and enables making clinical observations in a hospital setting. Students will understand the importance of clinical pharmacy in the hospital and explain its basic principles; learns the role and explains the duties and responsibilities of the clinical pharmacist in patient follow-up and treatment; observing different patients in different services, obtains information about diseases and drugs used; interpret laboratory data related to diseases; explains the clinical pharmacist's approach to various systemic diseases and the pharmacotherapy of diseases; can make comments about the drugs used in treatment by observing patients in the hospital; can prepare and present a case report of a patient observed and followed in the hospital service. | | | | | |
| **PHRM407** | **PHARMACEUTICAL TOXICOLOGY-II** | (2, 0, 0)2 | 2 | AC | - | English |
| **Course Content** | Hepatotoxicity, nephrotoxicity, skin toxicity, pulmonary system toxicity, cardiovascular system toxicity, selective toxicity, toxic effects of pesticides, toxic effects of metals, toxic effects of volatile organic solvents, natural toxins in food, toxic effects of food additives and contaminants toxic effects of terrestrial animal poisons and poisons and treatments, toxic effects and treatments of plants, toxicity of household chemicals, disaster toxicology, toxicological principles in legal cases, air, water and soil pollution, toxicity of analgesics, toxic effects of sedative-hypnotics, toxic effects of antihypertensives, toxic effects of cardiovascular system drugs, alcohol Toxicity of aldehydes, opioids and hallucinogenic narcotics, vitamins and their toxic effects, toxicological evaluation of biotechnological products and nanotoxicology will be discussed. | | | | | |
| **PHRM409** | **PHARMACEUTICAL TOXICOLOGY LAB-II** | (0, 0, 2)1 | 2 | AC | - | English |
| **Course Content** | This course contains; DNA isolation from biological materials, genotyping (xenobiotic metabolizing enzyme gene polymorphisms), lipid peroxidation, DPPH and glutathione measurements, teratogenicity, determination of barbiturates and organic phosphate insecticides by thin layer chromatography (TLC), evaluation of lead exposure by ALA analysis, analysis lead, toxicological analysis of milk and dairy products, evaluation of water, meat analysis, qualitative determination of volatile poisons in biological materials by microdiffusion method and evaluation of their toxicity; determination of cyanide and metallic poisions in biological materials and evaluation of its toxicity; determination of food additives in different food groups; detecting various contaminants in drinking and utility waters and evaluating their toxic effects; It includes presentation and discussion of poisoning cases by students. | | | | | |
| **PHRM411** | **PHARMACEUTICAL TECHNOLOGY-IV** | (2, 0, 0)2 | 2 | AC | - | English |
| **Course Content** | In this lesson; boric acid, sodium phenobarbital, aspirin-phenacetin-caffeine, acetaminophen tablets, aspirin tablet direct compression, aspirin and ascorbic acid tablet dry granulation, ascorbic acid tablet wet granulation, effervescent bath tablet, effervescent antacid tablet, chewing antacid tablet, sustained-release aspirin tablet; dissolution test in tablets; stability testing of aspirin tablets; sugar or film coating methods; capsule; formulation development, particle size methods, reduction, grinding theories and sampling methods, the determination and importance of particle size, preformulation and examination of organoleptic properties, general properties of powders, auxiliary substances used in tablet formulation, compression methods and applications, coating methods, gelatin capsules, stability, packaging materials will be processed. The aim is to inform students about formulation development, production, finished product controls and stability of solid dosage forms. | | | | | |
| **PHRM413** | **PHARMACEUTICAL TECHNOLOGY LAB-IV** | (0, 0, 3)1 | 2 | AC | - | English |
| | In this course, boric acid tablet, direct compression aspirin tablet, dry granulated aspirin tablet, sodium phenobarbital tablet, aspirin-phenacetine-cafeine tablet, dry granulated ascorbic acid tablet, acetaminophen tablet, wet granulated ascorbic acid tablet, effervescent bath tablet, effervescent antacid tablet , antacid chewable tablets, sustained release aspirin tablets, tablet dissolution test, aspirin tablet stability test, sugar coating and film coating of solid dosage forms and capsules, formulation designs will be made. The aim of the course is to inform students about the production technologies of solid dosage forms and the necessary controls on solid dosage forms, and about solid dosage form formulation design. | | | | | |
| **PHRM415** | **PHARMACEUTICAL BIOTECHNOLOGY** | (2, 0, 0)2 | 2 | AC | - | English |
| **Course Content** | The aim of the Pharmaceutical Biotechnology course is to give information about pharmaceutical biotechnology and the production and properties of drugs prepared with this technology. Applications of recombinant DNA in pharmaceutical sciences, biotechnology-derived protein products, vaccines, monoclonal antibodies and pharmaceutical applications, formulation of pharmaceutical biotechnology products, gene therapy and viral and non-viral gene therapeutics, cell culture, fermentation and bioreactor systems, use of transgenic plants and plants for the production of biopharmaceuticals. animals, analytical methods used in pharmaceutical biotechnology, the role of pharmacists in the distribution and application of biotechnology products will be discussed. As a result of this course, students gain extensive knowledge about recombinant DNA technology, drugs produced with this technology; have knowledge about biotechnological drug production and process. | | | | | |
| **PHRM417** | **PHARMACOTHERAPY** | (2, 0, 0)2 | 2 | AC | - | English |
| **Course Content** | This course introduces students to the clinical use of drugs in the prevention and treatment of disease and provides a basis for the delivery of pharmaceutical care. Prospective pharmacists will focus on core chronic disease states with an emphasis on outpatient care. The main purpose of the course is to use all the knowledge and treatment principles learned during pharmacology education by taking the most common diseases as an example and to gain the ability to examine the problems related to treatment. Thereby, students read and evaluate prescriptions; learns drugs used in immune system modulation, radiopharmaceuticals, radiological diagnosis, respiratory, kidney and gastrointestinal diseases; learns drugs used in cases such as sepsis, liver diseases, peripheral vascular diseases. | | | | | |

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| **PHRM419** | **INSTRUMENTAL ANALYSIS** | (3, 0, 0)3 | 4 | AC | - | English |
| **Course Content** | The lecture teaches and applies the basic principles of instrumental analysis, the principles of spectrophotometric and chromatographic analysis. Optical methods, light scattering photometry (turbidimetry, nephelometry), refractometry, polarimetry. Basic information of spectroscopy, electromagnetic radiation, light energy and matter, classical theory. UV-Visible field theory and applications, basic information of Infrared and Raman spectroscopy, applications are among the contents of the course. So, students learn the basic principles of spectrophotometry and chromatography; learn the parts and design of spectrophotometer and high performance liquid chromatography (HPLC) equipment; learn the interpretation of absorption spectra in qualitative analysis; learn to use spectrophotometer and HPLC by quantifying a pharmaceutical active substance and product for quantitative analysis; learn how to use chromatography in qualitative analysis | | | | | |
| **PHRM402** | **PHARMACY LEGISLATION** | (2, 0, 0)2 | 3 | AC | - | English |
| **Course Content** | Laws and regulations related to pharmacy and pharmacy in Turkey and Cyprus and ethical responsibilities in pharmacy services are the subject of the course. Within the scope of this course, the latest laws and regulations, definition of social pharmacy and health, consumer behavior in the selection of prescription and nonprescription drugs, patient-physician-pharmacist communication, drug incompatibility and its consequences will be discussed. As a result of this course, students will have information about the laws and regulations related to pharmacy practices; have knowledge about the laws that pharmacists to work in pharmacies, hospitals, pharmaceutical industry and universities must comply with; Evaluates the current legislation by examining the guidelines of the World Health Organization. | | | | | |
| **PHRM404** | **CLINICAL PHARMACY-II** | (2, 0, 0)2 | 3 | AC | - | English |
| **Course Content** | The course aims to explain the roles of the clinical pharmacist in the pharmacotherapy of common acute and chronic diseases and in the follow-up of patients. The course is containing grug use during pregnancy and lactation and clinical pharmacist's approach, pharmaceutical care, clinical pharmacist's role in hypertension treatment and digoxin monitoring, congestive heart failure pharmacotherapy are among. The students will know the clinical pharmacist's duties in the hospital; can establish a relationship between medicine and disease during in rotations in the hospital; knows the roles of the clinical pharmacist, make a case report using the clinical use of the drug and knowledge of clinical biochemistry and in the treatment of common chronic diseases; hypertension, asthma etc. | | | | | |
| **PHRM406** | **PHYTOTHERAPY** | (2, 0, 0)2 | 4 | AC | PHRM214 | English |
| **Course Content** | The aim of the phytotherapy course is to state the regulatory and curative role of herbal medicines on human health. This course introduces the introduction and history of phytotherapy, plants used against gastrointestinal diseases, cardiovascular diseases, respiratory system diseases, urinary system diseases, rheumatism, sedatives, gynecology, ophthalmology, dermatology, cancer treatment, aromatic baths. As a result of this course, students know the methods of preparing herbal medicine; learns herbal drugs (such as carminative, sedative, liver protector) used in certain symptoms; Knows the points to be considered while preparing and using herbal teas (dose, toxicity, interaction, side effects); have information about the preparation samples available in the market; Prepares herbal tea formulas. | | | | | |
| **PHRM408** | **PHARMACY MANAGEMENT** | (2, 0, 0)2 | 3 | AC | - | English |
| **Course Content** | Course Content; Business Concept and its features, Business Management and the development of business management, Business objectives, tools and functions, Businesses as an economic unit, Businesses in legal terms, Pharmacy as a business, Feasibility studies for pharmacy, Selection of pharmacy establishment location and determination of its size, Case study, In pharmacy marketing works, communication process in pharmacy, finance in pharmacy, personnel management in pharmacy. Thereby, students will have a knowledge of how businesses work and the management of pharmacies as a business; can carry out marketing activities of pharmacies as a business; they act according to their position within the distribution channel as a business; learn how to communicate with patients as a business. | | | | | |
| **PHRM410** | **COSMETOLOGY** | (2, 0, 0)2 | 3 | AC | - | English |
| **Course Content** | Production technologies of cosmetic products on the basis of international regulations (GMP, GLP, etc.), features of dermatological products, cosmetics containing active ingredients, product types, stability and efficacy tests, and side effects of cosmeceuticals will be covered. As a result of this course, students know the anatomical / physiological structure of hair and skin; know the formula design and quality control of cosmetic products applied to the hair; know the formula design and quality control of cosmetic products applied to the skin; know the raw material sources of the cosmetic industry and the legal regulations regarding cosmetic products; will have information about the history of cosmetics, its regulations, good manufacturing practices in cosmetics and the purpose of use of cosmetic products. | | | | | |
| **PHRM412** | **COSMETOLOGY LAB** | (0, 0, 3)1 | 2 | AC | - | English |
| **Course Content** | Cosmetology course introduces the students to the anatomical structure and physiology of the skin and oral cavity and the cosmetic products used in these areas. In addition, the course focuses on the main principles of cosmetics laws and regulations used in Turkey, Cyprus and the world, and informs students about laboratory practices, cosmetic product formulation and the entire R&D process. Laboratory applications of the course; production and control of different types of products in the laboratory environment, production of new cosmetic products in the laboratory environment from all R&D studies from idea creation to product launch, production and control of different product types. | | | | | |
| **PHRM520** | **SUMMER TRAINING-III** | (0, 0, 0)0 | 4 | AC | - | English |
| **Course Content** | The aim of the course is to enable students to see the roles of pharmacists in the field and to help them gain the necessary experience before starting their professional life during the practices to be carried out in the community pharmacy, hospital pharmacy and industry. As a result of this course, students will understand the role of the pharmacist in hospital services; learns about the most common questions in community pharmacies; can prepare a “patient profile” for people with chronic diseases in community pharmacies; applies the profession of pharmacy with its wide professional knowledge and skills; comprehend the roles of the pharmacist in different parts of the pharmaceutical industry and/or the professional routines of a community pharmacist. | | | | | |
| **PHRM507** | **ECONOMY OF HEALTH AND MEDICINE** | (3, 0, 0)3 | 4 | AC | - | English |
| **Course Content** | This course covers information about general and human resources management, general accounting, pharmacoeconomics. Health technology evaluations and pharmacoeconomics from health economics perspective, Pharmacoeconomics definition, history and basic concepts, Basic methods used in pharmacoeconomic analysis, it’s steps and determination of perspective, Decision process and decision tree method in pharmacoeconomic analysis, Cost-minimization analysis and Cost-effectiveness Analysis, Health policy overview, Drug management and the use of pharmacoeconomics in the pricing of drugs, The use of pharmacoeconomics in determining the reimbursement of drugs are among the contents of the course. Students will make an idea about health and drug policies; take an active part in drug administration; define basic pharmacoeconomic concepts, recognize and interpret pharmacoeconomic methods; know where and how to use pharmacoeconomic analysis. | | | | | |
| **PHRM503** | **VIROLOGY AND PARASITOLOGY** | (3, 0, 0)3 | 3 | AC | | English |
| **Course Content** | This comprehensive program delves into the intricate mechanisms of viruses and parasites, shedding light on their role in causing diseases, transmission, and prevention. Through a blend of lectures, laboratory work, and case studies, students will gain a deep understanding of viral and parasitic life cycles, pathogenesis, and host interactions. Key topics include viral and parasitic taxonomy, epidemiology, and the latest advancements in diagnostics and treatment. Students will also examine emerging infectious diseases, immune responses, and the global impact of these microorganisms. By the end of the course, participants will be well-equipped to contribute to the field of public health and medical research, making a difference in the battle against infectious agents. | | | | | |
| **PHRM505** | **BIOCHEMISTRY OF THE IMMUNE SYSTEM** | (3, 0, 0)3 | 4 | AC | - | English |
| **Course Content** | Course aims introducing cells and tissues of immune system, defense mechanisms of immune system against pathogens, the biochemical events involved in these mechanisms, immune system disorders, the role of immune system in tissue and organ rejection, and to provide students with basic immunology knowledge. Course covers the basic concepts of the immune system, the acquired and congenital immune system, primary immunodeficiency, infectious diseases and the biochemistry of immune system. Therby, students understand the importance of the immune system, humoral and cellular immunity mechanisms; to have information about cells and tissues that play a role in immunity; to have knowledge about basic structures of antigens and antibodies; will have the ability to comprehend the role of antigen-antibody reaction in immunological methods. | | | | | |
| **PHRM501** | **GRADUATION PROJECT-I** | (2, 0, 0)2 | 10 | AC | - | English |
| **Course Content** | The aim of the course is to provide students with the ability to gather information about a subject, to choose a research topic, to plan and to conduct it. Literature review, discussion of the literature, creating the research topic, presentation of the interim report, organization of the study, pilot studies, evaluation of the results of the pilot studies, report presentation are among the contents of the course. As a result of this course, students gain the ability to write a project report on a specific subject under the supervision of an academic advisor; research plans; the student conducts the research; interprets the results obtained; the student learns group work; learn to write compilation. | | | | | |
| **PHRM504** | **MICROBIAL CONTROL OF PHARMACEUTICALS** | (2, 0, 0)2 | 3 | AC | - | English |
| **Course Content** | Influence of microbiological matters on drug quality, principal aspects of microbiology that are relevant to the pre-formulation, formulation, manufacturing, and license application stages involved with the production of pharmaceuticals, good manufacturing practice in the control of contamination, additional materials on package integrity and contamination risks in clean rooms | | | | | |
| **PHRM502** | **GRADUATION PROJECT-II** | (2, 0, 0)2 | 5 | AC | PHRM501 | English |
| **Course Content** | The student will continue on a project-specific topic under the supervision of an academic advisor, will gain the ability to write a project report with the data obtained and will be able to present the project as a poster or an oral presentation at a scientific meeting. Students learn the topic with the support of the current literature on the chosen topic and writes a review. Students who will practice can give a project on the topic they have chosen and can work out their hypotheses in the laboratory. So they learn to collect literature, create methodology, conduct research and present results. In theoretical and practical studies, the student gains knowledge about research and gains research techniques and presentation skills. | | | | | |

**Course Descriptions – II: All Area Core and Faculty/School Core courses offered by other academic units.**

| Course Code | Course Title | Credit | ECTS | Course | Pre-requisite | Teaching Language |
|---|---|---|---|---|---|---|
| **PHYS111** | **PHYSICS** | (2, 0, 2)2 | 4 | AC | - | English |

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| **Course Content** | This course is a basic physics course with elective subjects that aims to present the necessary fundamentals of physics to health science students as clearly as possible and to skip unnecessary concepts. To this end, the course begins with an introduction to Vector Algebra and Measurement as essential tools for the following sections. Then he studies Mechanics, which has its roots in the very heart of any branch of physics. The course is then followed by some selected topics in the fields of Elasticity, Fluid Mechanics, Electricity, Magnetism and Radiation. Each topic is accompanied by as many examples in biophysics as possible to ensure understanding of the topic and increase student motivation. | | | | | |
| **MATH135** | **BASIC MATHEMATICS** | (3, 0, 0)3 | 3 | AC | - | English |
| **Course Content** | Within the scope of this course, Numbers, Roman numerals, metric system, variable, algebraic operations, equations with one unknown, International units and conversions between them, Fractions, operations in fractions, decimal numbers, Ratio, proportion, percentiles, conversions between fractions and decimals, Exponents Scientific notation, operations on exponential numbers, Logarithm, logarithmic calculations, Liquid measurements, density, specific gravity, use of specific gravity in calculations of weight and volume, concentrations, dilutions, mixture problems will be covered. | | | | | |
| **ITEC100** | **INFORMATION TECHNOLOGIES** | (2, 0, 2)3 | 5 | UC | - | English |
| **Course Content** | The aim is to acquaint students with the basics of computers, input, output, storage devices and processing, application and system software, utilities and internet fundamentals, and the use of pharmaceutically important package programs. Also, students will be familiar with computer terminology and will use word processing and spreadsheet programs and learn efficient use of the Internet. In this course, students know the Basic Information Technology and the basic structures and operations of the computer; recognizes the basic hardware can follow the developments related to them; knows computer types, classification and structural differences. Knows operating systems and basic tasks; has knowledge of programming languages, can run on current versions of the Windows operating system; can use up-to-date versions of office software. | | | | | |
| **ENGL121** | **ENGLISH-1** | (3, 0, 0)3 | 4 | UC | - | English |
| **Course Content** | This course is designed to improve reading, speaking, listening and writing skills in specific fields. Aim of this course is developing students' linguistic and communicative abilities, their foreign language proficiency by creating interesting contexts and giving exercises and showing the use of language in real communication skills. Also it aims to raise students with elementary English grammar to pre-intermediate level. Course content, Basic English for beginners. Verb to be, possessive adjectives, questions and negatives, present simple social expressions informal letter, there is, there are, how many, how much, directions, prepositions of place, some, any, these, those, linking words, could, couldn't, formal letter, past simple regular verbs, irregular verbs, silent letters, special occasions. | | | | | |
| **TUOG101/TURK 131** | **TURKISH LANGUAGE-I / TURKISH AS A LANGUAGE-I** | (2, 0, 0)2 | 3 | UC | - | Turkish |
| **Course Content** | The aim of this course is to learn the historical development of the Turkish language and give information about the correct use of Turkish. The course contents include language, features of language; world languages, spoken and written languages; the structure of the Word, root and suffixes; sentence types; writing rules; punctuation; narrative feature; speech disorders; types of narration; essays, critiques, travel writings; memoir, speech and article; biography; report; letter and petition; novel; story; theatre; poetry. As a result of this course, students will understand the historical development of the Turkish language; Recognize the rules of Turkey Turkish, will be able to distinguish the types of expression; explain the relationship between language and culture; will be able to use stereotyped expressions. | | | | | |
| **ANTY104** | **HUMAN ANATOMY** | (3, 0, 0)3 | 4 | AC | - | English |
| **Course Content** | The aim of this course is to educate medical and anatomical terminology, as well as the structures and systems which make up the human body. It aims to teach the properties, relations, blood supply, and innervations of the organs that compose each system. To teach the locomotors system, the nervous system, the gastrointestinal system. The differences and similarities between the male and female urinary systems and reproductive systems. The respiratory tract, the heart, and peripheral vessels. Based on the overall objectives students are expected to achieve the following outcomes by the end of this course: Define the structures of the musculoskeletal system cardiovascular system, genitourinary system, nervous system, and gastrointestinal system. | | | | | |
| **HESC107** | **FIRST AID** | (2, 0, 0)2 | 3 | FC | - | English |
| **Course Content** | The course includes the following topics; all kinds of sudden illness, accident, injury, disaster, poisoning, suffocation etc., ensuring the patient/victim to learn and apply non-drug interventions, preventing injuries and shortening the healing process that will prevent the deterioration of the patient's condition until professional help arrives. Definition of first aid, basic applications of first aid, human body and vital signs, evaluation of the scene and the patient / injured, basic life support in adults, children and infants, respiratory tract obstruction, bleeding, injuries and traumas, fractures, dislocations, sprains and cramps, shock and consciousness disorders, general rules for carrying the sick and injured, burns, frostbite, heat stroke, electric shock suffocation, foreign body intrusion, animal bites and stings, poisoning. | | | | | |
| **ENGL122** | **ENGLISH-II** | (3, 0, 0)3 | 4 | UC | ENGL121 | English |
| **Course Content** | This course aim to use reading, speaking, listening and writing skills in a specific academic field. The course aims to take the knowledge and skills gained by the students in the "English I" course to a higher level. Thereby, care should be taken to create interesting contexts, to do exercises that increase the functionality of the language, to use the language in real communication skills, and in this way to increase the linguistic and communicative abilities and foreign language proficiency of the students. At the end of this program, the student searches the Literature from English sources; synthesizes professional English knowledge with the correct use of a foreign language; He diversifies the words he learned to improve his expressive power. | | | | | |
| **TUOG102/ TURK132** | **TURKISH LANGUAGE-II / TURKISH AS A FOREIGN LANGUAGE-II** | (2, 0, 0)2 | 3 | UC | - / TURK131 | Turkish |
| **Course Content** | The lecture aims to give general information about the Turkish language and its' history; to show the features of the Turkish language and the rules of operation with examples; to make students more conscious of the problems of the Turkish language. To gain the habit of following the spelling rules and using punctuation marks appropriately; To equip students with the ability and habit of expressing their feelings and thoughts accurately and effectively, verbally and in writing. Gaining the habit of reading books.; Scientific, critical, interpretive, questioning, creative, to gain the habit of thinking. Course content, Lecture types; essays, critiques, travel writings; memoir, speech and article; biography, report; letter and petition, novel; story, theatre; in the form of poetry. | | | | | |
| **PHYL201** | **BASIC PHYSIOLOGY** | (3, 0, 0)3 | 4 | AC | - | English |
| **Course Content** | Course content includes the physiology and diseases of the different systems of the human body mainly including the respiratory system, gastrointestinal system, endocrine system, female and male genital systems, urinary system, sensory organs, hearing and balance disorders, visual disorders, skin disorders, important infectious diseases and neoplasia. Aim of this course is to teach the physiology of the musculoskeletal system, central nervous system, cardiovascular system, respiratory, gastrointestinal, urogenital systems, endocrine system and sensory organs and give information about the etiology, pathogenesis, prognosis and treatment of diseases of these systems. At the end of the course, students are expected to have basic knowledge of the physiopathology of these systems. | | | | | |
| **TARH102/ HIST112** | **ATATURK'S PRINCIPLES AND HISTORY OF TURKISH REFORMS-I** | (2, 0, 0)2 | 3 | UC | | English |
| **Course Content** | Course explains the Ottoman Empire, its structural features and collapsed period, Turkey before the War of Independence, war years, beginning of a new era, political structure, social life, understanding of law, economic structure, cultural education, the end of an era (1938), discussion and evaluation. In the content of the course, the reform movements that emerged as a result of the disintegration of the Ottoman Empire and the political, social, cultural and economic problems that emerged resulting encounter and mixing of Turkish and Western cultures; Establishment of the secular legal system, social and cultural life; There are political events and the National Struggle during the transition period from the Empire to the National State by Mustafa Kemal Atatürk. | | | | | |
| **TARH102/ HIST112** | **ATATURK'S PRINCIPLES AND HISTORY OF TURKISH REFORMS-II** | (2, 0, 0)2 | 3 | UC | | English |
| **Course Content** | Course Objectives To explain the subjects of the Ottoman Empire, its structural features and its collapse period, Turkey before the War of Independence, the war years, the beginning of a new era, political structure, social life, understanding of law, economic structure, understanding of cultural education, the end of an era (1938). discussion and evaluation. The contents of this course are revolutions in the political field, political parties and attempts to transition to multi-party, political life, revolutions in the field of law, regulation of social life, innovations in the economic field, Turkish foreign policy in the period of 1923-1938, Turkish foreign policy after Atatürk, Principles of the Turkish Revolution: (Republicanism, Populism, Secularism, Revolutionism, Statism, Nationalism). | | | | | |
| **PSYC522** | **INTRODUCTION TO PSYCHOLOGICAL SCIENCES** | (3, 0, 0)3 | 4 | AC | - | English |
| **Course Content** | This comprehensive program provides a foundational exploration of key concepts and theories in psychology, empowering students to grasp the fundamentals of human cognition, emotion, and behavior. From the historical roots of psychology to contemporary research methods, this course offers a well-rounded perspective on the discipline. Students will delve into topics like social psychology, neuroscience, and abnormal psychology, gaining insight into the mysteries of the mind. By the course's end, participants will have a solid grasp of the psychological sciences and their real-world applications, setting the stage for further studies and career possibilities in this dynamic field. | | | | | |
| **SOWO100** | **COMMUNITY SERVICE PRACTICES** | (1, 0, 2)2 | 3 | UC | | English |
| **Course Content** | The aim of this course is to enable students to become aware of the problems of the society they live in and to learn teamwork. The content of the course is to create social awareness projects, to know non-governmental organizations and to work together, to develop activities, to make quick decisions for solutions, to use initiative, to empathize. This course aims to raise awareness of students while living in society; to develop social sensitivity in and around itself; learning to volunteer and doing teamwork, preparing solutions for target audiences; Taking an active role in community service project work gives them the skills. During this course, students take an active role in community service project work. | | | | | |

**Course Descriptions – III: All Area Elective and Faculty/School Elective courses offered by the department of the program.**

| Course Code | Course Title | Credit | ECTS | Course | Pre-requisite | Teaching Language |
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| **PHRM322** | **VOCATIONAL LATIN** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | Latin is an important and helpful language in anatomy, botany, pharmacology and pharmacognosy in pharmacy education. The lecture aims enabling to understand the meaning of the terms during pharmacy education and to serve as a key in professional life. The aim of this course is to learn the grammar knowledge and the spelling and pronunciation of the terms used in pharmacy in order to learn and understand Professional Latin in pharmacy education. Contributions of this course to students, recognition of adverbs in Latin; Recognition of adjectives in Latin, Recognition of names in Latin; Understanding the basic structure of the Latin language; It will be in the form of understanding the origins of the Latin terms involved in pharmacy education. | | | | | |
| **PHRM324** | **HISTORY OF PHARMACY** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | This course aims to introduce the importance and birth of the history of science and pharmacy; to inform about the historical processes of medicine and pharmacy and to enable making comparisons with today's practices. The main topics are the origin of pharmacy and its evolution through the ages, pharmacy in Turkey and Cyprus, famous pharmacists in the world, the discovery of drugs. Thereby, students acquire the concept that pharmacy has reached the present day in a long development process; become conscious of what steps the drug has passed through in history and reached its current state; By understanding the development of pharmacy in Turkey and Cyprus, they reach the level of evaluating today. | | | | | |
| **PHRM326** | **APPLICATIONS OF COMPUTER SOFTWARES IN PHARMACY** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | Within the scope of this course, general information is given about the basic concepts of computers, hardware and software, as well as the use of some important programs in terms of internet and pharmacy. The aim of this course is to make pharmacy students aware of computer programs and Public Computer Applications they will encounter in pharmacy. The course consists of theoretical part and laboratory applications. Theoretical part: Computer parts, Operating systems Library introduction, Rx MediaPharma, while Laboratory applications: Web design, MS Excel, MS Word, MS Power Point, Science Direct, Web of Science, Pubmed application, Molecule drawing programs, CV / petition preparation contains. | | | | | |
| **PHRM421** | **CONCEPTS ABOUT NATURAL MEDICINES** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | Natural medicine is products of natural origin, not synthetic. The course covers the basic concepts of natural medicine, pharmaceutical raw material and auxiliary substances obtained from inorganic materials, plants, animals, microorganisms, sea creatures and minerals. The aim of the course is to provide basic information about Pharmaceuticals and all natural products used as pharmaceutical raw materials and auxiliary substances. Learns the analysis techniques, possible side effects, food interactions, drug interactions and rational use of drugs of natural origin. He learns the quality, safety, purity and efficacy levels of drugs of natural origin and follows their standardization. | | | | | |
| **PHRM423** | **CLASSIFICATION OF PHARMACEUTICALS** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | Today, in vitro biopharmaceutical evaluations can be used instead of in vivo bioequivalence studies. Therefore, in order to reduce the cost of in vivo bioequivalence studies in healthy volunteers, the solubility, permeability and release properties of active substances from pharmaceutical dosage form are examined. The Biopharmaceutical Classification System (BCS) is a classification system based on the solubility and permeability of drugs and is grouped under various headings. In this course, it is aimed to discuss the approaches of various health authorities to the concept of biowaiver and BCS applications in national and international guidelines. | | | | | |
| **PHRM325** | **OUT OF PRESCRIPTION MEDICINES** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | Over-the-counter medications are often applied to medications for the treatment of minor, non-life-threatening conditions, and self-care. This course will discuss the ethical and professional responsibilities of pharmacists in personal care, the pros and cons of lifestyle medications (such as obesity, baldness, obesity, impotence, wrinkles, erectile dysfunction or acne), and herbal and other natural products. The aim of the course; It is an understanding of the general concepts of OTC (Over-the-Counter Medicine) and practices in different countries. As a result of this course, students will have detailed information about non-prescription drugs; learn the interaction of over-the-counter drugs with other drugs; knows how to use electronic information resources; learn about practices in other countries. Have general information about OTC Drugs. | | | | | |
| **PHRM423** | **MEDICAL PLANTS USED WITHIN THE PUBLIC** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | The aim of the course is to introduce the plants used as traditional folk medicine in Turkey and Cyprus, and briefly the history of plants and human relations, the roles of ethnobotanical information in the discovery of new drugs from Turkish ethnobotanical resources, domesticated plants, edibal and medicinal dyes, poisonous plants and spices will be covered. As a result of this course, students recognize the plants used as traditional folk medicine in Turkey and Cyprus with their characteristic morphological features; have information about the distribution of plants used as traditional folk medicine in Turkey and Cyprus; have information about the families of plants used as traditional folk medicine and the local names in Turkey and Cyprus. | | | | | |
| **PHRM416** | **PATIENT SAFETY AND MEDICAL MISTAKES** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | The Patient Safety and Medical Mistakes course provides an in-depth overview of the prevention of medical errors, including medication errors and other types of mistakes. The course defines the scope of the problem and explores why medical errors are often underreported. Through this course, students will learn new strategies to decrease medical errors, optimize communication, and increase patient safety and quality of care. By the end of the course, students will have a thorough understanding of how to prevent medical mistakes and create a safer healthcare environment. | | | | | |
| **PHRM427** | **GOOD MANUFACTURING PRACTICE** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | The main topics are quality assurance, quality control, organization and personnel, perimeter buildings and equipment manufacturing and process controls, packaging and labeling controls, laboratory controls, storage and distribution, documentation, product saving and recall, verification and calibration. As a result of this course, students will have information about Documentation, Validation and Calibration in the Pharmaceutical Industry; Learns Manufacturing and process controls in the Pharmaceutical Industry; Recognize Environment, Buildings and Equipment in the pharmaceutical industry; Gain knowledge of Organization and Personnel in the pharmaceutical industry; students will have information about Quality Control and Quality Assurance in the pharmaceutical industry. | | | | | |
| **PHRM422** | **BIOCHEMICAL SOURCES OF DISEASES** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | The aim of this course is to inform pharmacy students about the basic biochemical mechanism disorders in the etiology, progression and pathogenesis of diseases. At the end of the course, the students will be equipped with basic and up-to-date information about the basic biochemical and control mechanism disorders that occur in diseases in the human body and their results; In addition, it is expected that they will be informed about the molecular basis of some metabolic, genetic, cytogenetic, immunological and neurological diseases that are frequently encountered. As a result of this course, students understand the importance of examining diseases from biochemical point of view; define disease agents can describe carbohydrate metabolism disorders; explain lipid metabolism disorders, explain protein metabolism disorders. | | | | | |
| **PHRM424** | **INDUSTRIAL PHARMACY** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | The aim of the Industrial Pharmacy course is to give information about industrial production and to determine the place of the pharmacist in the industry. Pharmacists in the industry are often involved in production, quality control and sales. Introduction, personnel, building and environment, supply units, equipment, quality assurance, good conditions of production (GMP), quality control, documentation, verification are the main topics. As a result of this course, students learn about Bioequivalence/Bioavailability, Biotechnology and Pharmacovigilance; Recognizes clinical research and Good Clinical Practices; Learns Production, GMP and Validation; Gains knowledge about Marketing and Promotion, Gains knowledge about the pharmaceutical industry in the world, Turkey and Cyprus. | | | | | |
| **PHRM426** | **PHARMACOVIGILANCES** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | Fundamental principles of drug interactions, positive or negative situations that may arise when drugs are used together will be discussed and their importance will be explained. So, students get to know the National and International Pharmacovigilance Centers; they learn the interaction mechanisms of drugs, drug interactions that are frequently encountered in the clinic, and drug-nutrient interactions; will have knowledge and skills about the precautions to be taken and follow-up regarding the problems that may arise in drug administration; will have knowledge and skills about tracking problems encountered in drug administration, determining the causes, recognizing, researching, recording and announcing; will have knowledge and skills about the collection of clinical data on the safety of drugs in daily clinical practice. | | | | | |
| **PHRM428** | **RECOMBINANT DNA TECHNOLOGY AND VACCINE PRODUCTION** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | The aim of the course is to inform students about the production of proteins and vaccines produced by recombinant DNA technology in the pharmaceutical industry. Recombinant DNA technology production flowchart, cell bank and preparation techniques, expression systems, fermentation techniques, fermenters and bioreactors, up and down processes, separation and purification techniques for expressed proteins, general information about vaccine production and problems related to production will be covered. Students taking this course know the cell bank and creation methods; knows expression systems, learn about fermentation techniques; learn about bioreactors, learn about industrial recombinant protein and vaccine production and control. | | | | | |
| **PHRM429** | **OXIDATION AND ANTIOXIDATION** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | Free radicals, formation mechanisms of free radicals, tissue and organ damage caused by free radicals, the role of free radicals in physiological functions, free radical-induced diseases, the role of free radicals in aging, free radicals and cancer, antioxidant systems and exercise, endogenous antioxidants, exogenous antioxidants, oxidative tissue Experimental methods for damage and methods for antioxidants will be discussed. Students taking this course will learn biochemistry of reactive oxygen and nitrogen species; the formation and detoxification mechanisms of ROS/RNS; will be able to evaluate their role in disease and health; will be able to interpret diseases associated with free radical damage with oxidative stress markers. | | | | | |
| **PHRM524** | **CELL CULTURE TECHNIQUES** | (3, 0, 0)3 | 4 | AE | - | English |

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| **Course Content** | The aim of this course is to give information about cell cultures and preparation techniques. Introduction of cell culture, cell culture laboratory layout and equipment used in cell culture types and origins, cell bank systems, cell bank system applications, cell freezing and storage methods, cell bank system applications, cell viability and toxicity tests, tissue engineering are the main subjects. Students taking this course gain extensive knowledge about cells and cell culture; have knowledge about cell culture studies laboratory and equipment; learn about cell culture types and origins; have knowledge about the cell bank system and its applications; learn about tissue engineering. | | | | | |
| **PHRM531** | **PATIENT EDUCATION AND FOLLOW UP** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | In this course, patient education and clinical pharmacist, communication and patient counseling techniques, therapeutic drug follow-up, narrow therapeutic index drugs in monitoring and patient education, the role of patient education in rational antibiotic use, patient counseling for antibiotics in different dosage forms, compliance problems and patient education in elderly patients. , patient education in diabetes, patient counseling session for antidiabetic drugs, different inhaler dosage forms, dosage forms and patient education with specific instructions for use, patient education for over-the-counter drugs (OTC), patient education for antihypertensive drugs, and general evaluation. | | | | | |
| **PHRM521** | **RATIONAL MEDICINE APPLICATIONS** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | The course aims gaining practical skills in the direction of Rational Drug Applications. The rational pharmacotherapy principles and the role of pharmacists in practice will be taught and developed; knowledge and prescription response skills will be gained through prescription examples. Students will learn to provide training on the correct use of drugs, ensuring compliance with the treatment process, and raising awareness of the patient about other treatment-related issues; To be able to follow the use of the drug in the appropriate dose, with the right application, in a sufficient time; They will learn informing patients correctly and to observe the patient's compliance. | | | | | |
| **PHRM523** | **CASE REPORT IN CLINICAL BIOCHEMISTRY** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | In this course, it is aimed to discuss, interpret and draw conclusions about the biochemical parameters obtained during the diagnosis and treatment of diseases in the form of a case report in terms of bio-metabolic changes. Students who take this course learn the parameters in the diagnosis and treatment of thyroid disease, cancer tumor markers, kidney physiopathology; Learns bilirubin metabolism and changes in serum proteins; Learns metabolic changes due to alcohol, iron deficiency anemia, metabolic changes due to obesity and hunger; Learns about stress-induced hypocalcemia, alpha-1 antitrypsin defect; learns diabetes-related metabolic disorders and ACE inhibitors and enzyme mechanisms and Alzheimer's disease. | | | | | |
| **PHRM525** | **MEDICINES KNOWLEDGE AND CLINICAL PHARMACY PRACTICES** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | The basic concepts of drug information and the information resources used in accessing drug information are transferred to the student. Clinical pharmacists are responsible for counseling and monitoring the use of oral contraceptives prescribed and used in the clinic, clinical use of nonsteroidal anti-inflammatory drugs, drug information about anticoagulants, iron preparations, vitamins and minerals, determination and prevention and management of food, drug-drug interactions of drugs administered in the clinic. In addition, drug information in systemic diseases, pregnancy and lactation period, clinical use of antifungal drugs, pharmacist consultation in oral hygiene and care, drug-induced nephrotoxicity, drug-induced hepatotoxicity, drug allergy are the main topics taught to the students. | | | | | |
| **PHRM527** | **RESEARCH IN MEDICINES** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | The aim of this course is to familiarize students (in the fields of medicine, pharmacy and nursing) with the rules, types and methodology of clinical research in the capacity of the researcher, sponsor, audience or decision maker. Information about the researcher's responsibility for the target product in clinical trials, trial records, and inspection is conveyed. The principles of the research to be carried out on volunteers, the rules for inclusion of special groups such as children, pregnant women and postpartum women are given. The student who takes the course learns the phases of clinical research. Gains knowledge of good clinical practices by learning research application and permission processes. Learns the principles of termination of clinical research. | | | | | |
| **PHRM529** | **GRAVIMETRIC METHODS USED IN THE ANALYSIS OF MEDICINES** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | The aim of this course is to give information about gravimetric analysis methods and application areas by illuminating the structure and composition of the substance for the determination of analyte concentration. Students taking this course will learn gravimetric methods, mostly the detectability of inorganic anions and cations, their applicability to the determination of neutral species such as water, sulfur dioxide, carbon dioxide and nitrogen, their easy gravimetric determination in many organic substances, the analyte amount based on mass measurement. learn the methods by which it is assigned; learns protolysis, application of precipitation titrations to drug analysis, solubility, complex formation, precipitation markers, drug analysis by gravimetric method; learns the methods of determining the amount of analyte based on mass measurement. | | | | | |
| **PHRM526** | **PHARMACEUTICAL AND PALLIATIVE CARE** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | Today, the aging of societies and biotechnological developments make death a medical event. This course includes information about palliative care, ethical dilemmas and pharmaceutical treatment approaches that begin with the diagnosis of all life-threatening diseases and continue with the support of the relatives of the patient after death or the rehabilitation process of the surviving patient. As a result of this course, students recognize examples of palliative-pharmaceutical care in pediatric patients; learns palliative-pharmaceutical care in common chronic diseases; have an idea about the palliative-pharmaceutical care plan in some acute cases through sample cases; knows the relationship between clinical pharmacy and pharmaceutical care; know the basic steps of pharmaceutical care. | | | | | |
| **PHRM628** | **CANCER BIOCHEMISTRY** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | The aim of this course is to understand the concept of cancer, to have theoretical knowledge about the biochemical changes in the formation and progression of cancer, and to be able to interpret research studies on cancer. As a result of this course, students understand the specific molecular mechanisms that lead to the formation of specific tumors; learns apoptosis, cell cycle, chromatin and gene regulation and signaling mechanisms involved in tumor pathogenesis; explains how these mechanisms are used in the diagnosis and treatment of cancer; understand the mechanisms of invasion, metastasis and angiogenesis; evaluates tumor markers revealed through changes in cancer cells and their use in the clinic and laboratory. | | | | | |
| **PHRM532** | **SOCIAL PHARMACOANTHROPOLOGY** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | This course deals with practical experience for research into health behaviors and drug consumption habits, and factors in various cultural and theoretical frameworks, for example the classification of diseases and their medical treatments in different populations. In the content of the course, it is tried to understand the social structure of disease and drug therapy (folkloric, popular, alternative, biomedical, etc.). Students are expected to conduct in-depth interviews about patients' drug use, collect patient and disease histories, make observations, and contact health professionals. As a result of this course, students know anthropology research methods; can review and understand anthropological research, make decisions about drug use in culturally different groups; can discuss drug use experiences, meaning, sources and usage habits. | | | | | |
| **PHRM512** | **NUTRACEOTICS AND FOOD SUPPLEMENTS** | (3, 0, 0)3 | 4 | AE | - | English |
| **Course Content** | The Nutraceuticals and Supplements course informs students about the key concepts, definitions, dietary supplements and nutraceuticals currently in practice around the world, and their role in human health as preventative and therapeutic agents from a scientific perspective. At the end of this course, students define Nutraceutical, Functional Food and Food Supplement; explains the sources of nutraceuticals, list terpenic nutraceuticals; explains nutraceuticals effective in cancer prevention, explains nutraceuticals used to improve sleep quality; discuss phenolic nutraceuticals, explain probiotics and prebiotics; explains nutraceuticals used for eye health and women's health. | | | | | |

**Course Descriptions – IV: All Area Elective and Faculty/School Elective courses offered by other academic units.**

| Course Code | Course Title | Credit | ECTS | Course | Pre-requisite | Teaching Language |
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| **PSYC385** | **BEHAVIOURAL SCIENCE AND COMMUNICATION** | (2, 0, 0)2 | 3 | FE | - | English |
| **Course Content** | The course aims enabling students to learn the basic of psychology to get to know themselves and people around them more closely. Basic concepts related to behavioral science, disciplines related to behavioral sciences, factors that form the basis of behavior, drive, motivation, motivation, conflict and resolution, mediation, learning and factors affecting learning are among the contents of the course. As a result of this course, students get to know people with their various characteristics, understand the internal and external causes of human behavior; students recognize themselves and their personality traits; learns the motivations that motivate people, knows the effects of attention and perception laws on behaviors, knows the characteristics of intelligence and understands its importance; have effective communication skills. | | | | | |
| **LAWF350** | **MEDICAL LAW** | (2, 0, 0)2 | 3 | FE | - | English |
| **Course Content** | This course examines in depth the legal questions raised by medical practice and science. Students will learn about medical ethics and law. Huge questions are raised by advances in fields such as genetics and assisted reproduction. In a changing moral climate, debates about conflicts between mother and fetus, or about physician-assisted suicide, are very much alive. There are challenging questions about psychiatry, about the allocation of scarce medical resources, about the boundaries of the market in medicine, and about the law and ethics of medical research. Students will learn mostly about these subject that can rise questions of medical ethics and law. | | | | | |
| **HESC355** | **INTRODUCTION OF NUTRITION** | (2, 0, 0)2 | 3 | FE | - | English |
| **Course Content** | This course aims to interpret the relationship between nutrition and health, and to provide information about nutrients (carbohydrate, protein, fat, water, vitamins and minerals), nutritional requirements in various age groups and various diseases.It provides theoretical information about the physiological functions, requirements and energy concepts of macro and micro nutrients that are important for human health and diseases.Within the scope of the course, it is aimed to understand the importance of macro (carbohydrate, protein, fat) and micro nutrients (vitamins and minerals) in adequate and balanced nutrition and body work, their chemical structures, metabolisms, functions, sources, requirements, inadequacy or health problems caused by their intake in toxic doses. | | | | | |
| **HESC349** | **PREVENTATIVE HEALTH** | (2, 0, 0)2 | 3 | FE | - | English |

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| **Course Content** | Taking protective actions is important to increasing the level of knowledge in the protection, development and maintenance of physical, mental and social integrity of individuals and societies. The concepts of health, disease and preventive health will be explained, the recommendations of the World Health Organization and the situation of our country will be discussed. Solutions will be offered to understand and spread the importance of preventive health in society, and topics such as nutrition, physical activity and addiction, including environmental problems, will be covered. The spread of infection, the general characteristics and control of infectious diseases, as well as the strategies to be followed in immunization, the legal and political situation will be discussed based on the health 21 targets. |