



MINISTRY OF HEALTH OF UKRAINE  
NATIONAL UNIVERSITY OF PHARMACY  
Department of organization and economy of pharmacy

**MEDICAL AND PHARMACEUTICAL COMMODITY SCIENCE**

(Course Name)

**WORK PROGRAM  
of educational component**

training for \_\_\_\_\_ second (master's) degree  
(Higher Educational Level Name)  
in specialty « 226 Pharmacy, industrial pharmacy »  
(Code and Specialty Name)  
field of knowledge « 22 Healthcare »  
(Code and Knowledge Field Name)  
of educational program « Pharmacy »  
(Educational Program Name)  
in specialization(s) \_\_\_\_\_  
(name of specialization, if available)

2023

The work program of the educational component Medical and pharmaceutical commodity science in specialty 226 Pharmacy, industrial pharmacy educational program Pharmacy in specialization (s) for applicants for higher education 4 year of study.

Educational course team:

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Work program has been considered and approved at the Department Meeting Record from «04» September 2023 № 2

a.i. head of the department



prof. Hanna Panfilova

Work program has been approved at the meeting of the Methodical Commission of economic, managerial, social and humanitarian disciplines

Record from «5» September 2023 № 1

Head of Specialized Committee



prof. Alla NEMCHENKO

## 1. The Description of the educational component

**Language of study: English**

**Status of the educational component:** compulsory.

Medical and pharmaceutical commodity study is the main discipline, the purpose of which is to train staff of pharmacy workers and employees of the "Medical equipment" network to carry out professional commodity-related functions related to the provision of medical and prophylactic institutions and the population with medicinal products and medical products, as well as training pharmacists in the skills of treatment with medical instruments, devices, equipment, etc. In order to navigate the arsenal of these goods, carry out their acceptance, conduct commodity analysis, organize proper storage and transportation, as well as the implementation of products, the pharmacist must possess specific knowledge in the field of commodity science.

**Prerequisites for studying the educational component:** organization and economy of pharmacy

**The subject** of the educational component «Medical and pharmaceutical commodity science» is mastering the technique of conducting commodity science analysis; study of the requirements for the quality of drugs, medical products and the rules for their acceptance; study of factors influencing the quality of drugs and medical products; organization of rational ways of their storage.

**Information content of the educational component.** To study the course is given 120 hours 4 ECTS credits

## 2. Objectives and tasks of the educational component

The purpose of

«Medical and pharmaceutical commodity science» is classification and assortment of goods, their field of application, technical requirements for checking their quality at the acceptance of goods, rational choice of packaging, requirements for containers and sealing products, marking, organization of storage and transportation of various types of goods.

The **main tasks** of the course «Medical and pharmaceutical commodity science» is knowledge of normative legal, legislative acts of Ukraine and recommendations of appropriate pharmaceutical practices; learn to carry out commodity analysis, make acceptance of different groups of goods, organize their storage, transportation and realization.

## 3. Competence and planned educational outcomes

Educational component «Medical and pharmaceutical commodity science» provides acquisition of competencies by applicants for higher education the following **competences**:

• General:

- GK 1. Ability to act socially responsibly and consciously.
- GK 2. Ability to apply knowledge in practical situations, to make informed decisions.
- GK 4. Ability to abstract thinking, analysis and synthesis, to learn and be modernly trained.
- GK 6. Knowledge and understanding of the subject area and understanding of professional activity.
- GK 9. Skills of using information and communication technologies.
- GK 10. Ability to choose a communication strategy, the ability to work in a team and with

experts from other fields of knowledge / types of economic activity.

GK 11. Ability to evaluate and ensure the quality of work performed.

GK 14. Ability to preserve and multiply moral, cultural, scientific values and achievements of

society based on understanding the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and in the development of society, techniques and technologies, use different types and forms physical activity for active recreation and a healthy lifestyle.

- Special (professional, subject):

PC 1. Ability to conduct sanitary and educational work among the population in order to prevent common diseases, prevent dangerous infectious, viral and parasitic diseases, as well as to promote timely detection and maintenance of adherence to treatment of these diseases in accordance with their medical and biological characteristics and microbiological characteristics .

PC 2. Ability to provide advice on prescription and over-the-counter drugs and other products of the pharmacy range; pharmaceutical care in the selection and implementation of over-the-counter drugs by assessing the risk / benefit ratio, compatibility, indications and contraindications based on data on the health status of a particular patient, taking into account biopharmaceutical, pharmacokinetic, pharmacodynamic and physicochemical characteristics of the drug. .

PC 3. Ability to provide pre-medical care to patients and victims in extreme situations and emergencies.

PC 4. Ability to ensure the rational use of prescription and over-the-counter drugs and other products of the pharmacy range according to physicochemical, pharmacological characteristics, biochemical, pathophysiological features of a particular disease and pharmacotherapeutic regimens for its treatment.

PC 7. Ability to ensure proper storage of medicines and other products of the pharmacy range in accordance with their physicochemical properties and the rules of good storage practice (GSP) in health care facilities.

PC 8. Ability to organize pharmacy activities to provide the population, health care facilities with medicines and other products of the pharmacy range and implement appropriate reporting and accounting systems (management, statistical, accounting and financial) in accordance with the requirements of the National Medical Policy, Good Pharmacy Practice (GPP) and carry out commodity analysis, administrative proceedings, taking into account the organizational and legal norms of pharmaceutical legislation.

PC 12. Ability to use in professional activities knowledge of regulations, legislation and recommendations of good pharmaceutical practices.

PC 13. Ability to demonstrate and apply in practice communication skills, fundamental principles of pharmaceutical ethics and deontology, based on moral obligations and values, moral standards of professional conduct and responsibility in accordance with the Code of Ethics for Pharmaceutical Workers of Ukraine and WHO guidelines.

PC 16. Ability to organize and conduct the procurement of medicinal plant raw materials in accordance with the rules of good practice of cultivation and collection of plant raw materials (GACP), as a guarantee of the quality of medicinal plant raw materials and medicines based on it. Ability to predict and calculate ways to solve the problem of conservation and protection of thickets of wild medicinal plants in accordance with applicable law.

PC 17. Ability to organize and implement general and marketing management of assortment, product innovation, pricing, sales and communication policies of pharmaceutical market participants based on the results of marketing research and taking into account market processes in national and international markets, manage the risk of pharmaceutical supply.

PC 19. Ability to organize and control the quality of medicines in accordance with the requirements of the current State Pharmacopoeia of Ukraine and good practices in pharmacy, determine methods of sampling for control of medicines and standardize them in accordance with current requirements, prevent the spread of counterfeit medicines.

- Integral:

Ability to solve typical and complex specialized problems and practical problems in professional pharmaceutical activities in the field of health care on a socially-oriented basis or in the learning process, which involves chemical, biopharmaceutical, biomedical, sociological, etc.

research and / or innovation and is characterized by uncertainty of conditions and requirements; integrate knowledge, critically comprehend and solve complex issues, make decisions in complex unpredictable conditions, formulate judgments in the presence of incomplete or limited information, taking into account aspects of social and moral responsibility; clearly and unambiguously communicate their conclusions and knowledge, reasonably substantiating them, to a professional and non-professional audience

As a result of studying the course, the applicant for higher education will be able to *know*:

- standard documentation for medical and pharmaceutical products;
- the range of types and brands of medical and pharmaceutical products;
- conditions of transportation of medical and pharmaceutical products;
- order of providing of inspection analysis of medical and pharmaceutical products;
- rules of acceptance of the goods;
- evaluation of quality of the goods by indicators: appearance, packaging, labeling products;
- accompanying documentation for specific types of goods;
- storage conditions for each group of products.

*do*:

- check the correctness of the proposed document in accordance with the contract for the supply of products;
- make the necessary documents when identifying the shortage of goods by quantity or quality;
- to conduct a commodity analysis of all types of goods that can purchase and sell pharmacy networks in accordance with the documentation for them;
- fill out the necessary documentation for the accepted product;
- distribute accepted goods in storage departments;
- accept and release the goods based on their expiration date;
- to verify the correctness of storage of medicinal products in accordance with their physical and chemical properties.

*have*:

- methods for assessing the quality of materials and goods;
- technologies for forecasting the impact on the quality of goods of various factors and the adoption of measures that prevent this impact;
- knowledge of the choice of normative documents for the conduct of commodity assessment of the quality of goods and materials;
- methods of determining commodity types of groups of goods and materials according to their functional features, markings, etc .;
- technologies of registration of documents for acceptance, storage, release of goods.

#### 4. The educational component structure

Names of content modules and topics	The amount of hours												
	full time study						part time study						
	the whole amount	including					the whole amount	including					
L.		Sem	P.I.	Lab	self-study	L.		Sem	P.I.	Lab	self-study		
1	2	3	4	5	6	7	8	9	10	11	12	13	
<b>Content module 1. Theoretical bases of commodity science. Normative documentation. Classification and coding of goods. Packing, marking of medical goods. Medical devices.</b>													
<b>Topic 1.</b> Theoretical bases of commodity science.	1,5	0,5		1									

<b>Topic 2.</b> Normative documentation	3			3								
<b>Topic 3.</b> Historical aspect of commodity science.	5					5						
<b>Topic 4.</b> Classification and Coding of goods.	4			4								
<b>Topic 5.</b> Packaging and labelling of medical goods.	4,5	0,5		4								
<b>Topic 6.</b> Features of using two-dimensional coding	5					5						
<b>Topic 7.</b> Commodity analysis goods of the pharmacy assortment	5					5						
<b>Topic 8.</b> The main trends in preventing the spread of falsified GLZ and MV.	5					5						
<b>Topic 9.</b> Commodity analysis of general surgical instruments.	5					5						
<b>Topic 10.</b> Commodity analysis of individual first aid kits.	5					5						
<b>Topic 11.</b> Commodity analysis of suture materials and piercing needles	5	1		4								
<b>Topic 12.</b> Commodity analysis of instruments and devices for punctures, injections, infusions, and suction	5	1		4								

<b>Topic 13.</b> Commodity analysis of rubber products and items of care of patients.	5	1		4								
<b>Topic 14.</b> Commodity analysis of dressing materials and prepared dressing means.	3			3								
<b>Topic 15.</b> Ophthalmic optics. inspection analysis of devices and apparatus for diagnosis, correction and protection of vision organs.	5					5						
<b>Content module control 1</b>	1			1								
<b>The whole amount of hours for the content module 1</b>	67	4		28		35						
<b>Content module 2. Commodity science analysis of devices and apparatus for examination and diagnosis of the body. Package, labeling of drugs. Organization of storage.</b>												
<b>Topic 16.</b> Goods that have the right to purchase and sell pharmacy establishments and their structural subdivisions.	4			4								
<b>Topic 17.</b> Commodity analysis of devices and means for the examination and diagnosis of the body	9	1		8								
<b>Topic 18.</b> Commodity analysis of nebulizers, irrigators,	5					5						



glucometers												
<b>Topic 19.</b> Commodity analysis of hardware-free test systems	5					5						
<b>Topic 20.</b> Containers for pharmaceutical application. Closures and modern package materials in pharmacy.	5	1		4								
<b>Topic 21.</b> Packing, labelling and transporting of drugs	5	1		4								
<b>Topic 22.</b> Acceptance of commodities in pharmacy warehouse	5					5						
<b>Topic 23.</b> Features of transportation of thermolabile preparations ("Cold chain").	5					5						
<b>Topic 24.</b> Organization of storage of medicines and medical devices	4	1		3								
<b>Topic 25.</b> Wholesale drug	4					4						
<b>Content module control 2</b>	1			1								
<b>The whole amount of hours for the content module 2</b>	52	4		24		24						
<b>The final test</b>	1			1								
<b>Examination</b>												
<i>The whole amount of hours for the course</i>	120	8		53		59						

## 5. Contents of the educational component

**Content module 1. Theoretical bases of commodity science. Normative documentation. Classifying and coding of goods. Package, labelling and transportation of medical goods. Shipping containers. Medical devices.**

**Topic 1. Theoretical bases of commodity science.**

The concept of the product and its consumer value. Definition of concepts "product", "product range". The quality of goods as the main category of commodity science. The emergence and development of commodity science. Subject of commodity study. The purpose and tasks of commodity study in the system of preparation of pharmacists at the present stage of development of pharmacy. Integration of commodity science with other disciplines.

**Topic 2. Normative documentation**

Definition of the concept of "standardization". Principles, levels, subjects and objects of standardization. The main goals and tasks of standardization. Definition of the notion of "standard". Types of standards. Indication of normative documentation (ND). Structural elements of standards. Rules for the construction and presentation of technical specifications (TU). Requirements for designation of standards and specifications. Procedure for approval and validity of normative documents.

**Topic 3. Historical aspects of commodity science**

History and trends of commodity development. The time and preconditions for the emergence of commodity science as a science. Outstanding figures and their work. The purpose of commodity research. The need for knowledge and evaluation of the properties of goods.

**Topic 4. Classification and Coding of goods**

The concept of the classification of goods and their category. Purpose, purpose, signs and general classification rules. Types of classification of goods. Goods coding systems. Internal encoding

**Topic 5.. Features of using two-dimensional coding**

Purpose, purpose, varieties, rules of drawing and placing of two-dimensional coding

**Topic 6. Packaging and labelling of medical goods**

Classification of medical products depending on storage conditions: on physical and chemical properties, method of application, expiration date, types and methods of packaging. and organoleptic indicators of quality, requirements for the quality of medical products. Packing and its functional purpose. packing properties. Packaging, marking and transportation of medical products.

**Topic 7. Commodity science analysis goods of the pharmacy assortment**

Definition of the concepts of "analysis", "commodity analysis". Functions, goals and tasks of commodity analysis. Peculiarities of commodity analysis of SLZ and MB. Basic stages of commodity analysis. Requirements for the goods of the pharmacy range. The main properties of materials (physical, chemical, technological, etc.), ensuring the quality of goods. The notion of commodity-related operations, their classification and characteristics. Acceptance and release of goods, quality assessment, organization of storage and transportation. The process of movement of goods in the pharmacy network and commodity-related operations associated with it. The order of drawing up contracts with suppliers of goods of the pharmacy assortment.

**Topic 8. The main trends in preventing the spread of falsified GLZ and MV.**

To study possible ways of falsification of finished medicines, accompanying documents and visual methods of detection of falsified and substandard medicines.

**Topic 9. Commodity science analysis of general surgical instruments.**

Classification of medical instruments. Assortment and classification of general surgical instruments. Cutting tools (knives and scalpels, medical chisels, surgical hammerers, scissors, medical scissors and saws, bone cutters). Clamping tools (hemostatic clips, clamps for temporary vessel crossings, gastric and intestinal clamps, needle holders, corncangs, tweezers, tongs). The main elements of the design. Material used for the manufacture of medical instruments. Classification. Assortment. Technical requirements. Packing, marking, transportation, storage. Methods of determining quality. Sterilization. Rules of acceptance and accounting. Push-up tools (hooks, sprays, spatula Butalsky, spatula, etc.). Sounding and drilling tools. The main elements of the design. Classification. Assortment. Technical requirements. Functional tests. Packing, marking, transportation, storage. Methods of determining quality. Sterilization. Rules of acceptance and accounting.

**Topic 10. Commodity science analysis of individual first aid kits.**

Assortment of individual first aid kits. Commodity types. Technical requirements. Rules of acceptance, storage, transportation. Their packaging and labeling.

**Topic 11. Commodity science analysis of suture materials and piercing surgical needles**

Suture materials and their purpose. Classification of suture materials. Suture materials: ketgut, ocellone, vikryl, and others. Non-absorbent sutures: linen threads, lavsan threads, horse hair, metal wire, Michel's bracelets. Suture materials, which are conditionally absorbed. Commodity species. Technical requirements for suture materials. Sterilization of suture materials. Packaging, marking, transportation and storage of sutures according to the standards. Surgical needles. Classification of needles for appointment: surgical, skin, general purpose (thick and thin), eye, shaving, intestinal (curved, straight, with flat part), vascular (curved and straight), renal. Commodity species. Classification of needles depending on their design: in shape, degree of bending, section and edge, shape of the eyelet, size. Atraumatic needles. Ligature needles and forks. Symbols for needles. Technical requirements for needles. Packaging, labeling, transportation and storage. Methods of sterilization of surgical

*needles, forks and ligature needles. Methods of determining quality. Stitching Surgical Apparatus.*

**Topic 12. Commodity science analysis of instruments and devices for piercings, injections and transfusions**  
*Syringes for injections. Classification of syringes by design and purpose. Syringes of the type "Record" (collapsible, combined, continuous action). Syringes for washing cavities and infusions (Zhan). Syringes are glass, polymeric, pre-filled. Syringe-tube. Injectable and puncture-biopsy needles. Technical requirements. Packing, marking, transport and storage. Methods of determining quality. Sterilization. Cases for sterile storage of syringes and injection needles. Troopers Equipment for transfusion, injection and suction.*

**Topic 13. Commodity science analysis of rubbers goods and items of care of patients**

*Assortment and purpose of rubber products. Storage and recovery of rubber products. Requirements for rubber quality, marking, packaging, storage, sterilization and disinfection. Empty rubber products obtained by forming (rubber hot-rolled rubber, rubber bubbles for ice, lining circles, rubber underwear, sprinklers, mug and irregular rubber, uterine rings, cylinders and rubber mats). Tubular elastic products: gas-discharge tubes, catheters and probes. Elastic products for anesthesia and artificial respiration: air ducts, intubation tubes, anesthetic root canal masks. Latex products: surgical and anatomical gloves, fingertips, caps for medical pipettes, baby nipples.*

**Topic 14. Commodity science analysis of dressing materials and prepared dressing means**

*Dressing materials and their purpose. Types of dressing material: medical cotton hygroscopic (eye, hygienic, surgical), compress, gauze, alignin. The main types of raw materials for obtaining a dressing material and requirements to it. Ready-made dressings: bandages medical nonwoven non sterile and sterile, hemostatic viscose, konoksisel, sticky squares, bactericidal adhesive plastics, sticky surgical films, etc. Carrying out commodity analysis (definition of a commodity type, estimation of quality). Laboratory determination of functional properties of dressing material (absorbing properties, capillary, wettability). Packing, labeling, transportation and storage of dressings. Sterilization. Medical Gypsum. Receiving. Technical requirements. Packing, marking, transport and storage. Definition of quality.*

**Topic 15. Ophthalmic optics. Inspection analysis of devices and apparatus for diagnosis, correction and protection of vision organs**

*Devices and tables for the study of visual acuity. Apparatus for determining eye refraction. Instruments and apparatus for the study of visual functions. Devices for the examination and exploration of the eye. Ocular lenses: purpose, classification (by the nature of the optical action, by the number of optical zones correction of astigmatism of vision, by purpose). Lenses for correction of anomalies of eye refraction (myopia, hypermetropia, astigmatism). Lenses for presbyopia and anomalies of convergence (strabismus). Technical requirements for eyepiece lenses, marking, packing, transportation, storage. Methods of determining the type, sign and optical force of the lens. Eyecups: appointment, classification (in the form of rims, on materials, in the form of headgear), technical requirements. Safety glasses: purpose, classification, technical requirements for glass and frames. Instruments for monitoring vision correction (diopmeter, centriscope). Technical requirements for ophthalmic devices, packaging, transportation. Recipes on glasses. Selection of glasses. Latin words that are used when prescribing the glasses. Contact lenses: classification, labeling, packaging, storage.*

**Content module 2. Commodity science analysis of devices and apparatus for examination and diagnosis of the body.**

**Package, labeling of drugs. Organization of storage.**

**Topic 16. Goods that have the right to purchase and sell pharmacy establishments and their structural subdivisions**

*Assortment of these types of goods. Mineral waters. Their classification and requirements to them. Rules for receiving mineral water. Disinfectants. Assortment and release form. Storing and caring for medical leeches. Cosmetic products. Classification of cosmetic products and general requirements to them. Packing, marking, transporting and storing these types of goods*

**Topic 17. Commodity science analysis of devices and means for the examination and diagnosis of the body**

*Purpose, assortment and classification of these types of goods. Technical requirements and their quality control. Features when accepting goods. Packing, labeling, transportation and organization of proper storage conditions.*

**Topic 18. Commodity science analysis of nebulizers, irrigators, glucometers**

*Purpose, assortment and classification of these types of goods. Technical requirements and their quality control. Features when accepting goods. Packing, labeling, transportation and organization of proper storage conditions.*

**Topic 19. Commodity science analysis of non-hardware test systems**

*Assortment of non-hardware test systems. Commodity species. Technical requirements. Rules of acceptance, storage, transportation. Their packing and marking.*

**Topic 20. Containers for pharmaceutical application. Closures and modern package materials in pharmacy**

*The term "container", "container for pharmaceutical use" and "packaging". Classification of containers. Requirements for containers for pharmaceutical use. Assortment of consumer packaging. Glass, metal and polymer containers and the technical requirements for them. Cardboard packaging and technical requirements for it. Types of transport packaging and its purpose. Marking of transport containers. Basic technical requirements for transport containers. Storage of containers. Organization of container economy. Organization of packaging of packaging (multi-turn packaging, certificate for returned containers, penalties, traffic report).*

*Classification of clogging means by definition, structural features, methods of fastening, materials, methods of production. Requirements for sealing agents (general, special and sanitary-hygienic). Storage. Packing materials*

and requirements for them. Classification, assortment. Storage of packaging materials.

**Topic 21. Packing, labelling and transporting of drugs**

Classification of drugs depending on storage conditions: on pharmacological action, physical and chemical properties, method of application, expiration date, method of obtaining, aggregate state, types and methods of packaging and organoleptic quality indicators, requirements for the quality of medicinal forms. Packing and its functional purpose. Classification of packaging of drugs (primary, secondary, bulk, consumer and transport) of packaging properties. Packaging, marking and transportation of drugs.

**Topic 22. Acceptance of commodities in pharmacy warehouse**

Acceptance and release of goods, quality assessment, organization of storage and transportation. The process of movement of goods in the pharmacy network and commodity-related operations associated with it. The order of drawing up contracts with suppliers of goods of the pharmacy assortment. Acceptance of goods for a pharmacy by quantity and quality. Dispensing goods from pharmacy warehouses.

**Topic 23. Features of transportation of thermolabile preparations (“Cold chain”).**

Requirements for transportation of thermolabile drugs. According to what requirements the vehicle for transportation of GLZ and MV is selected? Term of transportation of GLZ and MV. Additional devices for checking transport conditions.

**Topic 24. Organization of storage of medicines and medical devices**

The main factors that affect the quality of pharmacy products. Requirements for drugs and their storage. Quality control, stability and shelf-life of drugs. Requirements for storage of different groups of drugs depending on their physical and chemical properties. A range of medical products. The main factors that affect the quality of medical goods. Requirements for medical supplies and their storage conditions. Quality control, expiration date.

**Topic 25. Wholesale drug**

Import of finished medicines, wholesale and retail trade in finished medicines and honey. products. Regulatory framework for this type of activity

**The final test**

## 6. Topics of lectures

№	Name of topic	The amount of hours	
		full time study	part time study
1	Theoretical bases of commodity science.	0,5	
2	Packaging and labelling of medical goods.	0,5	
3	Commodity science analysis of suture materials and piercing needles	1	
4	Commodity science analysis of instruments and devices for punctures, injections, infusions, transfusions and suction	1	
5	Commodity science analysis of rubber products and items of care of patients.	1	
6	Commodity science analysis of devices and means for the examination and diagnosis of the body	1	
7	Containers for pharmaceutical application. Closures and modern package materials in pharmacy.	1	
8	Packing, labelling and transporting of drugs.	1	
9	Organization of storage of medicines and medical devices	1	
<b>The whole amount of hours</b>		<b>8</b>	

## 7. Topics of seminars

There is no working curriculum

## 8. Topics of practical lessons

№	Name of topic	The amount of hours	
		full time study	full time study
1	Theoretical bases of commodity science.	1	

2	Normative documentation	3	
3	Classification and Coding of goods.	4	
4	Packaging and labelling of medical goods.	4	
5	Commodity analysis of suture materials and piercing needles	4	
6	Commodity analysis of instruments and devices for punctures, injections, infusions, transfusions and suction	4	
7	Commodity analysis of rubber products and items of care of patients.	4	
8	Commodity analysis of dressing materials and prepared dressing means.	3	
	Content module control 1	1	
9	Goods that have the right to purchase and sell pharmacy establishments and their structural subdivisions.	4	
10	Commodity analysis of devices and means for the examination and diagnosis of the body	8	
11	Containers for pharmaceutical application. Closures and modern package materials in pharmacy.	4	
12	Packing, labelling and transporting of drugs	4	
13	Organization of storage of medicines and medical devices	3	
	Content module control 2	1	
	<b>Final modular control</b>	1	
<b>The whole amount of hours</b>		<b>53</b>	

## 9. Topics of laboratorial lessons

There is no working curriculum

## 10. Self-study work

№	Name of topic	The amount of hours	
		full time study	full time study
1	Historical aspects of commodity science.	5	
2	Features of using two-dimensional coding	5	
3	Commodity analysis goods of the pharmacy assortment	5	
4	The main trends in preventing the spread of falsified GLZ and MV.	5	
5	Commodity science analysis of general surgical instruments.	5	
6	Commodity science analysis of individual first aid kits.	5	
7	Ophthalmic optics. inspection analysis of devices and apparatus for diagnosis, correction and protection of vision organs.	5	
8	Commodity science analysis of nebulizers, irrigators, glucometers	5	
9	Commodity science analysis of hardware-free test systems	5	
10	Acceptance of commodities in pharmacy warehouse	5	
11	Features of transportation of thermolabile preparations (“Cold chain”).	5	
12	Wholesale drug	4	
<b>The whole amount of hours</b>		<b>59</b>	

### Tasks for Self-study work

1. To analyze the concept of the product and its consumer value.

2. To understand the emergence and development of commodity science, the purpose and objectives of commodity science in the system of training pharmacists at the present stage of the development of pharmacy.
3. Purpose, purpose, varieties, rules of drawing and placing of two-dimensional coding.
4. To familiarize with assortment, purpose, requirements to quality of dental materials.
5. Types of individual first aid kits and rules for their acceptance.
6. To disassemble assortment of special tools: urological, obstetric and gynecological. And to consider the stages of conducting commodity analysis.
7. To investigate the assortment and purpose of patient care items.
8. To learn to carry out commodity analysis of the objects of care for patients.
9. Take a look at the principle of non-hardware test systems.
10. To analyze the main stages of commodity analysis of glucometers, nebulizers, irrigators.
11. To familiarize with the classification, assortment, requirements to the transport packaging.
12. To analyze the peculiarities of transportation of thermolabile drugs.
13. Review the main requirements for the wholesale trade in finished medicines and honey, products
14. To improve the regulatory framework for the implementation of this type of activity.

## 11. Criteria and evaluation order of educational outcomes

*Current control* is carried out at each practical and seminar session in accordance with the specific goals of the topic and during the individual work of a teacher with a higher education student for those topics that the applicant of higher education studies independently and they do not belong to the structure of the class.

The maximum number of points awarded to higher education students when mastering the module is 100, including 60 for the current educational activity (for each content module 30 points), 40 points for the module control.

*Means of checking level of preparation by applicants for higher education:*

- theoretical survey (oral or written)
- decision practical tasks

When developing criteria for evaluating as the basis are taken completeness and correctness of tasks. As well as takes into account the ability by applicants for higher education to differentiate, integrate and unify knowledge.

### Assessment of practical skills

Assessment of practical classes also takes place according to the calendar-thematic plan. The number of points that the applicant receives in the lesson may be:

Rating mark (points)			Criteria of assessment
3	4	5	If the practical (situational) task is fulfilled by the applicants for higher education independently and without mistakes. He also knows how to correctly justify the presented results, skillfully uses terminology on the basis in-depth knowledge of program material.
2	3	4	the practical (situational) task is fulfilled by the applicants for higher education without mistakes, substantiated the results, demonstrated knowledge of program material, provided at the level

			of similar reproduce, but made some minor mistakes.
1	2	3	The practical task is fulfilled, however the applicants for higher education does not know how to correctly interpret the results.
0-0,5	0-1	0-2	The applicants for higher education could not fulfill the practical task.

**Final Modular Control (FMC)** includes control of practical skills, control of theoretical knowledge and independent work of applicants for higher education. The total score of the IMC is a maximum of 40 points. The final modular control is considered credited if the applicant for higher education scored at least 24 points.

#### **The distribution of points earned by applicants for higher education full-time education**

Current testing and self-study									
Submodule № 1									
T. 1-3	T. 4, 6	T. 5, 7, 8	T. 9, 11	T. 10, 12	T. 13	T. 14, 15	SM1		
3	3	3	3	3	3	4	8		
30									

T1, T2 ... T9 – topics of submodules.

Current testing and self-study						Final test	Test
Submodule № 2							
T. 16, 18	T. 17, 19	T. 20, 22	T. 21, 23	T. 24, 25	SM2	40	100
4	4	4	5	5	8		
30							

## **12. Forms of current and semester control of academic performance**

Semester control is carried out in the form of a semester test.

Current control: oral surveys, written works, testing, solving situational tasks.

## **13. Forms of progress and final tests of academic achievements - credit.**

### **14. Methodological support**

1. Work program of educational discipline.
2. Methodical materials of computer presentations of lectures.
3. Methodical recommendations for practical classes and independent work of students.
4. List of theoretical questions to the final module control.
5. Test tasks.

### **15. Reading suggestions** **The main reading suggestions**

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