Catalog of elective disciplines for 2023-2024 academic year

1. Department: of chemical disciplines
2. Level of preparation: baccalaureate
3. Specialty: 6B10106 - Pharmacy
4. Course: 2
5. Name of elective discipline: "Physical and colloid chemistry"
6. Amount of credits: 5
7. Purpose: To form knowledge of the general theoretical foundations of physical and colloid chemistry and train in the application of the knowledge and skills acquired during the analysis of medicinal substances at all stages of their manufacture and quality control of medicinal forms.
8. Tasks: - to form students' understanding of the patterns of the course of physicochemical processes.
- To give knowledge of the basic concepts and laws of thermodynamics.
- to form an idea about the properties of diluted solutions.
- to give an idea of the thermodynamics of electrolyte solutions, methods for measuring the pH of solutions, the properties of buffer solutions.
- to form an idea about the basic concepts and methods of electrochemistry.
- to give an idea of the kinetics of chemical reactions and catalysis.
- to form an understanding of dispersed systems and surface phenomena.
- to acquaint with physical and chemical methods of measurements.
9. Justification of the choice of discipline:
Physical and colloidal chemistry is one of the main disciplines in the field of pharmaceutical education, which has a significant role in the preparation of highly qualified specialists - pharmacists. This item forms chemical thinking, determines the patterns of physical and chemical processes and the conditions for achieving chemical equilibrium, teaches to analyze and draw conclusions about the influence of external factors, the nature of substances on the course of chemical reactions.
10. Justification of the choice of discipline: The formation of theoretical knowledge and practical skills of physical and chemical laws in the preparation of drugs is the basis of teaching physical and colloidal chemistry. Physical and colloidal chemistry is the basis of such special disciplines as pharmaceutical chemistry, technology of synthetic drugs, pharmacognosy. technology of phytopreparations, technology of medicines, etc. This implies the great importance of physical and colloidal chemistry as an important academic discipline, the development of which is given great importance in the system of pharmaceutical education.

11. Learning outcomes

Knowledge (cognitive sphere)	Skills and abilities (psychomotor sphere)	Personal and professional competencies (relationships)
- the general theoretical foundations of physical and colloid chemistry for the application of the acquired knowledge and skills at all stages of manufacturing and quality control of drugs; - general energy and kinetic patterns of chemical processes; - laws governing the physicochemical processes and the conditions for achieving chemical equilibrium;	- solves all typical tasks in physical and colloid chemistry; - owns the skills of experimental determination of the thermal effect of chemical reactions. - able to determine the osmotic pressure of solutions; -prepare buffer solutions with a given pH value. -determines the rate constants of chemical reactions.	- informs and explains the observed patterns in the field of physical and physic chemist chemistry regarding their use in pharmacy; - transmits information obtained from educational, reference, scientific literature and Internet resources; - demonstrates the ability to work in a team, conduct a discussion, discuss the results of laboratory work on physical and colloidal chemistry.

	- able to determine the coefficient of surface tension of the liquid according to the method of detachment of drops; - prepares stable colloidal systems and emulsions, determines the degree of their stability; - determines the molecular weight, size and degree of swelling of the polymer.	- uses skills and abilities in the field of physical and colloid chemistry to perform R & D, draws up the results in the form of an abstract, presentations, reports and presents at meetings of the student circle, student scientific conferences, etc.

12. Prerequisites: inorganic chemistry.

13. Post requisites: analytical chemistry, organic chemistry, toxicological chemistry.

14. Literature

The main:

1. Belyaev A.P., Kuchuk V.I., Evstratova K.I., Kupina N.A. Physical and colloidal chemistry. M .: GEOTAR-Media 2008.

2. Verentsova L.G., Nechepurenko E.V. Inorganic, physical and colloid chemistry. –Almaty: Evero Publishing, 2014.

Additional:

1. Evstratova K.I., Kupina N.A., Malakhova N.E. Physical and colloidal chemistry. M .: High School. 1990

2. Krasnov K.S., Vorobev N.K., Godnev I.N. and others. Physical chemistry. In 2 books. M .: Higher School, 2001.

Additional:

1. Utelbaev B.T. Chemistry 2 vol. - Shymkent, 2000.

2. Musabekov Қ.B., bdiev Қ.ZH. Colloidty chemistry. Oқulyқ. - Almaty, 2011.

1. **The department of Pharmacognosy**
2. **Level of training (bachelor degree)**
3. **Educational program:** 6B10106 «Pharmacy»
4. **Course:** 2
5. **Name of elective discipline:** «Fundamentals of pharmacognosy»
6. **Amount of credits:** 4 credits (120 hours)
7. **Purpose:** acquaintance of students with history of development of a pharmacognosy, the organization of preparations of medicinal plant raw materials, the chemical composition and classification of herbs, bases of rational environmental management, methods of procuring process of medicinal plant raw materials and its standardization and also with the main directions of scientific research in the field of studying of herbs.
8. **Discipline content:** Preparation of medicinal plant raw materials, rational and careful attitude to resources of medicinal plants, sources of raw materials of mineral and animal origin, processing of plant raw materials, etc.
   Macroscopic, microscopic, histochemical and microchemical studies of medicinal plant raw materials. Chemical composition of medicinal plants. Determination of benign drug raw materials.

9**. Tasks:**

- orientation in properties and the chemical composition of herbs according to constantly growing demand in quality phytoproducts and medicinal plant raw materials;
- orientation in properties and the chemical composition of the products of animal and mineral origin which are widely used in a modern arsenal the pparmacotherapy of medicines;
- carrying out phytochemical and merchandising analysis of raw materials of natural origin.

10. **Justification of the choice of discipline:**

Pharmacognosy (from Greek pharmacon – medicine, poison and gnosis – studying, knowledge) – one of pharmaceutical sciences studying herbs, medicinal plant raw materials and some products of primary processing of floral and animal origin.
Considering the increased requirements of practical pharmacy and medicine to use of medicinal raw materials of plant, animal and mineral origin, the subject "Fundamentals of pharmacognosy" considers a circle of the questions connected with preparation of medicinal plant raw materials, rational and careful attitude to resources of herbs, sources of raw materials of mineral and animal origin, processing of plant raw materials, etc.

11. Results of training (competence):

Knowledge (cognitive sphere)	**Skills (psychomotor sphere)**	**Personal and professional competences (relations)**
1. To know history of development of a pharmacognosy and the main stages of its formation; 2. To know the nomenclature and the chemical composition of medicinal raw materials of natural origin; 3. To know bases of preparation of medicinal raw materials of plant, animal and mineral origin.	1. To be able to use standard documentation, reference and scientific books; 2. To be able to provide advice to patients of drugstores and to the population in questions of application, collecting, drying and storage of medicinal plant raw materials; 3. To be able to carry out rational preparation, drying and storage of medicinal plant raw materials and to define its stocks on concrete sites.	1. To carry out macro - and the microscopic analysis of medicinal plant raw materials; 2. To determine herbs by anatomic and morphological features; 3. To carry out the merchandising analysis of raw materials of natural origin; 4. To store medicinal raw materials taking into account features of its chemical composition and content of biologically active agents.

12.**Prerequisites:** botany, Latin, organic chemistry, analytical chemistry, biological chemistry, ecology
13.**Postrequisites:** pharmacognosy, Drug technology, pharmaceutical chemistry.
14**.Literature**
The main:
1. Дәрілік өсімдік шикізаттарын фармакогностикалық талдау. Оқу құралы/ Орынбасарова К.К.-Шымкент, 2016
2. Фармакогнозия тестовые задания и ситуационные задачи: учеб. пособие / под ред. И. А. Самылиной. - ; Мин-во образования и науки РФ. Рек. ГОУ ВПО "Мос. мед. акад. им. И. М. Сеченова". - М. : ГЭОТАР - Медиа, 2015. - 288 с.
3. Дәрілік өсімдіктер және дәрілік өсімдік шикізаттары: фармакогнозия пәні бойынша оқу құралы / Джангозина Д. М. [ж. б.]. - Алматы : Эверо, 2014. - 240 бет. с.
Additional:
1. Келімханова, С. Е. Фармакогнозия: практикум / С. Е. Келімханова ; ҚР денсаулық сақтау министрлігі; С. Ж. Асфендияров атындағы ҚазҰМУ. - Қарағанды : ЖК "Ақнұр", 2014. - 180 бет. с.
2. Фармакогнозия пәнінің зертханалық-тәжірибелік сабақтарына арналған қолданба: оқу құралы / Б. Қ. Махатов [ж. б.] ; ҚР денсаулық сақтау министрлігі; ОҚМФА. - Шымкент : Б. ж., 2013. - 328 бет. с. Фармакогнозия. Рабочая тетрадь к практическим занятиям:И. В. Гравель [и др.]; под ред. И. А. Самылиной ; М-во образования и науки РФ. - 2-е изд.,

испр. и доп ; Рек. ГОУ ВПО Московская мед. акад. им. И.М.Сеченова.-М. ГЭОТАР – Медиа, 2013. – 264с.

Electronic resources:

1. Фармакогнозия. Гербарий лекарственных растений
2. Электронный ресурс] : учеб. пособие / И. А. Самылина [и др.]. - Электрон. текстовые дан. (40,5 Мб). - М. : ГЭОТАР - Медиа, 2012. - эл. опт. диск (CD-ROM).
3. Сорокина, А. А. Фармакогнозия. Гербарий лекарственнх растений [Электронный ресурс] : учебник. - Электрон. текстовые дан. (42,0 Мб). - М. : Изд. группа "ГЭОТАР-Медиа", 2012. - эл. опт. диск (CD-ROM)
4. Самылина, И. А. Фармакогнозия. Атлас. В 3 т. Т.1 [Электронный ресурс] : учебник . - Электрон. текстовые дан. (71,6 Мб). - М. : Изд. группа "ГЭОТАР-Медиа",
5. 2012. - эл. опт. диск (CD-ROM). - (Электронный учебник).
6. Самылина, И. А. Фармакогнозия. Атлас. В 3 т. Т. 2 [Электронный ресурс] : учебник . - Электрон. текстовые дан. (101 Мб). - М. : Изд. группа "ГЭОТАР-Медиа", 2012. - эл. опт. диск (CD-ROM). - (Электронный учебник)
7. Самылина, И. А. Фармакогнозия : Атлас. В 3 т. Т. 3. [Электронный ресурс] : учебник . - Электрон. текстовые дан. (142 Мб). - М. : Изд. группа "ГЭОТАР-Медиа", 2012. - эл. опт. диск (CD-ROM). - (Электронный учебник).
8. Мырзағали-ұлы Ә., Дүйсембаева Б. Фармакогнозия: оқу құралы. 2018 Мырзағали-ұлы Ә., Дүйсембаева Б. Фармакогнозия: оқу құралы. 2018

1. **Department:** Biology and biochemistry
2. **Level of training:** Bachelor's degree
3. **Educational program:** Pharmacy
4. **Course:** 2
5. **Name of elective disciplines:** Biological chemistry

6. Number of credits: 5

7. Purpose : to form systemic knowledge of students of a holistic view about the molecular mechanisms and regulation of the main metabolic processes, the features of their course in human organs and tissues ; to teach how to apply the acquired knowledge in the subsequent activities of a pharmacist.

8. Content of the discipline: Introduction to biochemistry. The structure and functions of proteins. Enzymes. Introduction to metabolism. Biochemistry of nutrition. Bioenergetics. The exchange of carbohydrates. lipid metabolism. Metabolism of amino acids and proteins. Biochemistry of hormones. Biochemistry of tissues and organs. Clinical and pharmaceutical biochemistry.

9. Tasks:

- form an idea of the role of clinical biochemistry in medicine and pharmacy ;
- to give an idea of modern methods of clinical and biochemical studies of the main groups of biochemical indicators of biomaterials;
- to form the skills of interpreting laboratory studies of the main biofluids of the body - blood, urine under various conditions of the body (normal, pathological);
- provide insight into drug metabolism.

10. Rationale for the choice of discipline: Practical medicine requires the training of highly qualified pharmaceutical personnel, whose activities are aimed at improving the health of the population.

In this regard, it is advisable for future pharmacists to study the discipline "Biological Chemistry", which allows you to get a holistic view of the metabolic processes of the body, the mechanisms of the onset of diseases.

The main content of the discipline is represented by the study of the peculiarities of metabolism and its regulation in human organs and tissues ; as well as biochemical principles for diagnosing diseases and enzymatic transformations of drugs and poisons.

11. Learning outcomes (competencies)

	Knowledge (cognitive sphere)	Skills and abilities (psychomotor sphere)	Personal and professional competencies (relationships)
	Demonstrates knowledge of the subject and tasks of medical biochemistry for professional activities. Knows the methods of conducting biochemical analyzes. Describes the molecular mechanisms of the flow and regulation of metabolic processes . Outlines the main provisions of bioenergetics and nutritional biochemistry. Knows the basic principles of the application of biochemical research methods in practice, the reference values of the main biochemical parameters.	Able to work on modern equipment: biochemical analyzer, spectrophotometer, when conducting biochemical analyses. Able to work and search for the necessary data from a special reference material a . Interprets the results of laboratory and instrumental studies of body fluids. Able to determine the reference values of the main biochemical parameters of blood serum.	Able to express their own opinions and critically analyze the results of educational experiments. He knows how to defend his own judgments in practical classes, at meetings of the student circle, student scientific conferences, etc. When planning and conducting educational experiments, he is able to explain the observed facts and phenomena, their cause-and-effect relationships. Able to work in a team, make a collective decision. Able to transfer to students, teachers, examiners the knowledge gained in the process of studying the discipline.

12. Prerequisites: organic chemistry, inorganic chemistry, analytical chemistry

13. Postrequisites: pharmacognosy, pharmaceutical chemistry, toxicological chemistry.

1 4. Literature: 1 . Biochemistry, ed. Corresponding Member RAS, prof. E.S. Severina.- M., 2011

2. Tapbergenov S.O., Tapbergenov T.S. "Medical and Clinical Biochemistry ".- Evero , 2012.

3. Tapbergenov S.O. Medical biochemistry. - Astana, 2001.

4 . Berezov T.T. , Korovkin B.F. Biological chemistry. - M., 2007.

5. Nikolaev A.Ya. Biological chemistry. Moscow, M., 2007

Additional:

1. Komov V.P. Biochemistry: textbook. For universities-M., 2008

2. Kukhta V.K. Fundamentals of biochemistry - M., 2007

3. Biochemistry. Tests and tasks: Textbook for medical students,
ed. Corresponding Member RAS, prof. E.S. Severina. - M., 2005.

4. Biochemistry in questions and answers. Under. Ed. corresponding member NAS RK, Doctor of Chemical Sciences,
prof. S.M. Adekenova .- Almaty, 2011

in Kazakh

Main:

1. "Biochemistry" E.S. Severinnin ed. , "GEOTAR, Media", 2014;

2. Tapbergenov S.O. Medical Biochemistry - Almaty, 2011

3. Seitembetov T.S. Biological chemistry-Almaty 2011

4. Seitov Z.S., Biochemistry, - Almaty, 2012

5. Kenzhebekov P.K. Biological Chemistry - Shymkent, 2005

Additional:

1. Biochemistry of suraktary men zhauaptary . ҚR ҰҒА corr., prof. CM. Adekenovtin ed. Basshylygymen. - Astana, 2003.

2. Г.К.Asilbekova , A.B.Ordabekova Gormondar biochemistry - Shymkent, 2012

On English language

1. RH Garrett, Grisham CM, "Biochemistry", 2012
2. Harvey R.A. [ed. by], Lippincott's Illustrated Reviews: "Biochemistry" /, 2013
3. VW Rodwell [et al.], Harper's Illustrated "Biochemistry", 2015
4. M. Lieberman, A. Marks, A. Peet., Lieberman M. Mark`s "Basic Medical Biochemistry A Clinical Approach " - 4th ed., 2015
5. Lehninger "Principles of biochemistry", Fourth Edition, David L. Nelson , Michael M. Cox, 2005.

1. Department Organization and Management of Pharmaceutical Business
2. Undergraduate
3. Educational program 6B10106 - "Pharmacy"
4. Course 3
5. Name of the elective discipline Medical and pharmaceutical commodity science
6. Number of credits 4
7. Goals: Formation of knowledge and skills in commodity analysis of medical and pharmaceutical products.
8. Content of discipline:
One of the functions of pharmaceutical organizations is the sale of medicines, medical devices and other pharmaceutical products, the extensive range of which is constantly expanding. The rapid development of the market for medical and pharmaceutical products and competition in a market economy place new demands on the training of pharmacists working in the field of wholesale and retail sales. The program of the discipline "Medical and pharmaceutical and commodity science" is aimed at studying the main commodity characteristics of medical and pharmaceutical products sold through the pharmacy network and widely used in medical and preventive organizations.
9. Tasks:

- teach to determine consumer properties, qualities and systematize goods based on classification and coding methods;
- create an idea of the factors that form and preserve the properties and quality of medical and pharmaceutical products;
- form the skills to use rational ways to ensure the safety of medical and pharmaceutical products in the process of their transportation, storage and operation;
- teach how to conduct a commodity analysis of medical and pharmaceutical products sold through the pharmacy network and used in medical and preventive organizations.

10. Rationale for the choice of discipline:
It is necessary to form the student's ability to use rational ways to ensure the safety of medical and pharmaceutical products during their transportation, storage and operation, to conduct a commodity analysis of medical and pharmaceutical products sold through the pharmacy network and used in medical and preventive organizations.

11. Learning outcomes (competencies)

Knowledge (cognitive sphere)	Skills and abilities (psychomotor sphere)	Personal and professional competencies (relationships)
Demonstrates knowledge and understanding of: the subject and tasks of medical and pharmaceutical commodity science, the influence of environmental factors on the formation and preservation of the quality of medical and pharmaceutical products, the main regulatory documents regulating the activities of a pharmacist in matters of acceptance,	- predicts the impact of the external environment on the quality of medical and pharmaceutical products during their storage, transportation, use and operation, forms systemic knowledge and thinking in the field of commodity analysis, storage and distribution of medical and pharmaceutical products. provides scientific advisory services to medical personnel and	systematizes the acquired knowledge in the field of pharmaceutical sciences, using IT technologies, and adapts them to practical activities based on interdisciplinary communication at the intersection of disciplines: drug technology, pharmaceutical chemistry, management and economics

storage, and sale of medical and pharmaceutical products.	citizens on the selection, rules for taking and storing the most effective and safe medicines and pharmacy products, methods of their storage, use, purchase procedure, demonstrates multiculturalism and openness with a conscious approach to work.	of pharmacy, pharmacognosy.

12. Prerequisites of the discipline: communication skills with the basics of pharmaceutical ethics.
13. Postrequisites of the discipline: industrial technology of drugs, pharmaceutical chemistry, management and economics of pharmacy, pharmacognosy.
14. Literature
Main
1. Medical and pharmaceutical merchandising : textbook / K. D. Shertayeva., Urazbayeva S.A., Blinova O.V., Shimirova Z.K.-108 p.-Shymkent-2021
2. Kazakhstan Republicsynda darikhana uyimdaryndagy tauarlardyn tusui men satyluynesepkealu: oқuқ̱raly / A. R. Shopabaeva [zhənet.b.]. - 2nd bass. - Almaty: AҚHҰP, 2019. - 86 bet.
3. Arystanov, Zh.M. ҚR densaulyk saktau ministerial league; Astana honey. university - Almaty: Evero, 2012.
Additional
1. Shertaeva, K. D. Medicine zhane pharmaceutical tauartanu: oku-adistemelik kural / K. D. Shertaeva, A. D. Zhanbyrbaeva; OKMFA. - 2-bass, tuzet. Zhane tolykt. - Shymkent: B. J., 2012. - 150 bet. With.
2. Shertaeva, K. D. Medical and pharmaceutical commodity science: study guide. - 2nd ed., revised. and additional - Shymkent: B. and., 2012
Electronic resources
1. Shertaeva, K. D. Organization of pharmaceutical activities [Electronic resource]: textbook / K. D. Shertaeva, G. I. Utegenova. - Electron. text data. (3.199 KB). - Shymkent: [b. and.], 2021. - 175 bet. email opt. disc (CD-ROM). - B.
2. Medical and pharmaceutical merchandising : textbook [Электронныйресурс / K. D. Shertayeva., Urazbayeva S.A., Blinova O.V., Shimirova Z.K.-108 p.-Shymkent-2021
1. Shopabaeva A.R. Kazakhstan Republicsynda darikhana uyimdaryndagy tauarlardyn tusui men satyluyn esepke alu. Oku kuraly. 2016 Aknurpress Central Bank https://aknurpress.kz/login
2. Shopabaeva A.R. Medicine zhane pharmaceutical tauartan. Oku kuraly 2020 Central Bank Aknurpress /https://aknurpress.kz/login
3. Shopabaeva A.R. Accounting for the receipt and sale of goods in pharmacy organizations of the Republic of Kazakhstan. Tutorial. 2014 Central Bank Aknurpress /https://aknurpress.kz/login

1. Department of Organizations and management of pharmaceutical business
2. Bachelor course
3. Educational program 6B07201-"Pharmaceutical production technology"
4. Course 3
5. Name of elective discipline Economics of the pharmaceutical industry
6. Number of credits 5
7. Objectives: Formation of students' knowledge and skills on the application of basic economic laws in the activities of pharmaceutical production, for their future professional activities.
8. Content of the discipline:
Analysis of the development of the pharmaceutical industry of the Republic of Kazakhstan. Organizational and legal forms of entrepreneurial activity. Accounting and planning of fixed assets. Production stocks, working capital. Labor and remuneration in the pharmaceutical industry. Labor productivity in the pharmaceutical industry and ways of its growth.Production costs and production costs in the pharmaceutical industry. Pricing of pharmaceutical industry enterprises. Marketing in the pharmaceutical industry. Determination of the results of economic activity of pharmaceutical industry enterprises.

9. Tasks:

Teaching students on the basis of familiarization and study of this discipline to form knowledge on the economics of pharmaceutical production.

10. Justification of the choice of discipline:

Research of the main tasks. Priorities, goals, directions of industrial policy of the Republic of Kazakhstan in accordance with the strategy of long-term development of the Republic of Kazakhstan until 2030, Presidential Messages, Strategy of Industrial and Innovative Development of the Republic of Kazakhstan for 2003-2015.

11. Learning outcomes (competencies)

Knowledge (congruent sphere)	**Skills and attainments (psychomotor sphere)**	**Personal and professional competencies (relationships)**
Knows: □ fundamentals of the economics of pharmaceutical enterprises □ assessment of economic indicators of pharmaceutical industry enterprises □ knows and applies regulatory and legal documentation in the production of pharmaceutical products	- □ identifies current trends in industrial and innovative development of enterprises, analyzes forecasts of key economic indicators and economic analysis - justifies the forecast of financial indicators and economic analysis - □ applies regulatory legal acts regulating the financial activities of pharmaceutical industry facilities - classifies the fixed assets of enterprises, determines the value of the production capacity of the fixed and current assets of the enterprise - □ solves professional tasks in the field of economic analysis, pricing policy, profitability of enterprises. Knows and is able to determine the forms of ownership of enterprises.	determines the socio-psychological climate in the team. -knows the basic principles of motivation to increase labor performance. - knows how to work in a team. Applies psychological aspects in communication with the personnel of the enterprise - makes management decisions. Solves the tasks of personnel management. Has communication skills with suppliers.

12. Prerequisites: of the discipline Fundamentals of economic theory

13. Post-requirements: Chemical process control system (automation)

14. Literature

На русском языке:

Основная:

1. Шертаева К.Д., Утегенова Г.И. Экономика фармации. 2015. -220с.
2. Арыстанов, Ж. М. Управление и экономика фармации: учебник. - Алматы : Эверо, 2015. - 728 с.
3. Багирова В.Л. Управление и экономика фармации: учебник. - Москва : Медицина, 2008. - 720 с.

Дополнительная:

1.Шертаева К.Д. Фармацевтический маркетинг . Шымкент. – 2012 -150с.

2. Шертаева К.Д. Основы фармакоэкономики. Шымкент -2016. -150с.

На казахском языке:

Основная

1. Шертаева К.Д., Утегенова Г.И. Фармация экономикасы. 2016. -220с

2. Арыстанов, Ж. М. Фармацияның басқарылуы және экономикасы: оқулық / Ж. М. Арыстанов ; ҚР денсаулық сақтау министрлігі; Астана мед. ун-ті. - Алматы : Эверо, 2012. - 420 бет. с.
Доплнительная:
1. Шертаева К.Д. Фармакоэкономика негіздері. –Шымкент -2016-150б

1. Department: Organization and Management of Pharmaceutical Business
2. Undergraduate
3. Educational program 6B10106 - "Pharmacy"
4. Course 3
5. Name of the elective discipline Pharmacoeconomics and pharmaceutical information in the drug circulation system
6. Number of credits 6
7. Objectives: Training of specialists who would have a sufficient level of knowledge and practical skills in applying the basic principles, methods and forms of organizing a pharmaceutical information system to determine the cost-effectiveness of diagnostic methods, specific treatment regimens, and disease prevention, which will allow future pharmacists to solve problems of providing rational use of medicines both by an individual consumer and by the state as a whole.
8. Content of discipline:
The objects of study of pharmacoeconomics are the safety and effectiveness of medical interventions, as well as the economic costs of their implementation. The subject of the discipline is economic evaluation in the healthcare system and pharmacy for a comprehensive analysis of alternative treatments. Pharmaceutical information studies the theoretical and practical foundations of the principles for organizing drug information. Pharmaceutical information is inextricably linked with the regulatory, informational, methodological, economic and managerial aspects of the quality provision of the population with essential medicines, medical supplies and other pharmaceutical products.

9. Tasks:

- to give an idea about the analysis of the effectiveness and quality of the use of medicines for the treatment of specific diseases at different levels of medical care;
- familiarize with the principles of formation of interrelated clinical and economic requirements for the effectiveness, safety, compatibility and interchangeability of drugs, pharmacotherapy algorithms and alternative procedures and criteria for their evaluation;
- to teach how to carry out the rationale for optimizing the choice of medicines for the development of protocols for managing patients, a list of vital and essential medicines, lists for providing decreed population groups, creating formularies (lists) of medicines;
- form an idea of the scientific substantiation of a unified system of interrelated assessments of quality indicators and economic characteristics of medical services;
- to study the theoretical basis of scientific and technical information on the basic principles, methods, forms of organization of information on medicinal products, analytical and synthetic types of processing of information documents, information retrieval systems, reference and information funds, determining the need for information necessary for information support of the medicinal process assistance to the population.

10. Rationale for the choice of discipline:

It is necessary to form the student's knowledge and practical skills in applying the basic principles, methods and forms of organizing a pharmaceutical information system to determine the cost-effectiveness of diagnostic methods, specific treatment regimens, disease prevention, which will allow future pharmacists to solve the problems of ensuring the rational use of medicines as an individual consumer, and the state as a whole.

11. Learning outcomes (competencies)

Knowledge (cognitive sphere)	**Skills and abilities (psychomotor sphere)**	**Personal and professional competencies (relationships)**

Demonstrates knowledge and understanding of: - the subject and tasks of pharmacoeconomics, the prerequisites for its development, the main types of modeling, methods of pharmacoeconomics whom analysis, subject, tasks and basic principles of pharmaceutical information;	collects, processes and interprets information to solve professional problems in the field of medicines use; forms social, ethical and scientific conclusions in the form of recommendations for improving pharmaceutical information in the professional activities of a pharmacist, forms systemic thinking in the form of recommendations on the choice of methods of pharmacoeconomic analysis. draws conclusions, presents his own opinions on the selection of the most effective and safe medicines, informs medical workers and pharmacists about new legislative and regulatory acts regulating the spheres of drug circulation in the Republic of Kazakhstan, as well as additions and changes to them;	systematizes information and uses it to solve specific professional problems, has intersectoral communication at the intersection of three disciplines: pharmaceutical information, pharmaceutical management and marketing, pharmaceutical consulting;

12. Prerequisites of the discipline: pharmacology, organization of pharmaceutical activities, management and economics of pharmacy, rational use of medicines.

13. Postrequisites of the discipline: practical professional activity

14. Literature

Main:

4. Kazakhstan Republicsynda darikhana uyimdaryndagy tauarlardyn tusui men satyluyn esepke alu :oku құraly / A. R. Shopabaeva [zhənet.b.]. - 2nd bass. - Almaty: AҚHҰP, 2019. - 86 bet. With

5. Shertaeva, K. D. Pharmacoeconomics of negozderi: okulyk / K. D. Shertaeva, Zh. K. Shimirova, O. V. Blinova; ҚR əleumettik lady zhane densaulyk saktau ministirligi. OKMFA. - Shymkent: OKMFA, 2015. - 136 bets from

6. Shertaeva, K. D. Fundamentals of pharmacoeconomics: textbook / K. D. Shertaeva, O. V. Blinova, Zh. K. Shimirova; Ministry of Health and Social Development of the Republic of Kazakhstan. SKFA. - Shymkent: SKFA, 2015. - 143 p.

7. Shopabaeva, A. R. Pharmacoeconomics: textbook / A. R. Shopabaeva, N. A. Chebotarenko, S. V. Khimenko; Ministry of Health and Social Development of the Republic of Kazakhstan. - Karaganda: AҚHҰP, 2016. - 146 p.

8. Arystanov, Zh. M. Pharmaceutical information: textbook. allowance / Zh. M. Arystanov. - ; Considered and rivers. for release to the meeting. Uchen. council of the MUA. - Almaty: Evero, 2015. - 252 p.

9. Pharmacoeconomics: oқu құraly / A. R. Shopabaeva [g/b.]. - Almaty: AҚHҰP, 2016. - 194 bet. WITH

10. Shertaeva, K. D. Pharmaceutical akparat: oku kuraly / K. D. Shertaeva, K. Zh. J. Umurzakhova; ҚR Densaulyk saktau Minister of League; OKMFA. - Shymkent: Zhasulan, 2013. - 72 bet. WITH

Additional

4. Collection of Legislative and regulatory legal acts regulating pharmaceutical activity in the Republic of Kazakhstan: collection / comp. B.K. Makhatov [i dr.]. - Shymkent: Zhasulan, 2017. - 380 p.

5. Kazakhstan Republicsyndagy pharmaceuticals kyzmetti retteytin Zanamalyk zhane normative -құқықтық aktiler zhinaғy: zhinaқ / құrast. B. Қ. Makhatov [t/b.]. - Shymkent: Zhasulan, 2017. - 327 bet. With.

Electronic resources

1. Shertaeva, K. D. Pharmacoeconomics of non-food items [Electronic resource]: okulyk / K. D. Shertaeva, Zh. K. Shimirova, O. V. Blinova; ҚR әleumettik lady zhane densaulyk saktau minister of league. - Electron. text data. - Shymkent: OKMFA, 2015. - 1.36 Mb + email. opt. disc (CD ROM).
2. Shertaeva, K. D. Fundamentals of pharmacoeconomics [Electronic resource]: textbook / K. D. Shertaeva, O. V. Blinova, Zh. K. Shimirova; Ministry of Health and Social Development of the Republic of Kazakhstan. - Electron. text data. - Shymkent: OKMFA, 2015. - 1.98 Mb + email. opt. disc (CD ROM).
3. Shopabaeva A.R. Pharmacoeconomics. Oku kuraly. 2019 Central Bank Aknurpress / https://aknurpress.kz/login
4. Shopabaeva A.R. Pharmacoeconomics. Tutorial. 2019 Central Bank Aknurpress / https://aknurpress.kz/login

1. Department: Pharmacology, Pharmacotherapy and Clinical Pharmacology
2. Level of preparation: baccalaureate
3. OP: "Pharmacy"
4. Course: 4
5. Number of credits: 5
6. The name of the elective discipline: Rational use of medicines
7. Purpose: to teach methodologies for the rational use of medicines of various diseases
8. Tasks:
• teach methodologies for rational prescribing of medicines;
• teach to predict and evaluate side effects of drugs;
• teach to evaluate possible drug interactions;
9. The content of the discipline: The rational use of medicines implies the correct, appropriate and appropriate use of medicines. To teach methodologies for the rational use of medicines with the basics of evidence-based medicine of various diseases.
Prediction of the risk of side effects of drugs, methods of prevention and correction of side effects, the use of clinical protocols for diagnosis and treatment.
10. Justification of the choice of discipline: To date, there are many gaps in our knowledge of the most effective policies and strategies for improving the use of drugs.
11. Learning outcomes (competency):

Knowledge (cognitive sphere)	**Skills and abilities (psychomotor sphere)**	**Personality and professional competencies (relationships)**
- risk factors and clinical manifestations of the main adverse reactions of drugs; -methods for assessing the quality of life; -basic principles of dosage of drugs depending on the pathological and physiological parameters of the human body; -main types of drug interactions; -methods for assessing the clinical efficacy and safety of drugs	-to make the choice of the most effective and safe medicines used for treatment -main symptom complexes; determine the optimal dosage regimen; -select methods for monitoring the safety of treatment and predict the risk of side effects of drugs; -to compile a formulary list of analogue replacement, a form of a medical institution; - provide informational and advisory assistance to doctors in choosing a dosage form of the drug, dose, frequency and duration of administration of the drug.	Able to be competent: in matters of common types of irrational use of medicines

	-conducting pharmaceutical counseling for doctors and patients; - the use of educational, scientific, regulatory, reference books and computer databases on clinical pharmacology and evidence-based medicine.	

12. Prerequisites: pharmacology, pharmacotherapy
13. Post requisites: professional development
14. Recommended reading:
Main literature:
1. Kalieva, S. S. Clinical pharmacology and rational pharmacotherapy. Volume 1: textbook / Sh. S. Kaliev., N. A. Minakova. - Almaty: Evero, 2016 .-- 460
2. Kalieva, C. S. Clinical pharmacology and rational pharmacotherapy. Volume 2: textbook / S. S. Kaliev, N. A. Simokhin. - Almaty: Evero, 2016 .-- 288 p.
3. Grinhalh T. Basics of evidence-based medicine: textbook: translation from English / ed. G.S. Kemelova; into the Kazakh language aud. TK Sagadatova. –M .: GEOTAR- Media, 2014
4. Kulmagambetov, I. R. Clinical pharmacology. Part 1: textbook / I. R. Kulmagambetov. - Almaty: Evero, 2014. - 320 pages. c.
5. Kulmagambetov, I. R. Clinical pharmacology. Part II: textbook / I. R. Kulmagambetov. - Almaty: Evero, 2014. - 392 pages. c.
6. Petrov V.I. Evidence Based Medicine: Textbook. allowance / V.I. Petrov, S.V. Disadvantage .-; Rec. Textbook. by med. and farm. the formation of Russian universities. - M .: GEOTAR-Media, 2012
Additional literature:
1. Rational pharmacotherapy in oncology: hands, for medical practitioners / ed. M.I. Davydova, V.A. Gorbunova. - M.: GEOTAR-Media, 2015. -844s.
2. Petrov V.I. Clinical pharmacology and pharmacotherapy in real medical practice: master class: textbook / V.I. Petrov.-; Rec. GOU DPO "Russian honey. Acad. postgraduate education. " - M.: GEOTAR-Media, 2011 .-- 880 p.: Ill.
3. Lecture complex - on the subject of effective use of drugs: lecture complex / Department of Pharmacology, Pharmacotherapy and Clinical Pharmacology. - Shymkent: SKSPhA, 2016. - 65 pages. c.
4. Rakhimov K.D. Guidelines for the safe use of medicines: a guide / K.D. Rakhimov, K.A. Zordinova; Ministry of Health of the Republic of Kazakhstan; Almaty state Institute of Advanced Doctors Research Institute of Pharmacology and Toxicology; National Acad. Sciences of the Republic of Kazakhstan .- Almaty: B. and., 2009.- 244s.
Electronic editions:
1.Petrov, V. I. Clinical pharmacology and pharmacotherapy in real medical practice, master class [Electronic resource]: textbook / V. I. Petrov. - The electron. text data (63.5 MB). - M.: Publishing Group "GEOTAR-Media", 2011. - 880 p. email opt. disk (CD-ROM).
2. Doctor's consultant. Clinical Pharmacology. Version 1.1 [Electronic resource]: manual. - The electron. text data (132 Mb). - M.: Publishing Group "GEOTAR-Media", 2010. - Email. opt. disk (CD-ROM).

1. **The department of Pharmacognosy**
2. **Level of training (bachelor degree)**
3. **Educational program:** 6B10106 «Pharmacy»
4. **Course:** 4
5. **Name of elective discipline:** «Analysis and standardization of medicinal plant raw materials»
6. **Amount of credits:** 5 credits (150 hours)
7. **Purpose:** To develop student knowledge on standardization and quality control of medicinal plant raw materials and phytopreparations; improving student readiness for self-employment; wider knowledge of students on topical issues of standardization of medicinal plant raw materials and phytopreparations.

8. **Discipline content:** Preparation of medicinal plant raw materials, rational and careful attitude to resources of medicinal plants, sources of raw materials of mineral and animal origin, processing of plant raw materials, etc.

Macroscopic, microscopic, histochemical and microchemical studies of medicinal plant raw materials. Chemical composition of medicinal plants. Determination of benign drug raw materials.

9. Tasks:

- to guide students in the properties and chemical composition of medicinal plant raw materials and phytopreparations in accordance with the constantly growing demand for high-quality phytoproduction and medicinal plant raw materials;
- develop skills and skills necessary for standardization of MPRM and phytopreparations;
- instilling communication skills in students on the professional presentation of the external description of MPRM, reasoned statement, defence of own point of view, formation of logical thinking, ability to participate in discussions, etc.
- development of legal competence through familiarization with regulatory documentation regulating quality, efficiency and safety of phytopreparations from MPRM (SPh RK, etc.)
- motivated training of students for continuous improvement and development of abilities for independent and creative development of materials for standardization of medicinal plant raw materials and phytopreparations.

10. Justification of the choice of discipline:

Pharmacognosia (from Greek rharmason - medicine, poison and gnosis - study, knowledge) is one of the pharmaceutical sciences studying medicinal plants, medicinal plant raw materials and some products of primary processing of plant and animal origin.

Taking into account the increased requirements of practical pharmacy and medicine for the use of medicinal raw materials of plant, animal and mineral origin, the subject "Standardization of medicinal plant raw materials and phytopreparations" considers the range of issues related to the efficiency of quality control at all stages of preparatory development.

Ensuring proper quality of medicinal plant raw materials depends to a large extent on proper organization of control, its efficiency and efficiency, as well as on the level of requirements laid down in normative documents (SPh, AND, TAND) and the methods of analysis used. The study of the system of standards of quality of medicinal plant raw materials, their products, testing methods, etc., established in the national order and mandatory for producers and consumers is currently a pressing problem in the Republic of Kazakhstan.

11. Results of training (competence):

Knowledge (cognitive sphere)	**Skills (psychomotor sphere)**	**Personal and professional competences (relations)**
1. Know the legislative regulatory documents regulating the rules of registration, re-registration and certification of medicinal plant raw materials in the Republic. 2. To know the system of standardization of MPRM and phytopreparations, numerical indicators that regulate the benign nature of MPRM, and their methods of determination, improvement of existing methods of analysis, development of business plans, the main directions of scientific research in the field of standardization of medicinal plant raw materials and phytopreparations.	1. Be able to perform acceptance of MPRM and phytopreparations, selection for analysis in accordance with MP, carry out static processing and registration of results of commodity analysis. 2. To be able to carry out quality control of medicinal plant raw materials, develops business plans for carrying out research works in the field of phytochemical and pharmacognostic study of medicinal plant raw materials and phytopreparations.	1. Collects and interposes the legislation of Kazakhstan in the field of health care, international standards, their structure and other regulatory documentation regulating the quality of medicinal plant raw materials and phytopreparations. 2. Collects information on new methods of quality control of medicinal plant raw materials, certification and standardization, improvement of existing methods of analysis.

12.Prerequisites: botany, Latin, organic chemistry, analytical chemistry, biological chemistry, pharmacognosy.

13.**Post-details:** Technology of extraction preparations, standardization of medicines, resource science and ecology of medicinal plants.

14. Literature

The main:

1. Дәрілік өсімдік шикізаттарын фармакогностикалық талдау. Оқу құралы/ Орынбасарова К.К.-Шымкент, 2016
2. Фармакогнозия тестовые задания и ситуационные задачи: учеб. пособие / под ред. И. А. Самылиной. - ; Мин-во образования и науки РФ. Рек. ГОУ ВПО "Мос. мед. акад. им. И. М. Сеченова". - М. : ГЭОТАР - Медиа, 2015. - 288 с
3. Государственная фармакопея Республики Казахстан. Т. 1 [Текст] : монография / ред. А. У. Тулегенова; М-во здравоохранения РК. - 1-е изд. - Алматы : Жибек жолы, 2008. - 592 с.
4. Государственная фармакопея Республики Казахстан. Т. 2 [Текст] : монография / под ред. А. У. Тулегеновой ; М-во здравоохранения РК. - 1-е изд. - Алматы : Жибек жолы, 2009. - 804 с. - ISBN 978-601-7152-43-7 : 28656.50; 3366.09 Тг
5. Государственная фармакопея Республики Казахстан. Т. 3 [Текст] : монография / М-во здравоохранения РК. - 3-е изд. ; Утв. приказом М-ва здравоохранения РК. - Алматы : Изд. дом "Жибек жолы", 2014. - 872 с
6. Қазақстан Республикасының Мемлекеттік фармакопеясы. Т.1. – Алматы: «Жібек жолы» баспа үйі, 2008. – 592 б.
7. Қазақстан Республикасының Мемлекеттік фармакопеясы. Т.2. – Алматы: «Жібек жолы» баспа үйі, 2009. –792 б.
8. Қазақстан Республикасының мемлекеттік фармакопеясы. Т. 3 [Мәтін] : монография / ҚР денсаулық сақтау министрлігі. - 1-бас. ; ҚР Денсаулық сақтау министрінің бұйрығымен бекіт. - Алматы : Жібек жолы, 2014. - 864 бет.
9. Pharmacognosy (Pharmacognosy and Phytochemistry) Vol.1 Paperback – 2011 year.

Additional:

1. Дәрілік өсімдіктер және дәрілік өсімдік шикізаттары: фармакогнозия пәні бойынша оқу құралы / Джангозина Д. М. [ж. б.]. - Алматы : Эверо, 2014. - 240 бет. с.
2. Келімханова, С. Е. Фармакогнозия: практикум / С. Е. Келімханова ; ҚР денсаулық сақтау министрлігі; С. Ж. Асфендияров атындағы ҚазҰМУ. - Қарағанды : ЖК "Ақнұр", 2014. - 180 бет. с.
3. Фармакогнозия. Рабочая тетрадь к практическим занятиям:И. В. Гравель [и др.]; под ред. И. А. Самылиной ; М-во образования и науки РФ. - 2-е изд., испр. и доп ; Рек. ГОУ ВПО Московская мед. акад. им. И. М. Сеченова. - М. : ГЭОТАР - Медиа, 2013. - 264 с
4. Фармакогнозия пәнінің зертханалық-тәжірибелік сабақтарына арналған қолданба: оқу құралы / Б. Қ. Махатов [ж. б.] ; ҚР денсаулық сақтау министрлігі; ОҚМФА. - Шымкент : Б. ж., 2013. - 328 бет. с.
5. Фармакогнозия. Учебная практика: учебное пособие / под ред. И. А. Самылиной. - ; Рек. ГОУ ВПО " Первый МГУ им. И. М. Сеченова". - М. : ООО"Медицинское информационное агентство", 2011. - 432 с.
6. Fundamentals of Pharmacognosy and Phytotherapy, 2nd Edition 2012
7. Pharmacognosy: Fundamentals, Applications and Strategies 1st Edition 2016
8. Marine Pharmacognosy: Trends and Applications 1st Edition 2012

Electronic resources:

1. Фармакогнозия. Гербарий лекарственных растений [Электронный ресурс] : учеб. пособие / И. А. Самылина [и др.]. - Электрон. текстовые дан. (40,5 Мб). - М. : ГЭОТАР - Медиа, 2012. - эл. опт. диск (CD-ROM).
2. Сорокина, А. А. Фармакогнозия. Гербарий лекарственнх растений [Электронный ресурс] : учебник. - Электрон. текстовые дан. (42,0 Мб). - М. : Изд. группа "ГЭОТАР-Медиа", 2012. - эл. опт. диск (CD-ROM)
3. Самылина, И. А. Фармакогнозия. Атлас. В 3 т. Т.1 [Электронный ресурс] : учебник . - Электрон. текстовые дан. (71,6 Мб). - М. : Изд. группа "ГЭОТАР-Медиа", 2012. - эл. опт. диск (CD-ROM). - (Электронный учебник).

4. Самылина, И. А. Фармакогнозия. Атлас. В 3 т. Т. 2 [Электронный ресурс] : учебник . - Электрон. текстовые дан. (101 Мб). - М. : Изд. группа "ГЭОТАР-Медиа", 2012. - эл. опт. диск (CD-ROM). - (Электронный учебник)
5. Самылина, И. А. Фармакогнозия : Атлас. В 3 т. Т. 3. [Электронный ресурс] : учебник . - Электрон. текстовые дан. (142 Мб). - М. : Изд. группа "ГЭОТАР-Медиа", 2012. - эл. опт. диск (CD-ROM). - (Электронный учебник).

1. Department: Pharmacology, Pharmacotherapy and Clinical Pharmacology
2. Level of preparation: baccalaureate
3. OP: "Pharmacy"
4. Course: 4
5. Number of credits: 3
6. Name of elective discipline: Pharmaceutical guardianship
7. Purpose: to teach the principles of providing counseling to patients within the framework of OTS - a list of prescription drugs.
8. Tasks:
• learn the methodology of rational prescription of drugs within the framework of OTS - a list of prescription drugs;
• learn how to consult patients about possible side effects of drugs;
• learn to evaluate the possible interactions of drugs.
9. Content of disciplines: OTS - principles of consulting patients on the number of non-prescription drugs in a list of drugs within the effective prescription of the drug; to advise patients on possible side effects of the drug and to evaluate possible drug interactions. Questions of compatibility and incompatibility of drugs with each other and the composition of food, intolerance of drugs to the body, questions of substitutes for drugs that are not in pharmacies, on pharmacological analogues.
10. The basis of the choice of disciplines: Pharmaceutical guardianship - this is a comprehensive program of interaction between the pharmacist and the patient during the entire period of drug therapy, starting from the moment of release of the drug until its end.
On this day, the role of the pharmacist is transformed, he should not take care of increasing the number of drugs in the world pharmaceutical market, not only to dispense the drug, the main purpose of the drug is the main purpose of the drug. In this case, of course, the speech does not go about the leveling of the role of the doctor, "substitute" his pharmacist. Self-medication is possible only in cases that are not dangerous for life symptoms and syndromes, reduce those and call OTS-drugs of different groups (antacids, laxatives, analgesics-antipyretics, antispasmodics, etc.).
11. Learning Outcomes (Competence):

Knowledge (cognitive sphere)	**Skills and abilities (psychomotor sphere)**	**Personality and professional competencies (relationships)**
Knows the definition of applicable pharmacy practice; methods of assessing the quality of life; basic principles of dosing of drugs; OTS - list of drugs; the main symptoms and syndromes of the most frequently encountered pathological conditions; norms of medical and deontological ethics	Able to choose the most effective and safe drugs used to treat the main symptom complexes; determine the optimal dosing mode; predict the risk of development of side effects of drugs; provide informational and advisory assistance to patients in choosing the drug form, dose, frequency and duration of drug administration. conducting pharmaceutical counseling (pharmaceutical guardianship) of patients;	To be competent in the issues of deontology indication of the required qualified volume of assistance within the framework of a prescription drug.

	use of educational, scientific, normative, reference literature and computer databases on clinical pharmacology and evidence-based medicine.	

12. Prerequisites: Pathological physiology, microbiology, biochemistry, pharmacology and pharmacotherapy, organization of pharmaceutical activity.

13. Postrequisites: professional development

14. Recommended literature:

Primary:

1. Pharmaceutical support: textbook - N.Zh. Ormanov, SKSPhA.-Shymkent: «RISO», 2013-304 pages 115 copies
2. Pharmaceutical support: textbook - Shymkent: "RISO", 2013.-85 copies
3. Pharmaceutical guardianship textbook-methodical manual - Shymkent UKGFA, 2013-70 copies.
4. Basic and Clinical Pharmacology/ Katzung B.G.[ed.by]; Mc Graw- Hill 2012
5. Clinical Pharmacology/ Bennet P.N., Brown M.J.; Churchill Livingstone, 2012
6. Goodman & Gilman' the Pharmacology Basis of Therapeutics/ Brunton L.L.,Charbner B.A.; McGraw- Hill Professional 2011

Additional:

1. Ormanov N.Zh. Pharmacotherapy of digestive organs: Textbook. allowance -Shymkent :, 2013. - 200 s- 70ex.
2. Ormanov N. J. Pharmacology. Book 1: textbook - Almaty: Evero, 2013. - 656 pages-100 copies.
3. Ormanov N. J. Pharmacology. Book 2: textbook - Almaty: Evero, 2013. - 512 pages - 100 copies.
4. Ormanov N. J. Pharmacotherapy. Book 1: textbook - Shymkent: UKGFA, 2012. - 500 pages - 300 copies.
5. Орманов, Н. J. Pharmacotherapy. Book 2: textbook - Shymkent: SKSPhA, 2012. - 416 pages - 300 copies.
6. Pharmacology (: manual-Pharmacology: handbook / GM Pichhadze "Litterra", 2017.-640 pages p.1ex
7. Hematological pharmacotherapy: textbook / N.Zh. Ormanov - Ministry of Health and Social Development of the Republic of Kazakhstan. SKSPhA.- Shymkent: UKGFA, 2015.-160p.-40 copies
8. Cardiological pharmacotherapy: textbook / N.Zh. Ormanov - Ministry of Health and Social Development of the Republic of Kazakhstan. SKSPhA.- Shymkent: UKGFA, 2015.-216 pages.- 40 copies
9. Kharkevitch D.A. Pharmacology: Translation of Russian textbook "Pharmacology" (2006). - [б.м]:GEOTAR- MEDIA Publishing Group, 2008.- 672 p.

1. Department: Pharmaceutical and Toxicological Chemistry

2. Specialty: 6B10106 "Pharmacy"

3. Course: 4

4. Level of preparation: undergraduate

5. The name of the elective discipline: " Bioanalytical chemistry and toxicology"

6. Number of credits: 4 credits

7. The objectives of the curriculum: developing theoretical knowledge of the mechanisms of action of xenobiotics, the features of their clinical and toxicological analysis, interpretation of results, the acquisition of practical skills for analyzing xenobiotics using modern physicochemical methods: spectral, electrochemical, chromatographic, immune, etc. The study of the subject is aimed at achieving professional competencies of the future specialist (toxicologist chemist) in the field of clinical and toxicological analysis of xenobiotics in modern laboratories.

8. Tasks of the curriculum:

• to give students knowledge of the basic principles, procedure for organizing, conducting analytical diagnostics of acute poisoning, in accordance with current legislation;

• provide students with knowledge of the properties (physical, chemical), toxicodynamics and toxicokinetics of xenobiotics and their metabolites;
• teach students how to conduct chemical toxicological analysis of toxicologically important substances at the stages of clinical toxicological examination and analytical diagnosis of acute poisoning.

9. Discipline content : Analysis of certain groups of toxicologically important substances and prohibited substances WADA using GC-MS, HPLC-MS-NMR, HPLC-ICP-MS, GC-IR-FTIR, GDS, CE-ICP-MS etc. Conducting research on the requirements of international organizations for standardization and quality (ISO. OECD, EU).

10.Justification of the choice of discipline:

The problem of chemical safety has acquired global importance in our time. It is known that society is able to successfully counter such threats, if it is possible to quickly and reliably diagnose new toxic agents, as well as monitor and prevent the state of existing problems. The main factor determining the rates and volumes of toxicological studies in the world is a huge number of chemicals that come into circulation every year, the diversity of their structures and properties, as well as the associated risks.

In recent years, the requirements for the ability of institutions to perform at the modern level of development of analytical techniques and methodology, large volumes of specialized studies, different in nature substances within the framework of judicial chemical, clinical toxicological, anti-doping, environmental, forensic examinations, as well as in the field of occupational pathology, clinical pharmacology, etc. At the same time methods of detection, identification and quantification of toxicants are constantly being improved and complicated. Much attention at the lessons on this elective will be given to the methodology of chemical-toxicological analysis, the interpretation of its results, as well as ensuring the quality of analysis, proper laboratory practice (GLP principles in a modern laboratory), implementation of the validation system and qualifications in the laboratory. The modern state of analytical studies of toxicants in biological objects will be fully reflected in the classes, new methods of sample preparation of biological samples, methods for the determination of toxicants in biological media by various analytical systems (gas chromatography, high performance liquid chromatography, FTIR, etc.) will be presented.

In an elective course, students will study the issues of chemical-toxicological analysis for the diagnosis of professional and environmentally dependent diseases, doping agents, as well as substances that can be used in biological terrorism.

11. Learning outcomes (competencies):

Knowledge (cognitive sphere)	Skills and skills (psychomotor sphere)	Personal and professional competencies (relationships)
• know the organizational, legal, legal and methodological basis for conducting chemical-toxicological examination and analytical diagnostics in case of acute poisoning with poisonous, potent, narcotic and drug-addictive substances; • know the methodology of the systemic chemical-toxicological analysis of toxic and highly active substances.	• be able to conduct chemical-toxicological studies of material evidence on various toxic substances (biological, physico-chemical and chemical); • be able to interpret the results of chemical-toxicological analysis; • possess the skills of conducting chemical and toxicological research; • possess the skills to document the conduct of laboratory and expert research (drawing up the opinion and chemical toxicological research report).	• to be ready for independent work and to carry out their activities, taking into account moral and legal norms adopted in the society, to comply with laws and regulations on work with confidential information; • be able to design and implement their own educational trajectory throughout life, ensuring success and competitiveness; • to be able to effectively collaborate with other people: build effective communications, collaborate with colleagues, and

		establish maximum trusting relationships with partners.

12. Prerequisites: toxicological chemistry

13. Post requisites: professional activities

14. Literature:

на русском языке:

1. Вергейчик Т.Х. Токсикологическая химия: учебник для студентов фарм. вузов и факультетов / Т.Х. Вергейчик ; ред. Е.Н. Вергейчик . - 5-е изд., перераб. и доп. - М.: МЕДпресс-информ, 2016. - 432 с.
2. Жебентяев А.И. Токсикологическая химия – ВГМУ, 2014. Ч.1 – 405с.
3. Жебентяев А.И. Токсикологическая химия – ВГМУ, 2015. Ч.2 – 415с.
4. Токсикологическая химия: учебник / под ред. Т.В. Плетеневой. – 4-ое изд. – М., 2013. – 512 с. Переплет.

на казахском языке:

1. Арыстанова Т.А. Биологиялық материалдан экстракция әдісі арқылы оқшауланатын улы және күшті әсерлі заттар тобы. Оқу құралы – Шымкент, 2012.- 186 б.
2. Арыстанова Т.А. Биологиялық материалдан минералдау әдісімен оқшауланатын улы және күшті әсерлі заттар тобы. Оқу құралы – Шымкент, 2012.- 100 б.
3. Мұхаметжанов, А. М. Химиялық қарудың жалпы және медицина-тактикалық сипаттамасы: оқу құралы. - 2-бас. - Қарағанды: ЖК "Ақ Нұр", 2013.
4. Ордабаева С.Қ., Серікбаева А.Д., Қарақұлова А.Ш., Жұматаева Г.С. Сот-химиялық сараптау және аналитикалық диагностика. Оқу-әдістемелік құралы. – Алматы: «Эверо» баспасы, 2016. -280б.
5. Серикбаева А.Д. Токсикологиялық маңызды дәрілік улардың химия-токсикологиялық талдуы. Оқу құралы. – Шымкент: ОҚМА, 2022.-200б.
6. Шүкірбекова А.Б. Токсикологиялық химия. Оқулық - Алматы: ЖШС «Эверо», 2020.-410 б.

1. Department of Organizations and management of pharmaceutical business

2. Bachelor course

3. Educational program 6B10106 - "Pharmacy"

4. Course 4

5. Name of the elective discipline Pharmaceutical management and marketing with the basics of pharmaceutical consulting

6. Number of credits 5

7. Objectives: The purpose of studying pharmaceutical management and marketing with the basics of pharmaceutical consulting is to form students' knowledge about the main activities of pharmacy institutions, providing the opportunity to find the most effective, economical, resource-saving, environmentally friendly methods and techniques for providing pharmaceutical care and counseling to the population and medical professionals.

8. Justification of the choice of discipline:

Fundamentals of pharmaceutical marketing. Commodity policy of pharmaceutical organizations. Development of the theoretical foundations of management. Methodological foundations of pharmaceutical management. Organization as an object of pharmaceutical management. Fundamentals of personnel management of pharmaceutical organizations. The role of a pharmacy worker as a consultant on the rational, effective and safe use of medicines. Patient counseling is an important component of pharmacists' communication skills. State regulation of pharmaceutical activity. Intercultural communication skills when consulting pharmacy patients. State control of pharmaceutical activity.

9. Tasks:

- give an idea of the content and essence of marketing;

- to form an idea about the product, product nomenclature and assortment in pharmaceutical marketing;
- to familiarize with the pricing policy of the pharmaceutical company;
- teach to promote pharmaceutical products;
- give an idea of the main types of market, market capacity, market potential;
- to familiarize with the role and place of sales in the structure of marketing tasks;
- to form a systematic knowledge of marketing research;
- familiarize with marketing planning and the procedure for developing a marketing plan;
- to form a provision about the technology of managerial decision-making;
- to familiarize with the principles of delegation of authority;
- give the concept of motivation of activities and people;
- to familiarize with the personnel policy of pharmaceutical enterprises;
- to give an idea of the management styles of the workforce.
- possess intercultural communication skills when consulting pharmacy patients.

10. Justification of the choice of discipline:

The results of the activities of pharmaceutical enterprises in a market economy are largely determined by the level of use of the fundamentals of management and marketing.

Management, on the one hand, is a type of activity for the management of people in a variety of organizations, including pharmacies. On the other hand, management is accumulated common sense and positive practical experience based on the ability not to repeat previously committed mistakes.

The management of pharmacy organizations in market conditions is much more complicated. This is due to the expansion of the rights and responsibilities of pharmacy organizations, as well as the need for more flexible adaptation to environmental changes.

As a concept, marketing is a set of scientifically based ideas about enterprise management in a competitive economy.

As a mode of action of the manufacturer, marketing is a system of measures to increase the competitiveness of the enterprise by maximizing the adaptation of all activities and products to the requirements of the market and the consumer.

.Competent pharmaceutical consulting is a recipe for success for a pharmaceutical organization

11. Learning outcomes (competencies)

Knowledge (congruent sphere)	**Skills and attainments (psychomotor sphere)**	**Personal and professional competencies (relationships)**
Knows: modern marketing concepts marketing principles; development of pharmaceutical marketing model of analysis of consumer properties of goods; product life cycle; pharmaceutical company's product policy; principles of pricing in pharmacy; forecasting the need for individual groups of medicines; features of the communication policy; the market as the economic basis of marketing; analysis of the range of pharmaceutical products; distribution of pharmaceutical products;	**Be able and master the skills:** to carry out the classification of pharmaceutical products; conduct pricing policy; to form a communication policy; to carry out sales promotion; determine the market capacity, market potential; manage distribution channels; conduct SWOT analysis; determine the demand and needs in the pharmaceutical market; classify marketing information;	• manage a conflict situation; implement personnel policy; - be able to work in a team. -able to apply modern information and communication technologies in all areas of professional activity

□ advertising and promotion of pharmaceutical products; □ structure and essence of marketing research; □ strategic marketing planning; □ theoretical foundations of management; □ management decision-making technology; □ functions and methods of management decisions; □ functions and management methods; □ principles of delegation of authority; □ organization as an object of pharmaceutical management □ motivation of work activity; □ communications in the management of pharmaceutical organizations; □ management styles of the workforce; □ fundamentals of personnel management.	□ make management decisions; □ manage an organization based on delegation of authority; □ to carry out motivation of labor activity; document management decisions. -provides advisory assistance to the population and specialists on the rational use of medicines and medical devices	

12.Prerequisites: pharmacology, organization of pharmaceutical activity, management and economics of pharmacy and history of pharmacy.

13.Post-requirements: pharmaceutical logistics with the basics of entrepreneurship, organizational foundations of good practices in pharmacy, practical professional activity.

14. Literature

1. Arystanov, J. M. Management and marketing in pharmacy: a textbook / J. M. Arystanov, A. T. Tokseitova. - Almaty: Evero, 2016. – 532 p.

2. Blinova, O. V. Pharmaceutical management: textbook / O. V. Blinova; Ministry of Healthcare of the Republic of Kazakhstan; YUKGFA. - Shymkent: Zhasulan, 2013. - 165 p.

3. Shertaeva, K. D. Pharmaceutical marketing: textbook / K. D. Shertaeva; Ministry of Health of the Republic of Kazakhstan; Rep. Center for Innovative Technologies of Medical Education; UCGFA. - Shymkent: B. I., 2012. - 152 p.

4. The manual "Medicines. Good Distribution Practice" (ST-N MOZ 42-5.0:2008).

5. Guidelines on Good Storage Practices for Pharmaceutical Products ("Guidetogoodstoragepracticesforpharmaceuticals"). World Health Organization. Cycle of WHO technical reports, No. 908, 2013.

6. Shubenkova E.V. Total quality management: textbook / E.V. Shubenkova. - M.: EXAM, 2015. - 256 p

. 7. Salimova, T.A. History of quality management: textbook / T.A. Salimova, N.S. Vatolkina. – Moscow : KNORUS, 2015. – 256 p.

8. Abutidze Z.S. Quality management and reengineering of the organization: studies.manual / Z.S. Abutidze, L.N. Alexandrovskaya, V.N. Bas, etc. - M.: Logos, 2013. - 328 p.

Additional:

1. Management and economics of pharmacy: textbook/ edited by I.A. Narkevich. – M.: GEOTAR-Media, 2017. – 928 p.

2. Arystanov, Zh. M. History of pharmacy: textbook / Zh. M.- Almaty :Evero, 2016. - 184 p.

3. Arystanov, J. M. Organization of pharmaceutical activity: studies. stipend. - Almaty : Evero, 2015. - 608 p.

4. Management and economics of pharmacy: textbook/ edited by I.A. Narkevich. – M.: GEOTAR-Media, 2017. – 928 p.

1. Department: Pharmaceutical and Toxicological Chemistry
2. Specialty: 6B10106 "Pharmacy"
3. Course: 4
4. Level of preparation: undergraduate
5. The name of the elective discipline: " Bioanalytical chemistry and toxicology"
6. Number of credits: 4 credits
7. The objectives of the curriculum: developing theoretical knowledge of the mechanisms of action of xenobiotics, the features of their clinical and toxicological analysis, interpretation of results, the acquisition of practical skills for analyzing xenobiotics using modern physicochemical methods: spectral, electrochemical, chromatographic, immune, etc. The study of the subject is aimed at achieving professional competencies of the future specialist (toxicologist chemist) in the field of clinical and toxicological analysis of xenobiotics in modern laboratories.
8. Tasks of the curriculum:
• to give students knowledge of the basic principles, procedure for organizing, conducting analytical diagnostics of acute poisoning, in accordance with current legislation;
• provide students with knowledge of the properties (physical, chemical), toxicodynamics and toxicokinetics of xenobiotics and their metabolites;
• teach students how to conduct chemical toxicological analysis of toxicologically important substances at the stages of clinical toxicological examination and analytical diagnosis of acute poisoning.
9. Discipline content : Analysis of certain groups of toxicologically important substances and prohibited substances WADA using GC-MS, HPLC-MS-NMR, HPLC-ICP-MS, GC-IR-FTIR, GDS, CE-ICP-MS etc. Conducting research on the requirements of international organizations for standardization and quality (ISO. OECD, EU).
10.Justification of the choice of discipline:

The problem of chemical safety has acquired global importance in our time. It is known that society is able to successfully counter such threats, if it is possible to quickly and reliably diagnose new toxic agents, as well as monitor and prevent the state of existing problems. The main factor determining the rates and volumes of toxicological studies in the world is a huge number of chemicals that come into circulation every year, the diversity of their structures and properties, as well as the associated risks.

In recent years, the requirements for the ability of institutions to perform at the modern level of development of analytical techniques and methodology, large volumes of specialized studies, different in nature substances within the framework of judicial chemical, clinical toxicological, anti-doping, environmental, forensic examinations, as well as in the field of occupational pathology, clinical pharmacology, etc. At the same time methods of detection, identification and quantification of toxicants are constantly being improved and complicated. Much attention at the lessons on this elective will be given to the methodology of chemical-toxicological analysis, the interpretation of its results, as well as ensuring the quality of analysis, proper laboratory practice (GLP principles in a modern laboratory), implementation of the validation system and qualifications in the laboratory. The modern state of analytical studies of toxicants in biological objects will be fully reflected in the classes, new methods of sample preparation of biological samples, methods for the determination of toxicants in biological media by various analytical systems (gas chromatography, high performance liquid chromatography, FTIR, etc.) will be presented.

In an elective course, students will study the issues of chemical-toxicological analysis for the diagnosis of professional and environmentally dependent diseases, doping agents, as well as substances that can be used in biological terrorism.

11. Learning outcomes (competencies):

Knowledge (cognitive sphere)	Skills and skills (psychomotor sphere)	Personal and professional competencies (relationships)
• know the organizational, legal, legal and methodological basis for conducting chemical-	• be able to conduct chemical-toxicological studies of material evidence	• to be ready for independent work and to carry out their activities,

toxicological examination and analytical diagnostics in case of acute poisoning with poisonous, potent, narcotic and drug-addictive substances; • know the methodology of the systemic chemical-toxicological analysis of toxic and highly active substances.	on various toxic substances (biological, physico-chemical and chemical); • be able to interpret the results of chemical-toxicological analysis; • possess the skills of conducting chemical and toxicological research; • possess the skills to document the conduct of laboratory and expert research (drawing up the opinion and chemical toxicological research report).	taking into account moral and legal norms adopted in the society, to comply with laws and regulations on work with confidential information; • be able to design and implement their own educational trajectory throughout life, ensuring success and competitiveness; • to be able to effectively collaborate with other people: build effective communications, collaborate with colleagues, and establish maximum trusting relationships with partners.

12. Prerequisites: toxicological chemistry

13. Post requisites: professional activities

14. Literature:

на русском языке:

1. Вергейчик Т.Х. Токсикологическая химия: учебник для студентов фарм. вузов и факультетов / Т.Х. Вергейчик ; ред. Е.Н. Вергейчик . - 5-е изд., перераб. и доп. - М.: МЕДпресс-информ, 2016. - 432 с.
2. Жебентяев А.И. Токсикологическая химия – ВГМУ, 2014. Ч.1 – 405с.
3. Жебентяев А.И. Токсикологическая химия – ВГМУ, 2015. Ч.2 – 415с.
4. Токсикологическая химия: учебник / под ред. Т.В. Плетеневой. – 4-ое изд. – М., 2013. – 512 с. Переплет.

на казахском языке:

1. Арыстанова Т.А. Биологиялық материалдан экстракция әдісі арқылы оқшауланатын улы және күшті әсерлі заттар тобы. Оқу құралы – Шымкент, 2012.- 186 б.
2. Арыстанова Т.А. Биологиялық материалдан минералдау әдісімен оқшауланатын улы және күшті әсерлі заттар тобы. Оқу құралы – Шымкент, 2012.- 100 б.
3. Мұхаметжанов, А. М. Химиялық қарудың жалпы және медицина-тактикалық сипаттамасы: оқу құралы. - 2-бас. - Қарағанды: ЖК "Ақ Нұр", 2013.
4. Ордабаева С.Қ., Серікбаева А.Д., Қарақұлова А.Ш., Жұматаева Г.С. Сот-химиялық сараптау және аналитикалық диагностика. Оқу-әдістемелік құралы. – Алматы: «Эверо» баспасы, 2016. -280б.
5. Серикбаева А.Д. Токсикологиялық маңызды дәрілік улардың химия-токсикологиялық талдуы. Оқу құралы. – Шымкент: ОҚМА, 2022.-200б.
6. Шүкірбекова А.Б. Токсикологиялық химия. Оқулық - Алматы: ЖШС «Эверо», 2020.-410 б.

1. Department: Pharmaceutical and Toxicological Chemistry
2. Specialty: 6B10106 "Pharmacy"
3. Course: 4
4. Level of preparation: undergraduate
5. The name of the elective discipline: " Bioanalytical chemistry and toxicology"
6. Number of credits: 4 credits
7. The objectives of the curriculum: developing theoretical knowledge of the mechanisms of action of xenobiotics, the features of their clinical and toxicological analysis, interpretation of

results, the acquisition of practical skills for analyzing xenobiotics using modern physicochemical methods: spectral, electrochemical, chromatographic, immune, etc. The study of the subject is aimed at achieving professional competencies of the future specialist (toxicologist chemist) in the field of clinical and toxicological analysis of xenobiotics in modern laboratories.

8. Tasks of the curriculum:

• to give students knowledge of the basic principles, procedure for organizing, conducting analytical diagnostics of acute poisoning, in accordance with current legislation;

• provide students with knowledge of the properties (physical, chemical), toxicodynamics and toxicokinetics of xenobiotics and their metabolites;

• teach students how to conduct chemical toxicological analysis of toxicologically important substances at the stages of clinical toxicological examination and analytical diagnosis of acute poisoning.

9. Discipline content : Analysis of certain groups of toxicologically important substances and prohibited substances WADA using GC-MS, HPLC-MS-NMR, HPLC-ICP-MS, GC-IR-FTIR, GDS, CE-ICP-MS etc. Conducting research on the requirements of international organizations for standardization and quality (ISO. OECD, EU).

10.Justification of the choice of discipline:

The problem of chemical safety has acquired global importance in our time. It is known that society is able to successfully counter such threats, if it is possible to quickly and reliably diagnose new toxic agents, as well as monitor and prevent the state of existing problems. The main factor determining the rates and volumes of toxicological studies in the world is a huge number of chemicals that come into circulation every year, the diversity of their structures and properties, as well as the associated risks.

In recent years, the requirements for the ability of institutions to perform at the modern level of development of analytical techniques and methodology, large volumes of specialized studies, different in nature substances within the framework of judicial chemical, clinical toxicological, anti-doping, environmental, forensic examinations, as well as in the field of occupational pathology, clinical pharmacology, etc. At the same time methods of detection, identification and quantification of toxicants are constantly being improved and complicated. Much attention at the lessons on this elective will be given to the methodology of chemical-toxicological analysis, the interpretation of its results, as well as ensuring the quality of analysis, proper laboratory practice (GLP principles in a modern laboratory), implementation of the validation system and qualifications in the laboratory. The modern state of analytical studies of toxicants in biological objects will be fully reflected in the classes, new methods of sample preparation of biological samples, methods for the determination of toxicants in biological media by various analytical systems (gas chromatography, high performance liquid chromatography, FTIR, etc.) will be presented.

In an elective course, students will study the issues of chemical-toxicological analysis for the diagnosis of professional and environmentally dependent diseases, doping agents, as well as substances that can be used in biological terrorism.

11. Learning outcomes (competencies):

Knowledge (cognitive sphere)	Skills and skills (psychomotor sphere)	Personal and professional competencies (relationships)
• know the organizational, legal, legal and methodological basis for conducting chemical-toxicological examination and analytical diagnostics in case of acute poisoning with poisonous, potent, narcotic and drug-addictive substances; • know the methodology of the systemic chemical-toxicological analysis of toxic and highly active substances.	• be able to conduct chemical-toxicological studies of material evidence on various toxic substances (biological, physico-chemical and chemical); • be able to interpret the results of chemical-toxicological analysis; • possess the skills of conducting chemical and toxicological research;	• to be ready for independent work and to carry out their activities, taking into account moral and legal norms adopted in the society, to comply with laws and regulations on work with confidential information; • be able to design and implement their own educational trajectory

	• possess the skills to document the conduct of laboratory and expert research (drawing up the opinion and chemical toxicological research report).	throughout life, ensuring success and competitiveness; • to be able to effectively collaborate with other people: build effective communications, collaborate with colleagues, and establish maximum trusting relationships with partners.

12. Prerequisites: toxicological chemistry

13. Post requisites: professional activities

14. Literature:

на русском языке:

5. Вергейчик Т.Х. Токсикологическая химия: учебник для студентов фарм. вузов и факультетов / Т.Х. Вергейчик ; ред. Е.Н. Вергейчик . - 5-е изд., перераб. и доп. - М.: МЕДпресс-информ, 2016. - 432 с.
6. Жебентяев А.И. Токсикологическая химия – ВГМУ, 2014. Ч.1 – 405с.
7. Жебентяев А.И. Токсикологическая химия – ВГМУ, 2015. Ч.2 – 415с.
8. Токсикологическая химия: учебник / под ред. Т.В. Плетеневой. – 4-ое изд. – М., 2013. – 512 с. Переплет.

на казахском языке:

7. Арыстанова Т.А. Биологиялық материалдан экстракция әдісі арқылы оқшауланатын улы және күшті әсерлі заттар тобы. Оқу құралы – Шымкент, 2012.- 186 б.
8. Арыстанова Т.А. Биологиялық материалдан минералдау әдісімен оқшауланатын улы және күшті әсерлі заттар тобы. Оқу құралы – Шымкент, 2012.- 100 б.
9. Мұхаметжанов, А. М. Химиялық қарудың жалпы және медицина-тактикалық сипаттамасы: оқу құралы. - 2-бас. - Қарағанды: ЖК "Ақ Нұр", 2013.
10. Ордабаева С.Қ., Серікбаева А.Д., Қарақұлова А.Ш., Жұматаева Г.С. Сот-химиялық сараптау және аналитикалық диагностика. Оқу-әдістемелік құралы. – Алматы: «Эверо» баспасы, 2016. -280б.
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12. Шүкірбекова А.Б. Токсикологиялық химия. Оқулық - Алматы: ЖШС «Эверо», 2020.-410 б.

1. Department Organization and Management of Pharmaceutical Business
2. Undergraduate
3. Educational program 6B10106 - "Pharmacy"
4. Course 5
5. Name of the elective discipline Personnel management
6. Number of credits 5
7. Objectives: Formation of a student's holistic system of knowledge about the patterns of formation and development of the organization's human resource management subsystem as an essential element of the organization's management system as a whole, as well as the student's mastering the skills and abilities of personnel management of pharmaceutical organizations.
8. The content of the discipline:

Personnel management is a purposeful activity of the management team of the organization, as well as managers and specialists of the departments of the personnel management system, which includes the development of the concept and strategy of personnel policy and personnel management methods.

This activity consists in the formation of a personnel management system, personnel work planning, personnel marketing, determination of personnel potential and the organization's needs

for personnel. The organization's personnel management technology covers a wide range of functions from recruitment to dismissal of personnel.

It provides for information, technical, regulatory, methodological, legal and record-keeping support for the personnel management system. The heads and employees of the departments of the organization's personnel management system also solve the issues of assessing the activities of the departments of the organization's management system, assessing the economic and social efficiency of improving personnel management.

9. Tasks:

- mastering the essence and content of the organization's personnel management process;
- mastery of the conceptual apparatus of personnel management of the organization;
- assessment of the place and role of personnel management in the overall system of enterprise management;
- study of personnel management methods, formation of the skill of using a situational approach when choosing them;
- formation of the ability to analyze organizational problems through the prism of the human factor;
- development of a management decision to improve the use of human resources of the organization;
- assessment of the economic and social efficiency of projects to improve the system and processes of personnel management.

10. Rationale for the choice of discipline:

Personnel management is a purposeful activity of the management team of the organization, as well as managers and specialists of the departments of the personnel management system, which includes the development of the concept and strategy of personnel policy and personnel management methods.

This activity consists in the formation of a personnel management system, personnel work planning, personnel marketing, determination of personnel potential and the organization's needs for personnel. The organization's personnel management technology covers a wide range of functions from recruitment to dismissal of personnel.

It provides for information, technical, regulatory, methodological, legal and record-keeping support for the personnel management system. The heads and employees of the departments of the organization's personnel management system also solve the issues of assessing the activities of the departments of the organization's management system, assessing the economic and social efficiency of improving personnel management.

11. Learning outcomes (competencies)

Knowledge (cognitive sphere)	Skills and abilities (psychomotor sphere)	Personal and professional competencies (relationships)
Knows: the concept of personnel management, principles, functions, methods of personnel management, factors and subjects of personnel management, normative and methodological support of personnel management of an organization or institution; the necessary prerequisites for ensuring the operation of the personnel management system, the main forms of work with personnel, the principles and methods of managing conflicts in a team; the essence of staffing, the tasks and content of the analysis of work and human resources,	**Know and have the skills to:** work with special literature of fundamental and applied nature; develop standard documents used by personnel management services; systematize, summarize, analyze the factual material on the problems of personnel management; conduct a systematic analysis of the organization's personnel management; substantiate conclusions and proposals for improving personnel management technologies. have the skills to:	– about methods and technologies of planning and implementation of personnel strategy, motivation of labor activity; – training and development of personnel, regulation of conflicts and labor disputes. – manage conflict situations; - implement personnel policy.

planning the need for personnel, technologies for recruiting, selecting and releasing personnel; the essence, tasks and factors of career planning, the content of the processes of individual and organizational career planning, the sequence and rules for passing individual stages of employment; goals and factors of training and development of personnel, forms and types of development of employees, methods of training employees, principles and content of organizational development, technology for designing a learning organization; the mechanism for evaluating the performance of employees, the essence, goals, object, subject and subjects of evaluation, methods for evaluating performance, the content of the procedure for evaluating performance, the rules for conducting evaluation interviews; the structure of the employee remuneration system, the factors that form the remuneration of employees, the features of the remuneration of managers; Ensuring the safety of work at the workplace and maintaining the health of employees.	Methods for calculating the need for personnel, determining the level of efficiency of personnel management, calculating the main indicators of the state and dynamics of the organization's personnel and the effectiveness of its use.	

12. Prerequisites bioethics with the basics of communication skills; organization of pharmaceutical activities;

13. Postrequisites pharmaceutical management and marketing.

14. Literature

1. Shertaeva K.D., Mamytbaeva K.Zh., Zhanbyrbaeva A.D., Personnel management - Textbook. - Shymkent. – 2018.-121p.

2. Arystanov, Zh. M. Management and marketing in pharmacy: textbook - Almaty: Evero, 2016.

3. Fundamentals of marketing: textbook. for honey. schools and colleges / ed. I. V. Lipsitsa, M. N. Dymshitsa; - M. : GEOTAR - Media, 2014. - 208 p.

4. Blinova, O. V. Pharmaceutical management: textbook / O. V. Blinova; Ministry of Health of the Republic of Kazakhstan; SKFA. - Shymkent: Zhasulan, 2013. - 165 p.

5. Shertaeva, KD Pharmaceutical consulting: textbook. allowance / K. D. Shertaeva 6 G. Zh. Umurzakova, K. Zh. Mamytbaeva; Ministry of Health of the Republic of Kazakhstan; SKFA. - Shymkent: Zhasulan, 2013. - 81 p.

6. Shertaeva, KD Pharmaceutical marketing: textbook. - Shymkent: B. and., 2012.

: oku-adistemelik құral / K. D. Shertaeva, A. D. Zhanbyrbaeva; OKMFA. - 2-bass, tuzet. Zhane tolykt. - Shymkent: B. J., 2012. - 150 bet. With.

1. Department of Organizations and management of pharmaceutical business
2. Bachelor course
3. Educational program 6B10106 - "Pharmacy"
4. Course 5
5. The name of the elective discipline Pharmaceutical logistics with the basics of entrepreneurship.
6. Number of credits 5
7. Objectives: formation of students' system knowledge and understanding of the conceptual foundations of pharmaceutical logistics and acquisition of skills in modern methods of managing material and other flows in modern conditions. The purpose of studying the basics of entrepreneurship is to form students' knowledge on the organization of pharmaceutical business and the activities of pharmaceutical enterprises in market conditions.
8. Tasks: formation of students' system knowledge and understanding of the conceptual foundations of pharmaceutical logistics and acquisition of skills in modern methods of managing material and other flows in modern conditions. The purpose of studying the basics of entrepreneurship is to form students' knowledge on the organization of pharmaceutical business and the activities of pharmaceutical enterprises in market conditions.
9. Tasks:

- to familiarize students with the definitions, concepts, tasks and functions of logistics;
- to familiarize with the factors and levels of development of pharmaceutical logistics, information logistics systems in pharmacy;
- to give an idea of the tasks and functions of procurement logistics and supplier selection;
- to form an idea of the types and categories of stocks in the system of pharmaceutical organizations and distribution channels of pharmaceutical products;
- to form knowledge about the design of an effective logistics inventory management system, about keeping records of failures in suppliers of pharmaceutical products.
- to give an idea of the content and essence of entrepreneurial activity;
- to familiarize with the main directions and prospects for the development of entrepreneurship in pharmacy;

10. Justification of the choice of discipline:

A necessary condition for the effective operation of a pharmaceutical company is logistics, i.e. the representation of the functioning of the company as the management of economic flows, tracking their movement from the start to the end points - from suppliers to consumers.

11. Learning outcomes (competencies)

Knowledge (congruent sphere)	**Skills and attainments (psychomotor sphere)**	**Personal and professional competencies (relationships)**
Knows: - the structure of the management system of drug provision of the population in the Republic of Kazakhstan; - evolution of development, concept, relevance and main aspects of logistics; - factors and levels of development of pharmaceutical logistics, about information logistics systems in pharmacy; - tasks and functions of procurement logistics, and selection methods supplier; - categories and types of stocks in the system of pharmaceutical	**Be able to:** - organize planning, procurement of pharmaceutical products and medical products; - analyze and determine the need and calculation of purchased pharmaceutical products; - to place and receive an order for pharmaceutical goods and MI to place and receive an order for pharmaceutical goods and IMN; - to organize commodity research, transportation and warehousing of	- to improve the work with the information flow in the logistics system; maintain stable contacts in the business sphere and be ready to help in case of problems.

organizations, distribution channels of pharmaceutical products; - accounting documentation in case of failures in the supply of pharmaceutical products and methods of designing an effective logistics inventory management system.	pharmaceutical goods and IMN; - to account for failures in the logistics system of pharmaceutical products and IMN.	

12. Prerequisites: Pharmacy management and Economics

13. Post-requirements: practical professional activity

14. Literature

4. Мэрфи, П. Р. Заманауи логистика: оқулық / П. Р. Мэрфи, А. М. Кнемейер ; ағылшын тіл. ауд. И. Баймұратова, Қ. М. Төреханова. - 11-бас. - Алматы: Дәуір, 2017. - 176 б. с.
5. Дәріс кешені "Фармацевтикалық логистика" пәні бойынша [Мәтін] : дәріс кешені = Лекционный комплекс по дисциплине -"Фармацевтическая логистика" : лекционный комплекс / Фармация ісін ұйымдастыру және басқару кафедрасы. - Шымкент: ОҚМФА, 2015. - 82 бет.
6. Кәсіпкерлікті ұйымдастыру: оқу құралы / К. Н. Оразбаева [ж. б.]. - ; ҚР БҒМ Атырау мұнай және газ ин-ның ғыл. кеңесі ұсынған. - Алматы : Эверо, 2010. - 204 бет. с.
7. Кәсіпкерлік қызмет негіздері : оқулық / К. Д. Шертаева, О. В. Блинова , Ж. К. Шимирова. - Шымкент : ОҚМА, 2019. - 151 беn
8. Основы предпринимательской деятельности : учебник / К. Д. Шертаева, О. В. Блинова , Ж. К. Шимирова. - Шымкент: ЮКМА, 2019. - 152 с.

Дополнительная:

1. Мэрфи, П. Р. Заманауи логистика: оқулық / П. Р. Мэрфи, А. М. Кнемейер ; ағылшын тіл. ауд. И. Баймұратова, Қ. М. Төреханова. - 11-бас. - Алматы: Дәуір, 2017. - 176 б. с
2. Кәсіпкерлікті ұйымдастыру: оқу құралы / К. Н. Оразбаева [ж. б.]. - ; ҚР БҒМ Атырау мұнай және газ ин-ның ғыл. кеңесі ұсынған. - Алматы: Эверо, 2010. - 204 бет. с

1. Department of Organizations and management of pharmaceutical business

2. Bachelor course

3. Educational program 6B10106 - "Pharmacy"

4. Course 5

5. Name of the elective discipline Pharmaceutical management and marketing

6. Number of credits 5

7. Objectives: The purpose of studying pharmaceutical management and marketing is to form students' knowledge about the main activities of pharmacy institutions, providing the opportunity to find the most effective, economical, resource-saving, environmentally friendly ways and methods of providing pharmaceutical care to the population and medical professionals.

8. Justification of the choice of discipline: Fundamentals of pharmaceutical marketing. Commodity policy of pharmaceutical organizations. Development of the theoretical foundations of management. Methodological foundations of pharmaceutical management. Organization as an object of pharmaceutical management. Fundamentals of personnel management of pharmaceutical organizations.

9. Tasks:

- give an idea of the content and essence of marketing;
- to form an idea about the product, product nomenclature and assortment in pharmaceutical marketing;
- to familiarize with the pricing policy of the pharmaceutical company;
- teach to promote pharmaceutical products;
- give an idea of the main types of market, market capacity, market potential;
- to familiarize with the role and place of sales in the structure of marketing tasks;
- to form a systematic knowledge of marketing research;
- familiarize with marketing planning and the procedure for developing a marketing plan;
- to form a provision about the technology of managerial decision-making;

- to familiarize with the principles of delegation of authority;
- give the concept of motivation of activities and people;
- to familiarize with the personnel policy of pharmaceutical enterprises;
- to give an idea of the management styles of the workforce.

10. Justification of the choice of discipline:

The results of the activities of pharmaceutical enterprises in a market economy are largely determined by the level of use of the fundamentals of management and marketing.

Management, on the one hand, is a type of activity for the management of people in a variety of organizations, including pharmacies. On the other hand, management is accumulated common sense and positive practical experience based on the ability not to repeat previously committed mistakes.

The management of pharmacy organizations in market conditions is much more complicated. This is due to the expansion of the rights and responsibilities of pharmacy organizations, as well as the need for more flexible adaptation to environmental changes.

Marketing is an activity aimed at achieving the company's goals through satisfying customer needs by managing the flow of goods and services going from the manufacturer to the consumer.

Marketing activity can be considered both as a kind of concept and as a way of action of the manufacturer in the market. As a concept, marketing is a set of scientifically based ideas about enterprise management in a competitive economy.

As a mode of action of the manufacturer, marketing is a system of measures to increase the competitiveness of the enterprise by maximizing the adaptation of all activities and products to the requirements of the market and the consumer.

11. Learning outcomes (competencies)

Knowledge (congruent sphere)	**Skills and attainments (psychomotor sphere)**	**Personal and professional competencies (relationships)**
Knows: - modern marketing concepts - marketing principles; - development of pharmaceutical marketing - model of analysis of consumer properties of goods; - product life cycle; - pharmaceutical company's product policy; - principles of pricing in pharmacy; - forecasting the need for individual groups of medicines; - features of the communication policy; - the market as the economic basis of marketing; - analysis of the range of pharmaceutical products; - distribution of pharmaceutical products; - advertising and promotion of pharmaceutical products; - structure and essence of marketing research; - strategic marketing planning; - theoretical foundations of management; - management decision-making technology;	**- Be able and possess skills:** - to carry out the classification of pharmaceutical products; - conduct pricing policy; - to form a communication policy; - to carry out sales promotion; - determine the market capacity, market potential; - manage distribution channels; - conduct SWOT analysis; - determine the demand and needs in the pharmaceutical market; - classify marketing information; - make management decisions; - manage an organization based on delegation of authority; - to carry out motivation of labor activity; - document management decisions.	manage a conflict situation; implement personnel policy; - be able to work in a team.

- functions and methods of management decisions; - functions and management methods; - principles of delegation of authority; - organization as an object of pharmaceutical management - motivation of work activity; - communications in the management of pharmaceutical organizations; - management styles of the workforce; - fundamentals of personnel management.		

12. Prerequisites: pharmacology, organization of pharmaceutical activity, management and economics of pharmacy.

13. Post-requirements: pharmaceutical logistics with the basics of entrepreneurship, organizational foundations of good practices in pharmacy.

14. Literature

1. Arystanov, J. M. Management and marketing in pharmacy: a textbook / J. M. Arystanov, A. T. Tokseitova. - Almaty: Evero, 2016. – 532 p.

2. Blinova, O. V. Pharmaceutical management: textbook / O. V. Blinova; Ministry of Healthcare of the Republic of Kazakhstan; YUKGFA. - Shymkent: Zhasulan, 2013.- 165 p.

3. Shertaeva, K. D. Pharmaceutical marketing: textbook / K. D. Shiryaeva; Ministry of Health of the Republic of Kazakhstan; Rep. Center for Innovative Technologies of Medical Education; UCGFA. - Shymkent: B. I., 2012. - 152 p.

Additional:

4. Management and economics of pharmacy: textbook/ edited by I.A. Narkevich. – M.: GEOTAR-Media, 2017. – 928 p.

1. Department of Organization and Management of Pharmaceutical Business

2. Bachelor's degree

3. Educational program 6B10106 - "Pharmacy"

4. Course 5

5. Name of the elective discipline Organizational foundations of Good Practices (GXP)

6. Number of credits 3

7. Objectives: The purpose of studying this discipline is to form a complex of knowledge among future specialists regarding the basic principles, categories, methods and tools of quality management in modern pharmaceutical organizations, generalized main achievements of theory and practice in the field of quality management, ideas about the system organization of management processes.

8. Content of the discipline:

The concept of Proper Pharmaceutical (GXP) and their role in quality assurance at all stages of the drug life cycle. The basic principles of Good practices in the field of drug treatment (GMP, GDP, GDP, GPP) in Kazakhstan. International standardization. Organizational and methodological foundations of modern quality management systems. Quality management systems for organizations and their implementation at enterprises. The state system of standardization in Kazakhstan. Certification of the quality system. The concept of quality assurance and basic management systems in the pharmaceutical industry

9. Tasks:

- to familiarize with the concept of proper pharmaceutical (GXP) and their role in quality assurance at all stages of the life cycle of medicines;

- to familiarize with the sequence of stages of creating a quality system at the enterprise, based on a process approach, and ensuring its effective functioning based on the concept of continuous improvement;
- to familiarize students with the procedure for applying international standards in the process of creating and certifying a quality system at the enterprise and conducting internal and external audits of the quality management system.
- to reveal the essence of the basic concepts and principles of quality management of pharmaceutical products and services;
- to provide a methodology for creating quality management systems at pharmaceutical enterprises;
- to outline the methods of using various tools for implementing the quality management function.
- teach to apply statistical methods of quality management in operational activities in the process of ensuring the quality of technological operations;

10. Justification of the choice of discipline:

It is necessary to form a complex of knowledge among future specialists regarding methods and tools of proper quality management in modern pharmaceutical organizations, ideas about the systematic organization of quality management processes at the enterprise that meets the requirements of international standards and the acquisition by future specialists of skills for successful work in market conditions.

11. Learning outcomes (competencies)

Knowledge (congruent sphere)	**Skills and attainments (psychomotor sphere)**	**Personal and professional competencies (relationships)**
demonstrate knowledge and understanding in the field under study - the subject and objectives of the discipline; methods of ensuring, monitoring and evaluating the quality of pharmaceutical products; industry standard systems, a set of appropriate pharmaceutical practices; the concept of appropriate pharmaceutical (GXP) and their role in quality assurance at all stages of the life cycle of medicines, the regulatory framework of the RK quality assurance system of medicines; - understands the importance of the ability to "listen and hear", i.e. demonstrates the principles of pharmaceutical ethics and deontology, customer orientation.	- formulates its own conclusions in the form of recommendations on the quality system; argues for its own choice of methods and quality management tools; develop documentation of the organization's quality management system according to the requirements of ISO 9001 standards when building the system and preparing the enterprise for certification; forms a systematic thinking in the field of providing pharmaceutical care to the population - provides scientific advisory services to medical personnel and citizens on quality assurance system issues; searches for information to solve professional problems in the field of quality system; develops standards of operational procedures; demonstrates multiculturalism and openness with a conscious approach to work.	- systematizes the acquired knowledge in the field of quality system and adapts it to practical activities; has intersectoral communication at the intersection of disciplines: drug technology, pharmaceutical chemistry, pharmacy management and economics, pharmacognosy; applies information based on IT technology in the field of professional activity.

12. Prerequisites of the discipline: organization of pharmaceutical activity and history of pharmacy, management and economics of pharmacy.

13.Post-requirements of the discipline: practical professional activity

14. Literature

На русском языке:

Основная:

1. Приказ и.о. Министра здравоохранения Республики Казахстан от 4 февраля 2021 года № ҚР ДСМ-15. «Об утверждении Надлежащих фармацевтических практик»:
2. УМКД размещен на образовательном портале ukma.kz
1. Электронная библиотека «Консультант студента». Ссылка для доступа: http://www.studmedlib.ru, ЛОГИН ibragim123, ПАРОЛЬ Libukma123
2. Сайт библиотечно-информационного центра академии lib.ukma.kz
3. Медиатека ЮКМА https://media.skma.edu.kz/
4. Цифровая библиотека «Aknurpress» www.aknurpress.kz пройдите регистрацию и укажите промокод SDH-28
5. ОҚМА Репозиторийі http://lib.ukma.kz/repository/
6. Республикалық жоғары оқу орындары аралық электрондық кітапхана http://rmebrk.kz/
7. «Заң» нормативтік-құқықтықактілербазасы https://zan.kz/ru
8. «Параграф Медицина» ақпараттықжүйесіhttps://online.zakon.kz/Medicine/
9. Кодекс Республики Казахстан от 7 июля 2020 года№ 360-VI «О здоровье народа и системе здравоохранения» (с изменениями и дополнениями). Гл. 2, ст. 10; гл. 5, параграф 3; гл. 27,28; https://online.zakon.kz/document/?doc_id=34464437
10. Приказ Министра здравоохранения Республики Казахстан № ҚР ДСМ-305/2020 от 21 декабря 2020 года «Об утверждении номенклатуры специальностей и специализаций в области здравоохранения, номенклатуры и квалификационных характеристик должностей работников здравоохранения». https://adilet.zan.kz/rus/docs/V2000021856
11. Приказ Министра здравоохранения Республики Казахстан от 17 сентября 2020 года № ҚР ДСМ-104/2020 Об утверждении Правил оптовой и розничной реализации лекарственных средств и медицинских изделий. https://adilet.zan.kz/rus/docs/V2000021229#z129
1. Руководство «Лекарственные средства. Надлежащая практика дистрибьюции» (СТ-Н МОЗУ 42-5.0:2008).
2. Руководства по Надлежащей практике хранения фармацевтической продукции («Guidetogoodstoragepracticesforpharmaceuticals»). Всемирная организация здравоохранения. Цикл технических отчетов ВОЗ, № 908, 2013.
3. Шубенкова Е.В. Тотальное управление качеством: учебное пособие / Е.В. Шубенкова. - М.: ЭКЗАМЕН, 2015. - 256 с.
4. Салимова, Т.А. История управления качеством: учебное пособие / Т.А. Салимова, Н.Ш. Ватолкина. – М. : КНОРУС, 2015. – 256 с.
5. Абутидзе З.С. Управление качеством и реинжиниринг организации: учеб.пособие / З.С. Абутидзе, Л.Н. Александровская, В.Н. Бас и др. - М.: Логос, 2013. - 328 с.

Дополнительная:

1. Арыстанов, Ж. М. История фармации: учебное пособие / Ж. М.- Алматы :Эверо, 2016. - 184 с.
2. Арыстанов, Ж. М. Организация фармацевтической деятельности: учеб. пособие . - Алматы : Эверо, 2015. - 608 с.
3. Управление и экономика фармации: учебник/под ред. И.А. Наркевича. – М.: ГЭОТАР-Медиа, 2017. – 928 с.

1. Department of Organization and Management of Pharmaceutical Business

2. Undergraduate

3. Educational program 6B10106 - "Pharmacy"

4. Course 5

5. Name of the elective discipline: Legal foundations of pharmaceutical activity and paperwork.

6.Number of credits 5

7. Objectives: the formation of students' systemic knowledge and understanding of the legal foundations of pharmaceutical activities, record keeping and the acquisition of skills in applying the basic legal norms of constitutional, civil, labor, administrative and criminal law, in the field of circulation of medicines, for their future professional activities.

8. Content of the discipline

Being an interdisciplinary science, the legal basis of pharmaceutical activity and office work is a set of legal norms of various branches of law:

- constitutional - the norms of which establish the main guarantees of the state in the field of protecting the health of citizens, engaging in pharmaceutical activities;
- civil - regulating property and personal non-property relations in the field of healthcare and drug supply;
- labor - determining the specifics of labor relations of pharmaceutical workers;
- administrative and criminal - establishing legal liability for violations of regulations protected by this industry in the field of circulation of medicines in the pharmaceutical market.

9. Tasks:

- to form knowledge on the state regulation of pharmaceutical activities.
- to form knowledge on the organization and workflow of all types of activities in the field of pharmaceutical activity (licensing, registration, certification of medicines, etc.)
- to form knowledge on the organizational and legal forms of entrepreneurial activity in pharmacy.
- to form knowledge of regulatory legal acts in the activities of pharmaceutical organizations.

10. Rationale for the choice of discipline:

The norms of pharmaceutical law are obligatory for all pharmaceutical workers and are backed up by the coercive power of the state - legal measures for their failure to comply. Therefore, knowledge of this discipline is necessary for a future specialist for high-quality pharmaceutical services to the population within the framework of legal regulation and organization of office work in accordance with the requirements of good practice standards.

11. Learning outcomes (competencies)

Knowledge (cognitive sphere)	Skills and abilities (psychomotor sphere)	Personal and professional competencies (relationships)
Knows: demonstrates knowledge of the sources of legal regulation of pharmaceutical activities subjects of pharmaceutical activity. state guarantees of quality, efficiency and safety of medicines. requirements for pharmacies. organizational and legal forms of entrepreneurial activity. requirements for pharmaceutical activity. defines the rules for licensing pharmaceutical organizations. lists the necessary documents and conditions for registering a business	**Be able to:** apply regulatory legal acts in the activities of pharmaceutical organizations. applies knowledge of the administrative, criminal, labor, civil code to prevent cases of offenses in pharmaceutical activities. conclude and draw up contracts for the supply of goods and other commercial transactions. draw up and conclude contracts. organize the purchase, advertising and wholesale and retail sales of pharmaceutical products.	- maintain stable business contacts and be ready to help in case of problems. Forms the communication policy of the organization. works in a team. applies psychological aspects in communication with the buyer.

12. Prerequisites: management and economics of pharmacy

13. Postrequisites: Organizational Framework for GXP Good Pharmaceutical Practices

14. Literatures

Main:

1. Shertaeva K.D. Utegenova G.I. Fundamentals of pharmaceutical law. Shymkent 2018. 232s
2. Utegenova G.I. Pharmaceutical industry Shymkent 2018. 232b
3. .Kazakhstan Respublikasyndagy pharmaceuticals kyzmetti retteitin Zanamalyk zhane normative -құқықтық aktiler zhinaғy: zhinaқ / құrast. B. Қ. Makhatov [t/b.]. - Shymkent: Zhasulan, 2017. - 327 bet.s.150 copies
4. Collection of Legislative and regulatory legal acts regulating pharmaceutical activities in the Republic of Kazakhstan: collection / comp. B.K. Makhatov [i dr.]. - Shymkent: Zhasulan, 2017. - 380 p. 40 copies
3.Kazakhstan Republicsyndagy pharmaceutikalyk kyzmetti retteitin Zanamalyk zhane normativtik- құқықтyk aktiler zhinagy: zhinaқ / B. Қ. Makhatov [t/b.]. - Shymkent: Zhasulan, 2016. - 316 bet. p.2 ind.
Additional:
1. Lecture complex on the discipline - Fundamentals of Pharmaceutical Law: lectures / department. organization and management of the pharmaceutical business. - Shymkent: SKFA, 2016. - 33 p. - 22 copies
2. "Pharmaceutical kenes" pani boyinsha daris kesheni. Mamandyk: 5B110300-"Pharmacy" = Abstracts of lectures on the discipline "Pharmaceutical consulting". Specialty: 5B110300-"Pharmacy": lecturer theses / KRDSM SHZhK RMK; OKMFA; Pharmacy - Shymkent: B. Zh., 2013. - 50 bet.s.10 copies.
Electronic resources:
1. Pharmaceuticals. Mamandyk: 5V110300-"Pharmacy" [Electronic resource] = Abstracts of lectures on the discipline "Pharmaceutical consulting". Specialty: 5B110300-"Pharmacy": lecturer theses / KRDSM SHZhK RMK; OKMFA;
2.Pharmacy isinuyimdastyruzhanebaskaru department. - Electronic text data (126 Mb). - Shymkent: B. Zh., 2013. - 50 bet.el. opt. disc 1 copy
3. Deryagin, G. B. Medical law [Electronic resource]: electronic textbook / G. B. Deryagin, D. I. Kicha, O. E. Konovalov. - Electronic text data (1.54 Mb). - M. : UNITI-DANA, 2011. - 237 p. email optical disk (CD-ROM). 5 copies

1. Department: Pharmaceutical and Toxicological Chemistry

2. Level of preparation: undergraduate

3. Educational program: 6B10106 - «Pharmacy»

4. Course: 5

5. The name of the elective discipline: "The standardazition of medicines and metrology "

6. Number of credits: 6 credits

7. The objectives of the curriculum: to teach the student to conduct quality control of medicines at the stages of development, production, storage and use in accordance with the regulatory documentation of the RK and with the quality standards GxP.

8. Tasks of the curriculum:

- to give students a methodology for pharmaceutical analysis of medicines at the stages of development, production, storage and use;
- to create in the students the skills and skills of conducting pharmaceutical analysis in accordance with the requirements of regulatory and technical documents to control the quality and safety of medicines.
- to provide students with knowledge of the basic principles, procedures for organizing and conducting standardization and certification of medicines;
- to consolidate the skills in the field of quality control and standardization of medicines in the conditions of the current testing laboratory;

9. Discipline content:

The current state and ways to improve the standardization of drugs in the Republic of Kazakhstan. Rules for the development of regulatory documents for monitoring the quality and safety of medicines. Pharmacopoeia methods of quality control and standardization of medicinal

substances and dosage forms. Appropriate quality standards to ensure the efficacy and safety of drugs.

10. **Justification of the choice of discipline:**

Currently, a pressing health issue in Kazakhstan is to ensure the quality, efficacy and safety of medicines (drugs). Medicinal products are a special product, the quality of which is directly related to health. The issues of quality control and standardization of medicines increase their relevance due to the general increase in the number of medicines registered in Kazakhstan, which come, as a rule, from different manufacturers. Highly active substances belonging to new classes of natural and synthetic compounds have entered medical practice, the number of replicated drugs increases annually. Falsified (counterfeit) drugs penetrate the pharmaceutical market.

In modern conditions, pharmaceutical science is rapidly developing, new directions of pharmaceutical research are emerging, new approaches to the analysis of medicines, and science-based technologies are being introduced.

All this is of undoubted interest for students, allows them to improve their knowledge, improve their professional level.

This elective discipline will prepare a graduate pharmacist for professional activities in:

• production area (pharmaceutical institutions, chemical and pharmaceutical enterprises, etc.);
• control and authorization system (licensing, certification, registration, re-registration);
• research area.

11. Learning outcomes (competencies):

Knowledge (cognitive sphere)	Skills and skills (psychomotor sphere)	Personal and professional competencies (relationships)
• know the state system of standardization and certification of drugs; • know the regulatory documents on the quality of medicines; • know systemic efficiency, safety and quality at all stages of the life cycle of drugs; • know the requirements for the development and preparation of regulatory documents on the control of the quality and safety of drugs; • know the regulatory and legal and organizational bases of metrological assurance of measurement uniformity; • know certification tests and certification procedure for medicinal products	• be able to carry out all types of pharmaceutical analysis on the quality control of medicines at the stages of development, production, storage and use; • be able to develop a quality specification based on the study of physical, chemical, pharmacological properties and production methods; • be able to conduct tests of drug quality indicators in accordance with the requirements of regulatory documentation; • be able to predict the period and conditions of storage of medicines on the basis of physical, chemical properties and method of preparation; • be able to determine the val-dation characteristics of analytical techniques	• to be ready for independent work and to carry out their activities taking into account the moral and legal norms adopted in the society, to comply with laws and regulations on work with confidential information; • be able to design and carry out their own educational trajectory throughout life, ensuring success and competitiveness; • be able to effectively collaborate with other people: build effective communications, collaborate with colleagues, and establish maximum trusting relationships with partners.

12. Prerequisites: analytical chemistry, organic chemistry, general research methods and analysis of drugs

13. Post requisites: professional activities

14. Literature:

основная:

на русском языке:

1. Арыстанова Т.А. Фармацевтическая химия, учебник, том I: - Алматы: «Эверо», 2015.-572 с.

2. Арыстанова Т.А. Фармацевтическая химия, учебник, том II:- Алматы: «Эверо», 2015.-640с.
3. Государственная фармакопея Республики Казахстан.-Алматы:«Жибек жолы», 2008.-Том 1.- 592с.
4. Государственная фармакопея Республики Казахстан.- Алматы:«Жибек жолы», 2009.-Том 2.- 804с.
5. Государственная фармакопея Республики Казахстан.-Алматы:«Жибек жолы», 2014.-Том 3.-729с.
6. Контроль качества и стандартизация лекарственных средств: методическое пособие / под ред. Раменской Г. В., Ордабаевой С. К.-М: I МГМУ; - Шымкент: ЮКГФА, 2015. - 285 с.
7. Ордабаева С.К. Анализ лекарственных препаратов, производных ароматических соединений: учебное пособие.-Шымкент: «Әлем», 2012.-250 с.
8. Раменская Г.В. Фармацевтическая химия: учебник.-М.: БИНОМ. Лаборатория знаний, 2015.-467 с.
9. Руководство к лабораторным занятиям по фармацевтической химии под редакцией Г.В. Раменской.-М.: Пилот, 2016.-352 с.
10. Халиуллин, Ф. А. Инфракрасная спектроскопия в фармацевтическом анализе: учебное пособие / - М.: ГЭОТАР-Медиа, 2017. - 160 с
11. Method validation in pharmaceutical analisis: a guide to best practice / editors dr. Joachim Ermer. - 2nd ed. - Germany: Wiley-VCH, 2015. - 418 p.
12. Watson, David G. Pharmaceutical analysis: a textboor for pharmacy students and pharmaceutical chemists / David G. Watson. - 4th ed. - Philadelphia: Elsevier, 2017. - 459 p.

на казахском языке:

1. Арыстанова Т.Ә. Фармацевтиқалық химия: оқулық.т.1-Алматы: «Әверо», 2015.-592 б.
2. Арыстанова Т.Ә. Фармацевтиқалық химия: оқулық.т.2-Алматы: «Әверо», 2015.-602б.
3. Қазақстан Республикасының Мемлекеттік фармакопеясы.-Алматы: «Жібек жолы», 2008.-1 Т.-592б.
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7. Ордабаева С.К., Қарақұлова А.Ш. Глицирризин қышқылы тундыларының дәрілік препараттарының бірыңғайланған сапасын бақылау әдістемелерін жасау: ғылыми-әдістемелік нұсқау.-Шымкент: «Әлем».- 2013.-92 б.

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1. Арзамасцев, А. П. Фармацевтическая химия [Электронный ресурс]: учеб. пособие / А. П. Арзамасцев. - Электрон. текстовые дан. (86,7 Мб). - М.: "ГЭОТАР-Медиа", 2011. - 640 с. эл. опт. диск (CD-ROM).
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3. Ордабаева, С. К. Анализ лекарственных препаратов, производных ароматических соединений Шымкент: «Әлем», 2012. - 300 с.
4. Ордабаева С.К., Каракулова А.Ш. Фармацевтикалық химия. Ароматты қосылыстар. [Электронды ресурс]: Окулык. / С. К. Ордабаева; А.Ш. Каракулова; ҚР денсаулық сақтау министрлігі. ОҚМФА. - Электронды мәтінді мәлімет (12.5Мб). - Шымкент: ОҚМФА,- Шымкент, 2016.-296 б.
5. Фармацевтическая химия [Электронный ресурс]: учебник / под ред. Т. В. Плетневой. - Электрон. текстовые дан. (50,6Мб). - М : ГЭОТАР-Медиа, 2017
6. The British Pharmacopoeia (BP 2016). – London The Stationery Office.-2016.
7. The European Pharmacopoeia 8.4.- EDQM.-2015.
8. The Japanese Pharmacopoeia, 16th edition.- 2013.
9. The International Pharmacopoeia, 5th ed. – Geneva: WHO.- 2015.

10. The United States Pharmacopeia, 38 National Formulary 33.-2015.

дополнительная:

1. Арыстанова Т.А., Арыстанов Ж.М. Инновационные технологии в фармацевтическом образовании: обучение и контроль. Учебно-методическое пособие. – Шымкент, 2012.- 175с.
2. Краснов, Е. А. Фармацевтическая химия в вопросах и ответах: учебное пособие. - М.: "Литтерра", 2016. - 352 с.
3. Ордабаева С.К., Надирова С.Н. Унифицированные методики хроматографичсекого анализа лекарственных форм метронидазола: научно-методические рекомендации.-Шымкент: «Әлем», 2015. – 84 с.
4. Турсубекова, Б. И. Бейорганикалық дәрілік заттарды талдау: оқу құралы.- Алматы: «Эверо», 2016. - 120 бет. С
5. English for the pharmaceutical industry: textbook / M. Bucheler [and etc.]. - New York: Oxford University Press, 2014. - 96 p. +эл. опт. диск (CD-ROM).
6. Cairns, D. Essentials of pharmaceutical chemistry: textbook / D. Cairns. - 4th ed. - London: [s. n.], 2013. - 308 p
7. Georgiyants V.A., Bezugly P.O., Burian G.O., Abu Sharkh A.I., Taran K.A. Pharmaceutical chemistry. Lectures for Endlish-speaking students:Ph24 the study guide for students of higher schools – Kharkiv: NUPh; Original, 2013. – 527 p.

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1. **The department of Pharmacognosy**
2. **Level of training (bachelor degree)**
3. **Educational program:** 6B10106 «Pharmacy»
4. **Course:** 5
5. **Name of elective discipline:** «Resource study and ecology of medicinal plants»
6. **Amount of credits:** 5 credits (150 hours)

7**. Purposes**: formation at students of knowledge when studying a resource study of herbs consists in mobilization of resources of flora for needs of medicine, studying by students of concrete species of herbs giving raw materials used in Kazakh the Republics.

8. Content of discipline: Resource science and ecology of medicinal plants. Resource zones and prospects of resource research in the Republic of Kazakhstan. Uniform method of determining the reserves of medicinal plants. Ecology of herbs. Impact of environmental factors on the quality of medicinal plant raw materials. Rational methods of collecting medicinal plant raw materials of different morphological groups.

9. **Tasks:**

- orientation in properties and the chemical composition of herbs according to constantly growing demand in quality phytoproducts and medicinal plant raw materials;
- orientation in properties and the chemical composition of the products of animal and mineral origin which are widely used in a modern arsenal the pharmacotherapy of medicines;
- carrying out phytochemical and merchandising analysis of raw materials of natural origin.

10. **Justification of the choice of discipline**:

Pharmacognosy (from Greek pharmacon – medicine, poison and gnoksis – studying, knowledge) – one of pharmaceutical sciences studying herbs, medicinal plant raw materials and some products of primary processing of floral and animal origin.

Considering the increased requirements of practical pharmacy and medicine to use of medicinal raw materials of plant, animal and mineral origin, the subject "Fundamentals of Pharmacognosy" considers a circle of the questions connected with preparation of medicinal plant raw materials, rational and careful attitude to resources of herbs, sources of raw materials of mineral and animal origin, processing of plant raw materials, etc.

11. **Results of training (competence)**:

Knowledge (cognitive sphere)	**Skills (psychomotor sphere)**	**Personal and rofessional competences (relations)**
To know history of development of a	To be able to use standard documentation, reference and scientific books;	To carry out macro - and the microscopic analysis of medicinal plant raw materials;

pharmacognosy and the main stages of its formation; To know the nomenclature and the chemical composition of medicinal raw materials of natural origin; To know bases of preparation of medicinal raw materials of plant, animal and mineral origin.	To be able to provide advice to patients of drugstores and to the population in questions of application, collecting, drying and storage of medicinal plant raw materials; To be able to carry out rational preparation, drying and storage of medicinal plant raw materials and to define its stocks on concrete sites.	To determine herbs by anatomic and morphological features; To carry out the merchandising analysis of raw materials of natural origin; To store medicinal raw materials taking into account features of its chemical composition and content of biologically active agents.

12. **Prerequisites:** botany, Latin, Organic chemistry, analytical chemistry, biological chemistry, ecology.
13. **Post-details:** Pharmacognosy, drug technology, pharmaceutical chemistry.
14. **Literature**

The main:

1. Токсанбаева, Ж. С. Лекарственное ресурсоведение: учебное пособие - Алматы : Эверо, 2015. - 116 с
2. Тоқсанбаева, Ж. С. Дәрілік ресурстану: оқу құралы / Ж. С. Тоқсанбаева, Ә. Қ. Патсаев, Т. С. Серікбаева. - Алматы : Эверо, 2015. - 112 бет с.
3. Фармакогнозия. Экотоксиканты в лекарственном растительном сырье и фитопрепаратах: учеб. пособие / И. В. Гравель [и др.] ; М-во образования и науки РФ. - ; Рек. ГОУ ВПО Первый Московский гос. мед. ун-т им. И. М. Сеченова. - М. : ГЭОТАР - Медиа, 2013. - 304 с.
4. Токсанбаева, Ж. С. Лекарственное ресурсоведение: учеб. пособие Ж. С. Токсанбаева, А. К. Патсаев, С. К. Сейдалиева ; М-во здравоохранения РК; ЮКГФА. - ; Утв. и разрешено в печать Методич. Совета ЮКГФА. - Шымкент : "RISO", 2014
5. Дәрілік өсімдіктер және дәрілік өсімдік шикізаттары : фармакогнозия пәні бойынша оқу құралы Джангозина Д. М. - Алматы : Эверо, 2014
6. Келімханова, С. Е. Дәрілік өсімдік шикізатының фитохимиялық және тауарлық талдауы:оқу құралы - Қарағанды : ЖК "Ақнұр", 2014
7. Тоқсанбаева, Ж. С. Дәрілік ресурстану : оқу құралы - Шымкент : "RISO", 2014.

Additional:

1. Тулемисов, С. К. Жоңғар аюқұлақ өсімдігін фармакогностикалық зерттеу] : фармация маманығы бойынша мед. ғыл. магистрі ... дис.: 6М110400 / С. К. Тулемисов ; ОҚМФА. - Шымкент : Б. ж., 2013.

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1. Тойшиева, Б. Қара андыз тамырларынан көмірқышқылдық экстракциялау арқылы экстракт алу және оны зерттеу [Электронный ресурс] : - Шымкент : Б. ж., 2013
2. Фармакологическое и химико-фармацевтическое исследование фитопрепарата из верблюжьей колючки. Рахимов К.Д., Бурашева Г.Ш., Устенова Г.О. Алматы, 2018. Aknurpress https://aknurpress.kz/login
3. Рахимов К.Д., Тургумбаева А.А., Устенова Г.О., Абуова Ж.Б. Фитопрепараты на основе сафлора. Алматы, 2019 г..

1. **The department of Pharmacognosy**
2. **Level of training (bachelor degree)**
3. **Educational program:** 6B10106 «Pharmacy»
4. **Course:** 5
5. **Name of elective discipline:** «phytocosmetology»

6. **Amount of credits:** 5 credits (150 hours)

7**. Purposes**: To introduce students to the history of phytocosmetology, phytocosmetology involves skin care using natural herbs that are not part of the cosmetic formula. Phytocosmetology and its tools - a new direction in cosmetics

8. Content of discipline: General characteristics of cosmetics based on vegetable raw materials, methods of studying their quality, effectiveness and safety. Development of perfumery and cosmetic products based on plant raw materials containing various biologically active substances, their general characteristics, application in cosmetology.

9. **Tasks:**

- to identify the advantages and disadvantages of medicinal phytocosmetics;
- study of medicinal plants used in phytocosmetics;
- study of pharmacological properties of biologically active substances of medicinal plants used in phytocosmetology;

overview of medicinal plants used in medicinal phytocosmetics, with specific examples.

10. **Justification of the choice of discipline**:

In cosmetic practice, preparations of natural compounds, which are individual substances or mixtures thereof obtained from plant raw materials, are increasingly widely used. This is due to the wide range of pharmacological activity and low toxicity of most phytopreparations.

Despite the widespread development of the production of synthetic medicines, biologically active compounds and herbal medicines continue to occupy a significant place in modern medicine and cosmetology. The purpose of the course is to describe the features of the use of medicinal plants in phytocosmetology.

11. **Results of training (competence)**:

Knowledge (cognitive sphere)	**Skills (psychomotor sphere)**	**Personal and professional competences (relations)**
Understands the essence and social significance of his future profession, shows a steady interest in it; Independently solves practical tasks of the basic category of complexity in the field of pharmaceutical activity within the competence, analyzes the working situation and its predictable changes, performs current and final control, assessment and correction.	Uses information and communication technologies in professional activities, searches for and uses information necessary for the effective performance of professional tasks, navigates in conditions of frequent technology changes in professional activities. Knows and uses knowledge in the field of pharmaceutical activity. Sets goals, motivates the activities of subordinates, organizes their work.	Independently determines the tasks of professional and personal development, is engaged in self-education, consciously plans to improve their qualifications. – Organizes the reception, storage of medicines, medicinal plant raw materials in accordance with the requirements. Effective preparation of medicinal plant raw materials in cosmetology. Substantiates the botanical, pharmacognostic characteristics of plants by diagnostic signs. Represents personal judgments on rational harvesting, drying and storage of medicinal plant raw materials and on macroscopic and microscopic analysis of LRS

12. **Prerequisites:** botany, Latin, Organic chemistry, analytical chemistry, biological chemistry, ecology.

13. **Post-details:** Pharmacognosy, drug technology, pharmaceutical chemistry.

14. **Literature**

The main:

1. Рахимов, Қ.Д.Фитохимия, фитофармакология, фитотерапия [Мәтін] : оқу құралы / Қ. Д. Рахимов, С. М. Әдекенов ; ҚР Ұлттық ғыл. акад.; "Фитохимия" халықаралық ғыл.-өндірістік холдингі.; Фармакология ин-ты. - Алматы ; Караганда : ЖШС "Жания-Полиграф", 2015. - 538 бет с
2. Рахимов Қ.Д. Фитофармакология. Фармакология - Тезаурус. [Мәтін] : оқу құралы = Фитофармакология. Фармакология -Тезаурус : учеб. пособие / Қ. Д. Рахимов ; ҚР ұлттық ғылым акад. Фармакология ин-ты; ҚР денсаулық сақтау және әлеуметтік даму Министрлігі; Қазақ мед. үздіксіз білім беру ун-ті АҚ. - 2-бас. толықт., өңд. және түзет. ; Алматы мемл. дәрігерлер білімін жетіл. ин-ты ғыл. кеңесі бас. ұсынған. - Алматы : ЖШС "Жания-Полиграф", 2015. - 528 с
3. Байзолданов, Т. Косметикалық препараттар және оларды дайындауда қолданылатын белсенді және көмекші заттар [Мәтін] : оқу құралы / Т. Байзолданов. - Алматы : Эверо, 2016. - 212 б.
4. Байзолданов, Т. Косметикалық препараттар және оларды дайындауда қолданылатын белсенді және көмекші заттар [Мәтін] : оқу құралы / Т. Байзолданов ; ҚР денсаулық сақтау министрлігің С. Ж. Асфендияров атындағы ҚазҰМУ.-Алматы:Эверо,2012. - 212 бет.
Дмитрук, С. И.
5. Фармацевтическая и медицинская косметология [Текст] : учебник / С. И. Дмитрук. - М. : Медицинское информационное агентство, 2007. - 178 с.

Additional:

1. Толоконников, Е. Г. Инновационные технологии и организация фармацевтического производства. Теория и практика, механизмы [Текст] : монография / Е. Г. Толоконников. - Караганда : "Гласир", 2010. - 248 с.
2. Токсанбаева Ж.С. Применение лекарственных растений в косметологии (учебное пособие). – Шымкент, 2002. – 56 с.

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9. Фармакогнозия. Гербарий лекарственных растений
10. Электронный ресурс] : учеб. пособие / И. А. Самылина [и др.]. - Электрон. текстовые дан. (40,5 Мб). - М. : ГЭОТАР - Медиа, 2012. - эл. опт. диск (CD-ROM).
11. Сорокина, А. А. Фармакогнозия. Гербарий лекарственнх растений [Электронный ресурс] : учебник. - Электрон. текстовые дан. (42,0 Мб). - М. : Изд. группа "ГЭОТАР-Медиа", 2012. - эл. опт. диск (CD-ROM)
12. Самылина, И. А. Фармакогнозия. Атлас. В 3 т. Т.1 [Электронный ресурс] : учебник . - Электрон. текстовые дан. (71,6 Мб). - М. : Изд. группа "ГЭОТАР-Медиа",
13. 2012. - эл. опт. диск (CD-ROM). - (Электронный учебник).
14. Самылина, И. А. Фармакогнозия. Атлас. В 3 т. Т. 2 [Электронный ресурс] : учебник . - Электрон. текстовые дан. (101 Мб). - М. : Изд. группа "ГЭОТАР-Медиа", 2012. - эл. опт. диск (CD-ROM). - (Электронный учебник)
15. Самылина, И. А. Фармакогнозия : Атлас. В 3 т. Т. 3. [Электронный ресурс] : учебник . - Электрон. текстовые дан. (142 Мб). - М. : Изд. группа "ГЭОТАР-Медиа", 2012. - эл. опт. диск (CD-ROM). - (Электронный учебник).
16. Мырзағали-ұлы Ә., Дүйсембаева Б. Фармакогнозия: оқу құралы. 2018 Мырзағали-ұлы Ә., Дүйсембаева Б. Фармакогнозия: оқу құралы. 2018