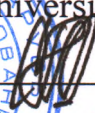


MINISTRY OF HEALTH OF THE REPUBLIC OF BELARUS
Educational Institution
BELARUSIAN STATE MEDICAL UNIVERSITY

Контрольный
экземпляр

APPROVED

by Rector of the Educational
Institution «Belarusian State
Medical University»

 S.P. Rubnikovich

20.11.2024

Reg. # UD-0912-01-15/2425edu.

PHARMACEUTICAL HYGIENE

**Curriculum of the educational institution
in the academic discipline for the specialty**

7-07-0912-01 «Pharmacy»

Curriculum is based on the educational program «Pharmaceutical Hygiene», approved 15.11.2023, registration # УД-08-26/2324/уч.; on the educational plan in the specialty 7-07-0912-01 «Pharmacy», approved 15.05.2024, registration # 7-07-0912-01/2425/mf.

COMPILERS:

N.L.Batsukova, Head of the Department of General Hygiene of the educational institution «Belarusian State Medical University», PhD, Associate Professor;

K.V.Bahdanovich, Senior Lecturer of the Department of General Hygiene of the educational institution «Belarusian State Medical University»;

T.I.Borschenskaya, Associate Professor of the Department of General Hygiene of the educational institution «Belarusian State Medical University», PhD;

V.N.Shadenko, Associate Professor of the Department of General Hygiene of the educational institution «Belarusian State Medical University», PhD

RECOMMENDED FOR APPROVAL:

by the Department General Hygiene of the educational institution «Belarusian State Medical University»
(protocol #6 of 11.11.2024);

by the Scientific and Methodological Council of the educational institution «Belarusian State Medical University»
(protocol # 3 of 20.11.2024)

EXPLANATORY NOTE

«Pharmaceutical Hygiene» – the academic discipline of the module «Pharmaceutical Hygiene and Ecology», which contains systematized scientific knowledge about the patterns of the influence of environmental factors on the health of employees of pharmacy and pharmaceutical organizations.

The aim of the discipline «Pharmaceutical Hygiene» is the formation of specialized competencies for the organization of preventive, sanitary and anti-epidemic measures in pharmacy organizations and pharmaceutical enterprises.

The objectives of the discipline «Pharmaceutical Hygiene» are to form students' scientific knowledge about the significance of pharmaceutical hygiene for professional activity, the peculiarities of the influence of environmental factors on health; hygienic requirements for the placement, layout, equipment, landscaping and maintenance of pharmacy organizations and pharmaceutical enterprises, pharmacy manufacturing and industrial production, storage, sale of medicines and working conditions of personnel, skills and abilities necessary to assess the sanitary and hygienic condition, internal layout and finishing materials, artificial illumination and lighting equipment, ventilation efficiency, the degree of impact to harmful production factors, safety of the conditions for the medicine waste management in pharmacies and pharmacy warehouses.

The knowledge, skills, and abilities acquired during the study of the academic discipline «Pharmaceutical Hygiene» are necessary for successful mastering of the educational disciplines «Pharmaceutical Ecology» and «Industrial Technology of Drugs».

Studying the educational discipline «Pharmaceutical Hygiene» should ensure the formation of students' specialized competencies: perform work on the certification of workplaces and the prevention of occupational diseases.

As a result of studying the discipline «Pharmaceutical Hygiene» the student should

know:

the importance of pharmaceutical hygiene for professional activity, the peculiarities of the influence of environmental factors on human health;

hygienic requirements for the placement, layout, equipment, landscaping and maintenance of pharmacy organizations and pharmaceutical enterprises, pharmacy manufacturing and industrial production, storage, sale of medicines and working conditions of personnel;

be able to:

to provide a hygienic assessment of environmental factors, pharmacy organizations and pharmaceutical enterprises and the working conditions of staff;

develop measures to improve the living environment, pharmacy organizations and pharmaceutical enterprises and personnel;

master:

skills of conducting hygienic research, evaluating the results obtained and developing wellness measures.

Total number of hours for the study of the discipline is 90 academic hours, of which 40 classroom hours and 50 hours of student independent work. Classroom hours according to the types of studies: lectures – 6 hours (including 3 hours of supervised student independent work (SSIW)), laboratory classes – 34 hours.

Intermediate assessment is carried out according to the syllabus of the specialty in the form of a credit (4 semester).

Form of higher education – full-time.

ALLOCATION OF ACADEMIC TIME ACCORDING TO SEMESTERS OF STUDY

Code, name of the specialty	semester	Number of academic hours						Form of intermediate assessment
		total	in-class	including			out-of-class self-studies	
				lectures	supervised student independent work	laboratory studies		
7-07-0912-01 «Pharmacy»	4	90	40	3	3	34	50	credit

THEMATIC PLAN

Section (topic) name	Number of class hours	
	lectures (incl. SSIW)	laboratory
1. Environment and it's hygienic importance	3	14
1.1. Structure of the human environment. Assessment of human health	1,5	-
1.2. The concept of risk factors as the basis of modern concepts of disease prevention. Models of the development of main non-infectious diseases	1,5	-
1.3. Physical properties and chemical composition of atmospheric air. Hygienic assessment of the influence of microclimate on human health	-	4
1.4. Hygienic assessment of the impact of accommodation conditions on human health	-	6
1.5. Hygienic assessment of drinking water quality	-	4
2. Nutrition and health	-	10
2.1. Hygienic assessment of energy value and nutrient adequacy of the diet	-	4
2.2. Hygienic assessment of nutritional status	-	2
2.3. Prevention of food poisoning	-	4
3. Hygiene of pharmacies, control and analytical laboratories and pharmaceutical warehouses	3	10
3.1. Pharmacy hygiene	1,5	2
3.2. Hygiene of pharmaceutical enterprises	-	2
3.3. Hygiene of control and analytical laboratories. Hygiene of pharmaceutical warehouses	-	2
3.4. Occupational health in pharmacies and pharmaceutical industry enterprises	1,5	4
Total hours	6	34

CONTENT OF THE EDUCATIONAL DISCIPLINE

1. Environment and it's hygienic importance

1.1. Structure of the human environment. Assessment of human health

Definition, purpose, subject, objectives, theoretical foundations and methodology of hygiene. The place of hygiene among other medical sciences. The origin and development of hygiene. Hygiene in the ancient world, in the Middle Ages, in the Renaissance. The development of experimental hygiene. Development of hygiene in Russia. The largest Belarusian hygienists – A.P.Dobroslavin, F.F.Erisman, G.V.Khlopin, V.A.Uglov, A.N.Sysin, F.G.Krotkov, P.E.Kalmykov, S.N.Cherkinsky, A.A.Pokrovsky, K.S.Petrovsky, N.F.Koshelev, M.N.Logatkin, G.I.Sidorenko. Contribution to the development of hygienic science by V.V.Pashutin, I.P.Pavlov, V.I.Vernadsky. Ideas of prevention in the works of clinical scientists M.Ya.Mudrov,

N.I.Pirogov, S.P.Botkin, G.A.Zakharyin, A.A.Ostroumov. Hygiene in Western Europe: M.Pettenkofer, K. Voigt, M. Rubner, L.Pasteur, R.Koch, E.Adolf, G.Lehmann, H.Mitchell, T.Moore. Belarusian hygienist scientists: Z.K.Mogilevchik, P.V.Ostapenya, I.A.Chakhovsky, Kh.Kh.Lavinsky, O.P.Shepelin, M.S.Omelyanchik. Challenges of hygiene at the present stage. Differentiation of hygienic science.

The human environment as a set of natural (air, water, soil, radiation, food, biosphere) and social (work, life, socio-economic structure) elements, as well as objects, phenomena and factors that determine human living conditions. Properties (factors) of natural (mechanical, physical, chemical, biological) and social elements of the habitat: labor (severity, tension, regime, nature of human connection with a tool, external working conditions), everyday life (accommodation conditions, clothing, food, water supply, recreation), socio-economic structure (socially-legal status, financial security, level of education, culture).

Human health as a state of complete physical, mental and social well-being, the harmonious unity of physical, mental and labor functions, which determines the possibility of full-fledged human participation in various types of social and working life.

Assessment of human health at the individual, group (collective) and population level. Criteria for assessing individual health: parameters of physical development (somatometric, somatoscopic, physiometric), physical qualification (speed, strength, endurance), homeostasis indicators (functioning of the cardiovascular system, respiratory system, metabolism and energy), higher nervous activity, immune status. Integral indicators of individual health: a person's performance (physical, mental, professional), the duration of his labor (creative) activity. Methods and techniques used in solving scientific and practical problems in assessing human health. Hygienic diagnostics: definition, purpose, subject, procedure. Hygienic prenosological diagnostics. Premorbid conditions of the human body, their signs, evaluation criteria.

Healthy lifestyle, its components. Hygienic training and education of the population, forms, methods and means.

Preventive medicine. Types of medical prevention. Primary, secondary, third stage of prevention. Public health, infrastructure, direction of activity, content and role of intersectoral interaction. Organization of ensuring the sanitary and epidemiological welfare of the population.

The main normative legal acts of the Republic of Belarus regulating issues of public health protection.

Hygienic standardization of environmental factors. Principles of standardization.

Basic concepts of medical deontology: professional duty and responsibility of a pharmacist. Honor and dignity as evaluative categories that fix the moral value of a person. The professional value of the pharmacist and its social character.

1.2. The concept of risk factors as the basis of modern concepts of disease prevention. Models of the development of main non-infectious diseases

Classification of risk factors. External risk factors: food, housing, working conditions and occupational hazards, recreation, ethnic characteristics, standard of living and lifestyle, natural and geographical conditions. Internal risk factors

(congenital and acquired): arterial hypertension, hypercholesterolemia, excess body weight, endocrine regulation disorder and others. Individual constitution as a set of morphological and functional characteristics of the human body that determine the uniqueness of its reactivity and the result of the implementation of the genotype in specific environmental conditions. Grouping of risk factors according to Yu.P.Lisitsyn: lifestyle, human genetics (biology), habitat, including natural and climatic conditions, healthcare.

The most effective areas of disease prevention in the field of public health: creating conditions for a healthy lifestyle, improving the environmental situation.

The main non-infectious diseases and models of their development: environmental, accumulation, ontogenetic and genetic models. Prevention of main non-infectious diseases. Models of development and nutritional prevention of atherosclerosis. The influence of tobacco smoking on homeostasis. Stress as a risk factor. Physical activity as an important factor in maintaining human health and preventing main non-infectious diseases. Aging of the human body and associated non-infectious diseases.

1.3. Physical properties and chemical composition of atmospheric air. Hygienic assessment of the influence of microclimate on human health

The structure of the earth's atmosphere, characteristics of the basic properties of the atmosphere. The influence of the atmosphere on the human body. Electrical state of the air, characteristics of the main indicators, impact on human health. Air ionization. The concept of heavy and light, positive and negative ions. The influence of ionization on the human body. Natural radioactivity of the air, features of the effect on biological objects and human health.

Chemical composition of the air environment, its hygienic characteristics. The influence of various components of air on biological processes in nature and human health. Sanitary and indicative value of carbon dioxide in the air of residential and public buildings. Anthropotoxins in the air of residential premises: conditions conducive to their accumulation and impact on human health. Hygienic characteristics of the main sources of pollution of the air of populated areas. Mechanical and gaseous impurities in the air. Features of the quantitative and qualitative composition of impurities in atmospheric air and indoor air. The impact of atmospheric pollution on health. Measures to control the atmospheric pollution. Organization of monitoring of the state of atmospheric air.

Weather and climate, features and definition. The concept of climate-forming factors. Classification of climates, their hygienic characteristics. Seasonal changes in the usual climatic and electrometeorological factors. The influence of climatic factors on the human body. The concept of seasonal and meteorological diseases. Meteo dependence. The importance of active prevention, taking into account the influence of weather conditions on the human body.

The concept of microclimate. Acclimatization and adaptation as a complex socio-biological process of human adaptation to new living conditions. Physiological changes in the human body that develop during the period of acclimatization and adaptation to unusual conditions. The importance of the conditions and regime of work, rest, life, nutrition, features of the layout of settlements, physical training and

hardening for faster and more complete acclimatization and adaptation. Hygienic characteristics of physical factors of the air environment - temperature, humidity, air mobility, barometric pressure. Measurement methods and hygienic standardization of microclimate indicators. The effect of high and low atmospheric pressure on the human body (caisson and altitude sickness). The wind rose, the methodology of its compilation and hygienic assessment.

Hygienic assessment of the complex effect of meteorological factors on the human body. Assessment methods: catathermometry, effective and resulting temperatures. Research methods and hygienic assessment of the thermal state of the human body. Measurement of indicators characterizing the human body's response to the influence of meteorological factors: heat sensation, weighted average body temperature, cold test, Minor's starch iodine method.

1.4. Hygienic assessment of the impact of accommodation conditions on human health

The concept of light climate. Hygienic characteristics of the visible part of the solar spectrum. General biological effect of the visible spectrum, specific effect on eyes. The influence of various factors on the state of natural light in open spaces and indoor spaces. Lighting and geometric methods for assessing natural light.

Artificial lighting. Hygienic characteristics of the main types of artificial lighting. Research methods and hygienic assessment of natural and artificial lighting in enclosed spaces using a luxmeter.

Placement as a hygiene factor. The influence of the level of improvement and sanitary condition of populated areas on the health of the population. Hygienic requirements for housing, building materials, structures and interior decoration.

Natural and artificial ventilation, types and their hygienic characteristics. Carbon dioxide concentration as a sanitary-chemical indicator of the degree of cleanliness of indoor air. Methods for studying the concentration of carbon dioxide in the air. Indicators characterizing the efficiency of ventilation, principles of their calculation and evaluation: ventilation volume, air exchange rate, air cube. Air conditioning.

1.5. Hygienic assessment of drinking water quality

Physiological and hygienic importance of water. The water cycle in nature, its hygienic characteristics. Sources of natural water and their hygienic characteristics. Diseases associated with changes in the salt and microelemental composition of water. The concept of endemic diseases, the role of various environmental factors in the occurrence of endemic diseases. Biological life of the reservoir, its hygienic characteristics. The concept of saprobity, zones of saprobity of reservoirs. Epidemiological significance of water. Infectious diseases transmitted through water. The influence of human economic and industrial activities on the properties of natural waters. Hygienic requirements for drinking water quality.

The methodology of sanitary and hygienic inspection of the water source. Water sampling. Research methods and hygienic assessment of physical and organoleptic parameters. Research methods and hygienic assessment of the content of substances in water that are indifferent and have a positive physiological value (carbonates, bicarbonates, calcium, magnesium, iron).

Research methods and hygienic assessment of chemical indicators of organic water pollution (pH, content of ammonia nitrogen, nitrites, chlorides, oxidizability).

Methods for improving water quality: clarification and discoloration (coagulation and filtration), disinfection (physical methods: boiling, water treatment with ultraviolet rays, ultrasound; chemical methods: chlorination with normal doses, hyperchlorination, ozonation, oligodynamic effect of silver). Advantages and disadvantages of water quality improvement methods.

2. Nutrition and health

2.1. Hygienic assessment of energy value and nutrient adequacy of the diet

Definition and content of hygiene of nutrition. The influence of nutrition on public health. Preventive and therapeutic role of nutrition. Contribution of domestic and foreign scientists to the development of nutrition science. Types of nutrition.

Modern problems of human nutrition. Genetically modified products. Functional foods. Biologically active food additives.

Qualitative nutritional imbalance, causes and consequences. Modern ideas about the importance of proteins in human nutrition. The concept of reference protein and the biological value of proteins. Protein intake standards, recommendations of the Food and Agriculture Organization of the United Nations and the World Health Organization (WHO). Content and quality of proteins in basic food products. Fats in human nutrition. Highly unsaturated fatty acids, cholesterol, phosphatides and their biological role. Consequences of insufficient consumption of essential fat components. Excessive fat intake and consequences, preventive measures. Standards for the consumption of fats and their essential components. Carbohydrates in human nutrition. The role of fiber and pectin substances. Sources and norms of carbohydrate consumption. Vitamins and their role in human nutrition. Prevention of vitamin deficiency and hypervitaminosis. Sources of vitamins. Minerals in human nutrition. Lack and excess of minerals in the diet, preventive measures.

Laws of rational nutrition. Law of energy adequacy of nutrition. Methods for determining energy expenditure and methods for determining actual nutrient energy consumption. Law of nutrient (nutritional) adequacy. Classification of nutrients based on their functional purpose and the principle of irreplaceability. Balanced nutrition formula. The law of biorhythmic adequacy of nutrition, rational diet and its physiological basis. Law of enzymatic nutritional adequacy. Violations associated with changes in the chemical composition of food products under the influence of modern agricultural technologies. Consequences caused by the use of hormones, antibiotics, and genetic engineering in animal husbandry. Changes in the quality composition of food products caused by preservatives and food additives. Hereditary and acquired enzymopathies. Law of biotic adequacy of nutrition.

Criteria for standardization the nutritional needs of the human body, physiological norms of nutrition of the population. Determination of the human body's energy needs: calorimetric, time-table, calculated using the physical activity coefficient. Determination of the individual needs of the human body for energy (according to the WHO method, using the physical activity coefficient) and nutrients.

Calculation of the actual consumption of nutrients and the energy value of the diet according to the menu layout using the 24-hour interviewing method. Hygienic

assessment of the adequacy of actual nutrition to the needs of the human body, recommendations for rationalization of nutrition.

2.2. Hygienic assessment of nutritional status

Hygienic assessment of nutritional status (somatometric, somatoscopic, physiometric and biochemical indicators). Hygienic assessment of the human body's supply of vitamins. Methods for studying the vitamin value of diets: questionnaire, calculation, weight, chemical-analytical. Methods for studying the vitamin status of the human body: somatometric, physiometric, general clinical, somatoscopic, physiological and biochemical testing, hematological and immunological. Recommendations for optimizing the nutritional status and vitamin supply of the human body.

2.3. Prevention of food poisoning

Classification of food poisoning. Food poisoning of microbial etiology: types, clinical manifestations, prevention. Botulism, staphylococcal toxicosis: transmission factors, clinical manifestations, prevention. Mycotoxicoses and phycotoxicoses.

Food poisoning of non-microbial nature. Chemical intoxication: clinical manifestations, prevention. Food poisoning by products of plant and animal origin. Poisoning with poisonous mushrooms: clinical manifestations, prevention. Methods of investigation of food poisoning. The effect of endocrine disruptors on health.

3. Hygiene of pharmacies, control and analytical laboratories and pharmaceutical warehouses

3.1. Pharmacy hygiene

Licensing of pharmaceutical activities. Hygienic requirements for the layout, decoration and equipment. Hygienic requirements for sanitary and technical improvement (lighting, heating, ventilation, water supply, sewerage and solid waste management). Hygienic requirements for the maintenance.

Hygienic requirements for obtaining purified water and water for injection. Hygienic requirements for pharmacy utensils. Hygienic requirements for the pharmaceutical manufacture of medicines. Hygienic requirements for the pharmaceutical manufacture of medicines under aseptic conditions. Measures to resist pyrogenicity. Mold control in pharmacy premises.

3.2. Hygiene of pharmaceutical enterprises

Features of the modern pharmaceutical industry. Hygienic characteristics of the main technological processes. Hygienic requirements for the choice of territory, interior layout, decoration, sanitary and technical improvement (lighting, heating, ventilation, water supply, sewerage and garbage disposal), maintenance of premises of pharmaceutical enterprises.

Hygienic assessment of technological processes for the production of synthetic, galenic, novogalenic, as well as sterile (injectable, ophthalmic) medicines, antibiotics, tablets, pills.

3.3. Hygiene of control and analytical laboratories. Hygiene of pharmaceutical warehouses

Hygienic requirements for placement, interior layout, decoration and equipment, sanitary and technical improvement (lighting, heating, ventilation, water supply, sewerage and cleaning of solid waste), maintenance of premises of control

and analytical laboratories. Hygienic requirements for the technological process in control and analytical laboratories.

Hygienic requirements for the placement, interior layout, decoration and equipment of sanitary and technical improvement (lighting, heating, ventilation, water supply, sewerage and garbage disposal), maintenance of pharmacy warehouses. Hygienic requirements for the storage of various groups of medicines and medical products in pharmacy warehouses.

3.4. Occupational health in pharmacies and pharmaceutical industry enterprises

Labor and its hygienic significance. Hygienic characteristics of working conditions. Hygienic characteristics of physical (noise, vibration, ultraviolet, infrared, laser radiation), chemical (industrial poisons), biological (microorganisms) factors of the occupational environment. Hygienic characteristics of psychophysiological factors (severity and intensity of work), dust, aeroions, ionizing radiation.

Occupational hygiene in pharmacy organizations. Occupational hygiene in the pharmaceutical industry. Prevention of occupational diseases and poisoning of personnel in pharmacy organizations and pharmaceutical organizations.

ACADEMIC DISCIPLINE CURRICULAR CHART

Section, topic #	Section (topic) name	Number of class hours		Supervised student independent work	Literature	Practical skills	Form of control	
		lectures	laboratory				of practical skills	of current / intermediate assessment
	Lectures	3	-	3				
1.1	Structure of the human environment. Assessment of human health	1,5	-	-	1			
1.2	The concept of risk factors as the basis of modern concepts of disease prevention. Models of the development of main non-infectious diseases	-	-	1,5	1			Written work
3.1	Pharmacy hygiene	1,5	-	-	1			
3.4	Occupational health in pharmacies and pharmaceutical industry enterprises	-	-	1,5	1			Written work
	Laboratory lessons	-	34	-				
1.3	Physical properties and chemical composition of atmospheric air. Hygienic assessment of the influence of microclimate on the human body. Research methods and hygienic assessment of microclimate parameters in pharmacies and pharmacy warehouses	-	2	-	1-4	Hygienic assessment of microclimate parameters in pharmacies and pharmacy warehouses	Written work	Survey, solving situational problems
1.3	Physical properties of atmospheric air. Hygienic assessment of the complex effect of meteorological factors on the	-	2	-	1-4	Hygienic assessment of the complex effect of meteorological factors	Written work	Survey

	human body					on the human body		
1.4	Hygienic assessment of the impact of accommodation conditions on human health. Research methods and hygienic assessment of lighting in pharmacies and pharmacy warehouses	-	2	-	1-4	Hygienic assessment of artificial illumination (general and local) and lighting equipment in pharmacies and pharmacy warehouses	Solving a situational problem*	Written work, survey
1.4	Hygienic assessment of the impact of accommodation conditions on human health. Types and hygienic characteristics of natural and artificial ventilation.	-	2	-	1-4	Hygienic assessment of the effectiveness of current ventilation (general and local) in pharmacies and pharmacy warehouses	Solving a situational problem*	Written work, survey
1.4	Final class on the topics «Physical properties of air and chemical composition of atmospheric air» and «Hygienic assessment of the influence of microclimate and accommodation conditions on human health»	-	2	-	1-4	Hygienic assessment of microclimate parameters in pharmacies and pharmacy warehouses	Solving a situational problem	Colloquium*
1.5	Hygienic assessment of drinking water quality. Research methods and hygienic assessment of physical, organoleptic and chemical indicators of water quality	-	2	-	1-4	Hygienic assessment of organoleptic and chemical parameters of water quality	Written work	Survey
1.5	Hygienic assessment of drinking water quality. Methods for improving water quality	-	2	-	1-4	Hygienic assessment of drinking water quality	Written work	Survey
2.1	Hygienic assessment of the energy value and nutritional adequacy of the diet. Methods for determining the body's energy and nutrient needs	-	2	-	1-4	Determining the body's energy and nutrient needs	Written work	Survey

2.1	Hygienic assessment of the energy value and nutritional adequacy of the diet. Assessment of the adequacy of actual nutrition to the needs of the human body, recommendations for rationalization of nutrition	-	2	-	1-4	Assessment of the adequacy of actual nutrition to the needs of the human body	Written work	Test, solving situational problems
2.2	Hygienic assessment of nutrition status	-	2	-	1-4	Hygienic assessment of nutrition status	Written work	Survey
2.3	Prevention of food poisoning	-	2	-	1-4	Development of preventive measures for the prevention of food poisoning	Written work	Test
2.3	Prevention of food poisoning. Final class on «Nutrition and health»	-	2	-	1-4	Assessment of the adequacy of actual nutrition to the needs of the human body	Solving a situational problem	Colloquium*
3.1	Pharmacy hygiene. Assessment of the sanitary and hygienic condition of pharmacies	-	2	-	1-4	Assessment of the sanitary and hygienic condition of pharmacies and pharmacy warehouses	Written work	Survey
3.2	Hygiene of control and analytical laboratories. Hygiene of pharmacy warehouses	-	2	-	1-4	Hygienic assessment of the interior layout and finishing materials (paints, wallpaper, ceramic tiles, etc.) in pharmacies and pharmacy warehouses	Written work	Survey
3.3	Hygiene of pharmaceutical enterprises. Field lesson on the topic «Sanitary and hygienic inspection of pharmacies»	-	2	-	1-4	Assessment of the sanitary and hygienic condition of	Written work	Survey

						pharmacies and pharmacy warehouses		
3.4	Occupational hygiene in pharmacy organizations and pharmaceutical industry enterprises	-	2	-	1-4	Hygienic assessment of the degree of exposure to harmful occupational factors (chemical, biological, psychophysiological) in pharmacies and pharmaceutical industry enterprises	Written work	Survey
3.4	The final class on the topics «Environment and it's hygienic importance», «Nutrition and health», «Hygiene of pharmacies, control and analytical laboratories and pharmaceutical warehouses»	-	2	-	1-4	Hygienic assessment of the safety of the conditions for the treatment of waste medicines	Written work	Electronic test. * Survey. Credit
	Total hours	3	34	3				

*This is a mandatory form of current certification (each student will receive a mark)

INFORMATION AND INSTRUCTIONAL UNIT

LITERATURE

Basic (relevant):

1. Hygiene : textbook / ed. P. I. Melnichenko. – Moscow : GEOTAR-Media, 2023. – 512 p.

Additional:

2. Situational case tasks of general hygiene : collection of tasks / K. V. Bahdanovich [et al.]. – Minsk : BSMU, 2022. – 28 p.

3. General hygiene : lab. workbook / K. V. Bahdanovich [et al.]. – Minsk : BSMU, 2023. – 103 p.

Electronic educational and methodological complex for the academic discipline «Pharmaceutical Hygiene»:

4. <https://etest.bsmu.by/course/view.php?id=178>

METHODOLOGICAL RECOMMENDATIONS FOR THE ORGANIZATION AND PERFORMANCE OF STUDENT INDEPENDENT WORK IN THE ACADEMIC DISCIPLINE

The time allocated for independent work can be used by students for:

- preparation for lectures, laboratory classes;
- preparation for colloquiums, academic discipline tests;
- study of topics (questions) submitted for independent study;
- problem solving;
- performing research and creative tasks;
- preparation of thematic reports, abstracts, presentations;
- taking notes of educational literature;
- preparation of reports.

METHODOLOGICAL RECOMMENDATIONS FOR THE ORGANIZATION AND PERFORMANCE OF SUPERVISED STUDENT INDEPENDENT WORK IN THE ACADEMIC DISCIPLINE

APPROXIMATE LIST OF TASKS FOR SUPERVISED STUDENT INDEPENDENT WORK:

preparation of thematic reports, abstracts, presentations;
taking notes of primary sources (collections of documents, monographs, educational publications, etc.).

FORMS OF CONTROL OF SUPERVISED STUDENT INDEPENDENT WORK:

written work.

LIST OF AVAILABLE DIAGNOSTIC TOOLS

The following forms are used for competence assessment:

- control work;
- tests;
- electronic tests;
- colloquium;
- solving situational problems;
- a written account on the laboratory work.

LIST OF AVAILABLE TEACHING METHODS

Traditional method.

Active (interactive) methods:

Problem-based learning (PBL).

LIST OF PRACTICAL SKILLS

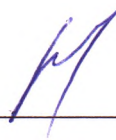
Name of practical skills	Form of practical skills control
Hygienic assessment of microclimate parameters in pharmacies and pharmacy warehouses	Written work
Hygienic assessment of the complex effect of meteorological factors on the human body	Written work
Hygienic assessment of artificial illumination (general and local) and lighting equipment in pharmacies and pharmacy warehouses	Solving a situational problem*
Hygienic assessment of the effectiveness of current ventilation (general and local) in pharmacies and pharmacy warehouses	Solving a situational problem*
Hygienic assessment of microclimate parameters in pharmacies and pharmacy warehouses	Solving a situational problem
Hygienic assessment of organoleptic and chemical parameters of water quality	Written work
Hygienic assessment of drinking water quality	Written work
Determining the body's energy and nutrient needs	Written work
Assessment of the adequacy of actual nutrition to the needs of the human body	Written work
Hygienic assessment of nutrition status	Written work
Development of preventive measures for the prevention of food poisoning	Written work
Assessment of the adequacy of actual nutrition to the needs of the human body	Solving a situational problem
Assessment of the sanitary and hygienic condition of pharmacies and pharmacy warehouses	Written work
Hygienic assessment of the interior layout and finishing materials (paints, wallpaper, ceramic tiles, etc.) in pharmacies and pharmacy warehouses	Written work
Assessment of the sanitary and hygienic condition of pharmacies and pharmacy warehouses	Written work
Hygienic assessment of the degree of exposure to harmful occupational factors (chemical, biological, psychophysiological) in pharmacies and pharmaceutical industry enterprises	Written work
Hygienic assessment of the safety of the conditions for the treatment of waste medicines	Written work

**PROTOCOL OF THE CURRICULUM APPROVAL
BY OTHER DEPARTMENTS**

Title of the discipline requiring approval	Department	Amendments to the curriculum in the academic discipline	Decision of the department, which designed the curriculum (date, protocol #)
1. Pharmaceutical Ecology	Department of Pharmaceutical Chemistry	Absent	protocol #6 of 11.11.2024
2. Industrial Technology of Drugs	Department of Pharmaceutical Technology	Absent	protocol # 6 of 11.11.2024

COMPILERS/AUTHORS:

Head of the Department of General Hygiene of the educational institution «Belarusian State Medical University», PhD, Associate Professor



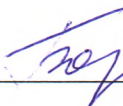
N.L.Batsukova

Senior Lecturer of the Department of General Hygiene of the educational institution «Belarusian State Medical University»



K.V.Bahdanovich

Associate Professor of the Department of General Hygiene of the educational institution «Belarusian State Medical University», PhD



T.I.Borschenskaya

Associate Professor of the Department of General Hygiene of the educational institution «Belarusian State Medical University», PhD



V.N.Shadenko

Curriculum content, composition and the accompanying documents comply with the established requirements.

Head of the Office of Educational Activities of the educational institution «Belarusian State Medical University»

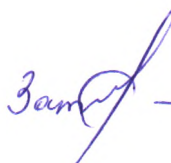
18. 11. 2024



I.L.Kotovich

Methodologist of the Educational and Methodological department of the Office of Educational Activities of the educational institution «Belarusian State Medical University»

18. 11. 2024



S.V.Zaturanova