

**FORENSIC CHEMISTRY AND FORENSIC
TOXICOLOGY MASTER'S PROGRAM
WITH/WITHOUT THESIS COURSE CONTENTS**

AKT505 Introduction to Forensic Sciences and Criminalistics

Topics that demonstrate the contribution of science to the criminal justice system, including personal identification, drug analysis, forms of trace evidence, identification of biological fluids, forensic medicine and forensic toxicology.

AKT501 Forensic Pharmacology and Toxicology

Antemortem and postmortem biological samples used in forensic toxicology studies, the necessary conditions for taking, storing, sending these samples to the laboratory and preparing them for analysis, devices and methods used in analysis

AKT520 Illicit Substances and Toxicology

Metabolic effects of internationally controlled substances, their absorption and excretion, toxic doses

AKT522 Case-Based Toxicology

Forensic toxicology applications based on real cases, solved cases

AKT523 Principles of Drug Action

Absorption, distribution and excretion of preparations. Toxic doses. Determination of the nature and quantity of the substance used based on excreted products

AKT518 Forensic Pharmacology and Toxicology

Antemortem and postmortem biological samples used in forensic toxicology studies, the necessary conditions for taking, storing, sending to the laboratory and preparing these samples for analysis, the devices and methods used in the analysis.

ABF505 Scientific Research Methods and Research Ethics in Science

The aim of the course is to enable the student to use scientific research methods to solve a problem related to Forensic Sciences on the basis of analytical thinking. The aim of the course is to enable the student to gain the ability to write a report by interpreting the findings obtained in the process of scientific research methods, data collection, modeling, data analysis and data analysis for the solution of events in Forensic Sciences.

AKT524 Instrumental Analysis in Toxicology

Techniques used in postmortem toxicology, separation techniques, quantification, interpretation of results. Theory and practice of modern instrumental analysis, mass spectrometry, optical spectroscopy, microscopy, chromatographic and electrophoretic separation.

AKT526 Current Research Techniques in Postmortem Toxicology

Diagnostic methods used in toxicological analysis of autopsy material and current developments in these methods

AKT528 Environmental Toxicology

Toxicological analysis techniques in soil, water and air samples

AKT529 Postmortem Toxicology of Addictive Substances

Discussion of the cause of death of narcotic and stimulant substances detected in liquid and solid samples taken at autopsy

AKT531 Molecular Toxicology

It is a course that examines the effects of different chemicals on living organisms, focusing on the application of research methods of biotechnology and biophysics and biochemistry to toxicology.

AKT502 Postmortem Toxicology

Toxicology concept, historical development, modern applications, excretion of toxic substances, mechanisms of toxicity, factors affecting toxicity and evaluation of toxicity

AKT519 Forensic Medicine

Mechanism of death, changes that occur after death and their causes.

AKT521 Analytical Toxicology

Principles and methods for the separation, identification and quantification of psychoactive substances from human samples.

AKT532 Clinical Chemistry

Theory and principles of classification, synthesis and structure of psychoactive substances in relation to their activity. Discussion of the complex chemical processes that take place from the use of a substance (especially addictive drugs) to its effect on the consumer. Chemical, pharmacological, toxicological and pathological characteristics of commonly consumed addictive substances such as ethanol, barbiturates, narcotics, stimulants and hallucinogens.

AKT527 Neuropharmacology

It is a course that examines how drugs affect the cellular functions of the nervous system and behavior, and focuses on the interaction of addiction with the brain from a behavioral and molecular perspective.

AKT533 Synthetic Drugs

A course focusing on the identification of synthetic drugs in solid and liquid form and their precursors in postmortem specimens as well as in fluids of the organism such as blood and urine, which have come to the fore in recent years and constitute a serious problem.

AKT534 Internationally Controlled Chemicals

Historical development of international conventions, historical identification and quantification of controlled natural and synthetic psychoactive substances and their precursors, as well as synthesis intermediates, report writing

AKT506 Ethics, Criminal Laboratory Management, Quality Assurance, Ethics

Issues including the responsibility of professionals working in criminal laboratories, ethics, public relations and quality assurance.

AKT507 Separation Techniques in Forensic Chemistry

Forensic chemistry uses capillary electrophoresis, chromatography, light microscopy techniques to analyze different products such as fiber evidence, explosives, glass, paint, geological and biological materials, traces, paper, counterfeit money, stomach contents, etc.

AKT503 Basic Principles in Forensic Chemistry

It will focus on fundamental issues in forensic chemistry including sampling, spot tests, crystal tests, infrared spectroscopy and gas chromatography - mass spectrometry, basic chemical procedures such as substance analysis by capillary electrophoresis, reproducibility of analyses, reliability of quantitative data. Basic methods used in the analysis of drugs, fire residues, explosives, shooting residues, paint samples will be discussed and ethical issues in the analysis of forensic chemistry evidence will be evaluated.

AKT524 Instrumental Analysis in Toxicology

Theory and practice of the use of instrumental methods, including chromatographic and spectroscopic techniques and mass spectrometry, in the forensic examination of physical evidence.

AKT504 Scientific Evidence in Criminal and Civil Cases

The use of evidence in the justice system, the concept of evidence, expectations of the prosecution and defense authorities, problems, forensic medicine practices, DNA analysis will be evaluated.

AKT512 Forensic Psychoactive Substance Analysis

Theory and principles of classification, synthesis and structure of psychoactive substances in relation to their activity. Discussion of the complex chemical processes that take place from the use of a substance (especially addictive drugs) to its effect on the consumer.

AKT513 Forensic Analytical Chemistry

It will focus on the chemical, pharmacological, toxicological and pathological characteristics of commonly consumed addictive substances such as ethanol, barbiturates, narcotics, stimulants and hallucinogens, their isolation from different media, diagnostic and quantification methods.

AKT514 Drug and Poison Chemistry

Principles and methods for the separation, identification and quantification of psychoactive substances from human samples

AKT515 Forensic Chemistry in Criminal Investigation

Establishment and management of forensic chemistry laboratories, whether liquid and solid samples obtained from crime scenes are subject to control, determination of which illegal substance is the precursor or end product, cooperation with related disciplines, report writing.

AKT516 Forensic Chemistry and Law

The place of the analysis results of liquid and powder evidence in national and international legal regulations, the qualifications sought in those who will perform forensic chemistry analysis, report writing, expert witness.

AKT517 Biochemistry of Addiction

Metabolism, absorption, intoxication and excretion of psychoactive substances, determination of their effects on the brain by biochemical methods, advanced imaging techniques.

AKT508 Forensic Chemistry in Document and Ink Examination

Chemical analysis of inks used in the creation of written and printed documents, signatures and seals, paper, threads and materials used in the production of bindings

AKT509 Trace Evidence and Microscopy

Principles of the examination of trace evidence, including its recovery, transfer, evaluation and comparison. Traffic accidents, bullet entry holes, teeth marks. Evidential value, reporting and expert witnessing.

AKT510 Artifact Evidence Analysis (Glass, Paint, Soil)

Glass and soil analysis. Refractive index measurement using immersion methods, examination of minerals by polarized light, examination of minerals by X-ray diffraction analysis, traditional chemical and physical analysis methods.

AKT511 Fire and Explosive Investigation

Investigation of fire accelerators, explosive waste by infrared spectrometry, pyrolysis-gas-liquid chromatography as well as traditional physical and chemical analysis methods.

ABS500 Seminar

AKT525Semester Project

AKT530Thesis Study