

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
24.06.2023
Reg. # UD-1912-01-01/2324/edu.

HISTORY OF PHARMACY

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

1-79 01 08 «Pharmacy»

Curriculum is based on the educational program «History of Pharmacy», approved 27.06.2023, registration # УД-0912-01-01/2324/уч; on the educational plan in the specialty 7-07-0912-01 «Pharmacy», approved 17.05.2023, registration # 7-07-0912-01/2324/mf.

COMPILERS:

N.S.Gurina, Dean of the Pharmaceutical Faculty of the educational institution «Belarusian State Medical University», Sc.D, Professor;

S.V.Sheuchuk, Ph.D, Associate Professor of Pharmacy Organization of the educational institution «Belarusian State Medical University, Ph.D, Associate Professor;

K.Y.Shalova, senior lecturer of the Department of Pharmacy Organization of the educational institution «Belarusian State Medical University

RECOMMENDED FOR APPROVAL:

by the Department of Pharmacy Organization of the educational institution «Belarusian State Medical University»
(protocol # 12 of 19.06.2023);

by the Scientific and Methodological Council of the educational institution «Belarusian State Medical University»
(protocol # 6 of 27.06.2023)

EXPLANATORY NOTE

«History of Pharmacy» – the academic discipline of the module «Introduction to the Specialty», which contains systematized scientific knowledge about organizational principles of the historical development of pharmaceutical knowledge and the activities of scientists in the field of pharmacy and medicine in accordance with the dynamic laws of human society.

The aim of the discipline «History of Pharmacy» is the formation of universal competency to understand the main patterns of development of pharmacy as a complex science and use them at various historical stages for the organization and management of pharmacy organizations and pharmaceutical enterprises in modern conditions.

The objectives of the discipline «History of Pharmacy» are to form students' scientific knowledge about the main stages in the development of pharmacy, the evolution of knowledge about health, disease and medicines, the most significant discoveries that influenced the development of pharmacy, the activities of prominent scientists, historical patterns in the development of the pharmaceutical business; skills and abilities necessary for acquisition of the students' academic, social and personal and professional competences, which are based on the ability to self-search training and information resources.

The knowledge, skills, and abilities acquired during the study of the academic discipline «History of Pharmacy» are necessary for successful mastering of the following academic disciplines: «Pharmacognosy», «Pharmacology», «Organization and Economics of Pharmacy», «Pharmaceutical Chemistry».

Studying the educational discipline «History of Pharmacy» should ensure the formation of students' universal competency:

UC. Take into account development trends, solve current problems and potential directions in pharmacy for the organization and management of pharmacy organizations and pharmaceutical enterprises.

As a result of studying the discipline «History of Pharmacy» the student should

know:

historical description of pharmacy and medicine;
eminent scientists;

the evolution of ethical traditions and legal aspects of pharmaceutical activity;
the main patterns of formation and development of specialized pharmaceutical disciplines;

be able to:

use the experience of the development of world pharmacy for the analysis and forecasting of current trends in the development of the pharmaceutical sector of health care;

determine the influence of social, political, economic, cultural and other factors on the development of pharmaceutical science and practice;

to carry out abstract teaching and research work;

master:

the method of historical analysis;

skills of working with primary sources, with educational, scientific, reference and historical literature;

principles of pharmaceutical ethics and deontology.

Total number of hours for the study of the discipline is 72 academic hours. Classroom hours according to the types of studies: lectures – 12 hours (including 4 hours of supervised student independent work), seminars – 24 hours, student independent work (self-study) – 36 hours.

Intermediate assessment is carried out according to the syllabus of the specialty in the form of a credit (1 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 (including supervised independent work)	supervised student independent work	seminars		
7-07-0912-01 «Pharmacy»	1	72	36	12	4	24	36	credit

THEMATIC PLAN

Section (topic) name	Number of class hours	
	lectures	practical
1. The history of pharmacy as a science and academic discipline. Pharmaceutical and medical symbols and emblems. Pharmacology and medicine in primitive society	1	3
2. Folk medicine of the Eastern Slavs. Pharmacy in the Ancient World	1	3
3. Pharmacy in the middle ages	2	3
3.1. Pharmacy in the period of the early and developed Middle Ages (V-XIV centuries)	2	1
3.2. Pharmacy in the late Middle Ages, the Renaissance and the Reformation (XV-XVII centuries)		2
4. Pharmacy in the Modern Age (XVIII - XIX centuries)	4	6
5. Pharmacy in the period of modern times (XX century - beginning of the XXI century)	2	6
6. The development of pharmacy on the territory of Belarus during the Belarusian Soviet Socialist Republic, in the Republic of Belarus. Development of the pharmaceutical industry in Belarus	2	3
Total hours	12	24

CONTENT OF THE EDUCATIONAL MATERIAL

1. The history of pharmacy as a science and academic discipline. Pharmaceutical and medical symbols and emblems. Pharmacology and medicine in primitive society

History of Pharmacy as a science and subject of teaching, the main objectives and tasks. Sources for the study of the history of pharmacy: the concept of «Historical source», classification, examples. Periodization of the world history of pharmacy and medicine. A brief characteristic of each period.

Pharmaceutical and medical emblems and symbols. Examples of general and particular emblems, importance of their.

Historical medical definition of «folk medicine», «traditional medicine», «scientific medicine».

Primitive pharmacology and medicine: General characteristics of the period, the sources for the study, the influence of the first religious-mystic concepts (totemism, animism, fetishism, magic).

Traditional pharmacy and medicine of the Eastern Slavs: the main means and methods of treatment, healers. Saleincest, the midwifery business.

2. Folk medicine of the Eastern Slavs. Pharmacy in the Ancient World

The main means and methods of treatment in folk medicine of the Eastern Slavs. Doctors. Greenery.

General characteristics of the era of the Ancient World. Sources for the study of common features and historical significance of pharmacy and medicine of the Ancient World.

Pharmacy and medicine in ancient Babylon (Sumer, Mesopotamia): General characteristics and historical «medical portrait» of civilization; the impact of religious and mystical ideas, medicines, healers, and casters (asu and ashipu), the laws of Hammurabi.

Pharmacy and medicine in Ancient Egypt: General characteristics and historical medical portrait» of civilization; the influence of religious and mystical ideas, the embalming, the origin of alchemy, drugs, physicians (Imhotep).

Pharmacy and medicine in Ancient China: General characteristics and historical medical portrait of civilization; the influence of philosophy (natural philosophy, Confucianism), Zhen-Tszyu therapy (acupuncture), variolate, drug therapy and development of pharmacy, the famous doctor Li Shi-Zhen and his writings on the *Materia Medica*, *khua*).

Pharmacy and medicine in Ancient India: General characteristics and historical medical portrait» of civilization; the influence of religious-philosophical concepts (yoga, Ayurveda, Buddhism, famous doctors (Sushruta, Charaka), drug therapy.

Tibetan medicine: written sources for the study of pharmacology and medicine («Chzhud-Shi», «Vaidurya-about»). P.Badmaev and development of Tibetan medicine in Russia.

Pharmacy and medicine in Ancient Greece: general characteristics and historical medical portrait» of civilization; the influence of religious-philosophical concepts (the priestly medicine, the cult of Asclepius). Hippocrates and his medical and philosophical views. The origin of botany (Theophrastus).

Pharmacy and medicine in Ancient Rome: General characteristics and historical medical portrait» of civilization; sanitation facilities, the situation of doctor, military medicine, famous doctors, the development of pharmacy. The writings of Dioscorides on *Materia Medica*. Claudius Galen, the «Father of pharmacy».

3. Pharmacy in the middle ages

3.1 Pharmacy in the period of the early and developed Middle Ages (V-XIV centuries)

General characteristics of the middle ages (476-1640.). The chronological framework of the era. Socio-political structure of Western Europe. The development of science and culture. Forms of Belarusian statehood: the Grand Duchy of Lithuania and Rzeczpospolita.

Alchemy – stage development of chemistry and medieval philosophy. Alchemists and their achievements: Jabir, Hai'an (Geber, Raymond Lully, Albert the Great, fra Bonaventura, Roger Bacon, Nicholas Flamel, Basil the Great.

Pharmacy and medicine in the Byzantine Empire, its importance for the development of scientific pharmacy and medicine. Medicinal science in the works of encyclopedic doctors Oribasius, Aetius, Alexander of Trallasky and others.

Pharmacy and medicine in the Arab Caliphates (V-XII centuries). The influence of Islam. The contribution of Arab scientists in the development of pharmacy and medicine: Ibn al-Haytham, Ibn Umar, Ali al-Mawsili, Ali Ibn ISA, Al-Zahrawi, Ibn al-Nafis, Ibn Zuhr, al-Biruni.. Pharmacy in the «Canon of medical science» Abu Ali Ibn Sina (Avicenna).

Pharmacy and medicine in medieval Europe. Influence of the Christian Church on the development of pharmacy in Europe. Monastic Pharmacy in Europe and Belarus. Medical and philosophical views of Simeon of Polotsk. Universities of Medieval Europe. Questions of pharmacology in the Salerno Code of Health. Epidemics of infectious diseases (plague, leprosy): causes, methods of control.

3.2. Pharmacy in the late Middle Ages, the Renaissance and the Reformation (XV-XVII centuries)

General characteristics of the eras of the late Middle Ages, the Renaissance (Renaissance) and the Reformation. The influence of geographical discoveries on the development of pharmacy and medicine. The study of medicinal plants: N.Monard, V.Kordus, T.Lispingly.

Approval of the method experienced in pharmacy and medicine. Astrofisica and aeromekhanika: R.Descartes, A.Borelli, J.Believe. The first instrumental methods of research: G.Galilei, S.Santorio. The works of F.Bacon and the medicine.

Jatrohimii and the value of jatrohimii for the development of scientific pharmacy. T.Paracelsus – the founder of jatrohimii and reformer of medicine. Outstanding jatrohimii: A.Libai, I.Helmont, A.Sala, D.Silvius.

Pharmacy in Europe, the Grand Duchy of Lithuania and the Commonwealth. The device and organization of the work of a medieval pharmacy. Making medicines and dosage forms in a medieval pharmacy. Medicines, herbalists, antidotaries. Recipe. Apothecaries, their guild and estate status. Medieval training (apprenticeship). Legislative regulation of pharmacy business.

Pharmacy in the Moscow State. Pharmaceutical Order, the first pharmacies.
F.Skorina - the first doctor of medicine in Belarus.

4. Pharmacy in the Modern Age (XVIII - XIX centuries)

General characteristics of the New period of time (XVIII - XIX). The impact of the great natural scientific discoveries in biology, chemistry and physics on the development of pharmacy. The development of microscopic methods of research, the works of R.Hooke, A.Leeuwenhoek.

The origin of scientific microbiology, immunology and virology, their influence on the development of pharmacy. Works of E.Jenner, L.Pasteur, I.I.Mechnikova, D.I.Ivanovsky and others.

Pain, blood loss and infection in surgery: problem solving, impact on the development of pharmacy. The contribution of scientists to the creation of a scientific basis for blood transfusion (K.Landsteiner, Ya.Yansky, A.Bogdanov, etc.). Introduction of anesthesia and anesthesia, works by S.Hanaoka, W.Morton, V.F.Voyno-Yasenetsky and others. Development of the doctrine of asepsis and

antiseptics by D. Lister. Contribution of A. V. Pelyav development and implementation of the principles of asepsis and antiseptics in pharmacy.

Historical milestones in the development of chemistry, its importance for development of pharmacy. Chemical theory (the «theory of phlogiston», the periodic law) and opening, the importance of chemistry for the development of pharmacy. The Works Of A. M. Butlerov, N. N. Zinin, L. Lavoisier, M. V. Lomonosov, D. I. Mendeleev. The contribution of pharmacists to the development of scientific chemistry and pharmacy: K. Berthollet, Th. Berzelius, H. Davy, E. Geoffroy, T. Lovitz, K. Moore, J. Proust, K. Scheele.

The emergence of Phytochemistry, isolation and study of alkaloids the first scientists D. Caventou, P. D. Pelletier, F. F. Runge, F. Serturner. The discovery of chromatography by M. Color.

Formation and development of scientific pharmacy in the Russian Empire in the XVIII-XIX centuries. Outstanding scientists (I. A. Dvigubsky, G. Dragendorf, L. I. Ilyin, A. A. Iovsky, I. I. Lepekhin, N. P. Maksimovich-Ambodik, A. P. Nelyubin, V. M. Severgin, V. A. Tikhomirov, Yu. K. Trapp, K. I. Shchepin and others).

Creation of new medical devices, instruments and dosage forms (syringes, tablets, etc.).

The first institutions of higher medical education in the Russian Empire, their role in the training of pharmaceutical personnel (Moscow University, Medical and Surgical Academy). The first departments of pharmacology (Materia Medica). Pharmaceutical positions and titles.

The role of scientific schools and scientists in the development of pharmacy (S. P. Botkin, I. P. Pavlov, N. I. Pirogov, I. M. Sechenov, etc.).

Higher female medical education in the Russian Empire (N. P. Suslova, V. A. Kashevarova-Rudneva). The first women in the Russian Empire who received a higher pharmaceutical education (A. M. Makarova, A. B. Lesnevskaya, O. E. Gabrichevskaya).

The first pharmacopeias in Europe and the Russian Empire. Development of pharmaceutical legislation and quality control of drug care in the Russian Empire in the 17th - early 20th centuries.

The origin of pharmaceutical firms and the formation of the chemical-pharmaceutical industry in Western Europe, the USA and the Russian Empire. The activities of F. Bayer, G. Merck, V. K. Ferreina, E. Schering and others.

Forms of organization of drug supply in the Russian Empire. Reforms of Peter I («Pharmacy Priveley», the first hospital pharmacy, etc.). Factory (insurance) medicine, drug provision of insured workers.

Zemstvo medicine, principles of organization, significance, drug supply, features for Belarus.

Pharmaceutical societies and trade unions of pharmacy workers in the Russian Empire and Belarus. The first pharmaceutical magazines and newspapers.

Pharmacy of the 19th century, device, equipment, organization of work, states, dosage forms. The first botanical gardens and pharmaceutical gardens in Europe and Belarus.

Pharmaceutical and medical education, science and practice in the Belarusian lands in the XVIII-XIX centuries. Oleikars. Novogrudok doctor S.Rusetskaya. Grodno medical school. Dr.J.Gilibert. Vilna University, the contribution of Belarusian scientists to the development of pharmacy and medicine (A.Becu, I.Sartoris, E.Snyadetsky, S.B.Yundzill, etc.). Midwifery school in Mogilev. Participation of doctors and pharmacists in the national liberation movement. The contribution of the innovator doctor K.Gibental to the development of pharmaceutical botany in Belarus.

5. Pharmacy in the period of modern times (XX century - beginning of the XXI century)

General characteristics of the period of modern times. The influence of the First World War on the development of pharmacy, the creation of chemical weapons, the militarization of the chemical and pharmaceutical industry, etc. Scientific and technological progress and innovative technologies in the development of pharmacy and medicine in the XX-XXI centuries.

Achievements in genetics and biotechnology, their significance for pharmacy. The founder of eugenics F. Galton. History of genetics in the USSR, works by N.K.Koltsova, N.I.Vavilov and others.

Development of pharmacology in the XX century. Outstanding scientists (V.V.Nikolaev, I.M.Dogel, M.P.Nikolaev, G.E.Fisher, etc.). Development of vaccines, milestones. History of the polio vaccine. Works by J.Salk, A.Sebin, A.A.Smorodintseva, M.P.Chumakov. Discovery and use of penicillin. Works by A.Fleming, H.Flory, E.Cheney, Z.V.Yermolyeva. Creation of sulfanilamide preparations. Proceedings of Z.Waksman and G.Domagk. Discovery of vitamins. Works by D.Lind, N.Lunin, K.Funk et al. Discovery and application of hormones, milestones. History of the discovery of insulin. Works by F.Banting, J.McLeod, L.Sobolev and others. Creation of the first oral contraceptives. Works by G.Pinkus, A.Butenandt, K.Gerarassi and others. Development of pharmacoeconomics and evidence-based medicine in the XX-XXI centuries.

Nobel Prize and Pharmacy. Discoveries in the field of medicine and physiology, chemistry, physics associated with the development of pharmacy, awarded the Nobel Prize. Pharmacist A.Moissan is a Nobel Prize winner in chemistry. Laureates of the Nobel Peace Prize and Medicine (A.Schweitzer, Mother Teresa, A.Dunant and others).

Development of international cooperation in the field of health care and the organization of drug supply in the XX-XXI centuries. Creation and main achievements of the World Health Organization.

The main milestones of the national history of the twentieth century. and development of the medical and pharmaceutical complex. State health care system («N.A.Semashko model»), formation, basic principles, role and place of pharmacy organizations in the system of public health protection. Formation and development of the pharmaceutical service.

6. The development of pharmacy on the territory of Belarus during the Belarusian Soviet Socialist Republic (BSSR), in the Republic of Belarus. Development of the pharmaceutical industry in Belarus

Development of pharmaceutical education and science in the BSSR, the RSFSR, the USSR and the Republic of Belarus. The development of the domestic pharmaceutical industry in the XX century - the beginning of the XXI century. State Pharmacopoeias of the Union of Soviet Socialist Republics. The development of pharmaceutical legislation in the XX century.

Pharmacy and medicine during the Second World War. The contribution of pharmaceutical and medical workers to the victory in the Great Patriotic War (E.V.Klumov, V.A.Anishchenko, G.G.Falevich, G.F.Gustarnik-Larina, etc.). The state of medical and drug care on the territory of Belarus during the Great Patriotic War and during the restoration of the health care sector destroyed by the war.

The development of market relations in the system of drug supply in the 90s. 20th century - the beginning of the XXI century. The main stages of the creation of a control and permitting system and the development of regulatory legal acts in the pharmacy of the Republic of Belarus. Creation of the first State Pharmacopoeia of the Republic of Belarus. Priority directions for the development of domestic health care and innovation in pharmacy in the 21st century.

ACADEMIC DISCIPLINE CURRICULAR CHART

Section, topic #	Section (topic) name	number of hours			Self-studies	Form of control
		lectures (including supervised student independent work)	supervised student independent work	practical		
1.	The history of pharmacy as a science and academic discipline. Pharmaceutical and medical symbols and emblems. Medicine and medicine in primitive society	2	0,5	3	4	Interviews, reports, tests, electronic tests
2.	Folk medicine of the Eastern Slavs. Pharmacy in the Ancient World			3	4	Interviews, reports, tests, electronic tests
3.	Pharmacy in the middle ages	2	0,5	3	5	
3.1	Pharmacy in the period of the early and developed Middle Ages (V-XIV centuries)					
3.2	Pharmacy in the late Middle Ages, the Renaissance and the Reformation (XV-XVII centuries)	2	0,5	3	5	Interviews, reports, tests, electronic tests
4.	Pharmacy in the Modern Age (XVIII - XIX centuries)	4	1	6	18	
	Pharmacy in the Modern Age (XVIII - XIX centuries)	2	0,5	-	4	Interviews
	The development of pharmacy on the territory of Belarus as part of the Grand Duchy of Lithuania, the Commonwealth, the Russian Empire	2	0,5	-	4	Interviews
	Pharmacy of the New Time (XVIII - XIX centuries): general characteristics, natural scientific discoveries, microscopic analysis, development of immunology, the doctrine of asepsis and antiseptics	-	-	3	5	Interviews, reports, tests, electronic tests

	Pharmacy of the New Age (XVIII—XIX centuries): pharmacy in Russia and on the territory of Belarus, pharmaceutical journals, pharmaceutical education	-	-	3	5	Interviews, tests, electronic tests
5.	Pharmacy in the period of modern times (XX century - beginning of the XXI century)	2	1	6	14	
	Pharmacy in the period of modern times (XX century - beginning of the XXI century)	2	1	-	4	Interviews, reports, tests
	Pharmacy in the period of modern times: general characteristics, the First World War, the development of genetics and biotechnology, pharmacology. discovery of antibiotics, vitamins, hormones, Nobel Prize	-	-	3	5	Interviews, reports, tests, electronic tests
	Pharmacy in modern times: Soviet model of health care, World War II, pharmaceutical industry, establishment of a control and permit system, development of international cooperation	-	-	3	5	Interviews, reports, tests, electronic tests
6.	The development of pharmacy on the territory of Belarus during the BSSR, in the Republic of Belarus. Development of the pharmaceutical industry in Belarus	2	1	3	9	
	The development of pharmacy on the territory of Belarus during the BSSR, in the Republic of Belarus. Development of the pharmaceutical industry in Belarus. History of pharmaceutical, medical and biomedical ethics. Development of international cooperation	2	1	-	4	Interviews
	History of pharmaceutical, medical and biomedical ethics	-	-	3	5	Interviews, reports, electronic tests. Credit
		12	4	24	54	

INFORMATION AND INSTRUCTIONAL UNIT

LITERATURE

Basic (relevant):

1. History of medicine : textbook / Y. P. Lisitsyn. - Moscow : Geotar-Media, 2020. - 351 p.
2. History of medicine : textbook. - Ternopil : TNMU «Ukrmedknyha», 2020. - 127 p.

Additional:

3. History of medicine : textbook / F. Ya. Stupak. - Kiev : Publishing house «Kniga-plus», 2016. - 128 p.
4. История медицины = History of medicine : учеб.-метод. пособие для студентов учреждений высш. образования, обучающихся на англ. яз. по спец. 1-79 01 01 «Лечебное дело», 1-79 01 07 «Стоматология». - Минск : БГМУ, 2018. - 83 с.
5. Mnushko, Z. M. History of Medicine and Pharmacy : textbook for students of higher schools / Z. M. Mnushko, O. Yu. Rohulya, I. V. Timanyuk. – Kharkiv : Golden Pages, 2011. – 192 p.

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

The time allotted for independent work can be used by students to:

- preparation for lectures and practical exercises;
- preparation for the test in the academic discipline;
- study of topics and problems that are not presented at lectures and seminars;
- performance of research and creative tasks;
- preparation of thematic reports, abstracts, presentations;
- compiling a review of scientific literature on a given topic;
- compiling a thematic selection of literary sources, Internet sources.

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

Main forms of supervised student independent work:

- preparation and presentation of abstracts;
- presentation of reports;
- studying topics and problems that have not been discussed at the lectures;
- taking notes of original sources (sections of anthologies, collections of documents, monographs, textbooks);
- computer testing;
- preparation of tests for the organization of mutual assessment;

preparation of didactic materials;
participation in active forms of education.

Control of supervised student independent work is carried out in the form of:

test paper;
final class, colloquium in the form of an oral interview, written work, testing;
discussion of abstracts;
defense of educational assignments;
assessment of an oral reply to a question, presentation, report or problem solving;
checking up abstracts, written reports, accounts, prescriptions;
checking up notes of original sources, monographs and articles;
individual interview.

LIST OF AVAILABLE DIAGNOSTIC TOOLS

The following forms are used for competences assessment:

Oral form:

interviews;
reports.

Written form:

tests.

Oral-written form:

credit.

Technical form:

electronic tests.

LIST OF AVAILABLE TEACHING METHODS

Traditional method (lecture, laboratory practicals);

Active (interactive) methods:

Problem-Based Learning (PBL);

Team-Based Learning (TBL);

Research-Based Learning (RBL).

LIST OF PRACTICAL SKILLS

List of practical skills	Practical skills control form
1. Conducting content analysis	Writing, design and protection of the report. Credit
2. Analysis and generalization of historical data	Writing, design and protection of the report. Credit

LIST OF LECTURES

1. The history of pharmacy as a science and academic discipline. Pharmaceutical and medical symbols and emblems. Medicine and medicine in primitive society. Folk medicine of the Eastern Slavs. Pharmacy in the Ancient World.
2. Pharmacy in the middle ages. Pharmacy in the period of the early and developed Middle Ages (V-XIV centuries). Pharmacy in the late Middle Ages, the Renaissance and the Reformation (XV-XVII centuries).
3. Pharmacy in the Modern Age (XVIII - XIX centuries).
4. The development of pharmacy on the territory of Belarus as part of the Grand Duchy of Lithuania, the Commonwealth, the Russian Empire.
5. Pharmacy in the period of modern times (XX century - beginning of the XXI century).
6. The development of pharmacy on the territory of Belarus during the BSSR, in the Republic of Belarus. Development of the pharmaceutical industry in Belarus. History of pharmaceutical, medical and biomedical ethics. Development of international cooperation.

LIST OF PRACTICAL STUDIES

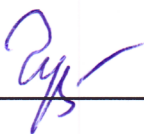
1. The history of pharmacy as a science and academic discipline. Pharmaceutical and medical symbols and emblems. Medicine and medicine in primitive society.
2. Folk medicine of the Eastern Slavs. Pharmacy in the Ancient World.
3. Pharmacy in the middle ages. Pharmacy in the period of the early and developed Middle Ages (V-XIV centuries). Pharmacy in the late Middle Ages, the Renaissance and the Reformation (XV-XVII centuries).
4. Pharmacy of the Modern Age ((XVIII - XIX centuries) (general characteristics, natural scientific discoveries, microscopic analysis, development of immunology, the doctrine of asepsis and antisepsis).
5. Pharmacy of the Modern Age ((XVIII—XIX centuries) (pharmacy in Russia and on the territory of Belarus, pharmaceutical journals, pharmaceutical education).
6. Modern Pharmacy (XX - XXI centuries) (general characteristics, World War I, development of genetics and biotechnology, pharmacology, discovery of antibiotics, vitamins, hormones, Nobel Prize).
7. Modern Pharmacy (XX - XXI centuries) (Soviet healthcare model, World War II, pharmaceutical industry, establishment of a control and permit system, development of international cooperation).
8. History of pharmaceutical, medical and biomedical ethics.

**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 Chemistry	Pharmaceutical Chemistry	No amendments	protocol # 12 of 19.06.2023
2. Pharmacognosy	Pharmacy Organization	No amendments	protocol # 12 of 19.06.2023

COMPILERS/AUTHORS:

Dean of Pharmaceutical Faculty of educational institution «Belarusian State Medical University», Sc.D, Professor



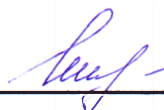
N.S.Gurina

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S.V.Sheuchuk

Senior lecturer of the Department of Pharmacy Organization of the educational institution «Belarusian State Medical University

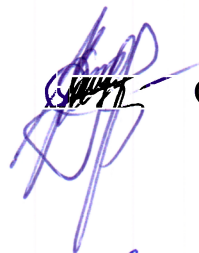


K.Y.Shalova

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

Dean of the Medical Faculty for International Students of the educational institution «Belarusian State Medical University»

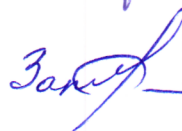
26.06.2023



O.S.Ishutin

Methodologist of the educational institution «Belarusian State Medical University»

26.06.2023



S.V.Zaturanova