Thematic lesson plan of lecture
in the discipline "Toxicological chemistry"
for students admitted in 2021
specialist degree in the specialty of training 33.05.01
Pharmacy direction (profile) Pharmacy,
form of study full-time (face to face)
for the 2024-2025 academic year.

№	Topics of lectures	Hours (academic)
	7 semester	
1	Introduction to toxicological chemistry. The main sections of toxicological chemistry. Organization of chemical-toxicological examination in the Russian Federation. Toxicokinetics. General patterns of distribution of poisons in the body. Factors of influence on the toxicity of xenobiotic.	2
2	Biotransformation of xenobiotic in the body.	2
3	Metabolites and toxicity. Introduction to secondary metabolism. Lethal synthesis.	2
4	A group of substances isolated from biological material by mineralization. Ecology of the environment and the prevalence of poisoning with heavy metal compounds and arsenic. Methods for isolation of heavy metal compounds from mineralizate. Compounds of lead, barium, manganese, chromium and silver.	2
5	Features of chemical-toxicological analysis for the content of arsenic compounds.	2
6	Inorganic and organic mercury compounds. Classification, toxicokinetics, isolation. Detection and quantitative determination of mercury compounds.	2
7	Carbon monoxide (II). Properties, causes and distribution of poisonings. Mechanism of toxic action. Diagnosis of poisoning and principles of their treatment. Methods of chemical-toxicological analysis.	2
8	Toxicology and chemical-toxicological analysis of fluorine compounds.	2
9	A group of substances isolated from biological objects by distillation. Methodology for general non-targeted analysis of distillates for volatile poisons. Hydrocyanic acid	2
	8 semester	
10	A group of substances isolated from biological objects by distillation. The problem of examination of alcohol intoxication.	2
11	Pesticides. Classification. Methods of isolation from biological objects. Chemical-toxicological analysis of organochlorine.	2
12	Pesticides. Chemical-toxicological analysis of organophosphorus pesticides, pesticides of carbamic acid derivatives and pyrethroids.	2
13	Methods for isolating xenobiotics from biological objects during forensic chemical analysis. Comparative characteristics of general and particular isolation methods. Theoretical foundations of sample preparation in the study of biofluids. Extraction in liquid-liquid and solid phase-liquid systems. Methods for purification of isolates.	2
14	Characteristics of groups of xenobiotics that cause intoxication. Chemical-toxicological analysis of derivatives of barbituric acid	2
15	Characteristics of groups of xenobiotics that cause intoxication. Chemical-toxicological analysis of derivatives of opiates.	2
16	Chemical-toxicological analysis of 1,4-benzodiazepins.	2
17	Chemical-toxicological analysis of tropane alkaloids and cannabinoids	2
18	Chemical-toxicological analysis of phenylalkylamines.	2
	Total	36

Considered at the meeting of the department of Pharmaceutical, Toxicological Chemistry Pharmacognosy and Botany on August 28, 2024, protocol No. 1
Head of the Department of Pharmaceutical
and Toxicological Chemistry,
Pharmacognosy and Botany Professor  /Ozerov A. A./