

**MINISTRY OF HEALTHCARE OF UKRAINE  
ODESSA NATIONAL MEDICAL UNIVERSITY**  
Chair of Urology and Nephrology

**“APPROVED”**



Vice-rector for scientific and pedagogical work

Eduard BURIACHKIVSKYI

01.09.2023.

**WORK PROGRAM  
for the discipline of training  
« NEPHROLOGY »  
(elective discipline)**

**Level of higher education: Second (Master's)**

**Knowledge field: 22 "Health Care"**

**Specialty: 222 "Medicine"**

**Program of professional education: Medicine**

2023



The program is based on the educational-professional program "Medicine", training of specialists of the second (master's) level of higher education in the specialty 222 "Medicine" in the field of knowledge 22 "Health care", approved by the Academic Council of ONMedU, from 23.06.2023, Protocol No.8.

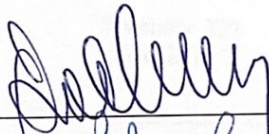
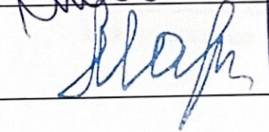
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The work program was approved at the meeting of the Department of Urology and Nephrology.

Protocol No. 1 of 28.08.2023.

Head of the Chair

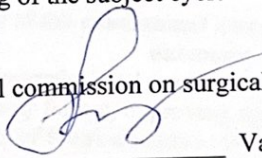
Fedir KOSTEV

Agreed with the OPP guarantor

Valeriia MARICHEREDA

The program was approved at the meeting of the subject cycle commission on surgical disciplines of ONMedU. Protocol No. 1 of 30.08.2023.

Chairman of the subject cycle methodical commission on surgical disciplines



Vasil MISHCHENKO

Reviewed and approved at the meeting of the Department Department of general, pediatrics and military surgery with a course of urology

Protocol No. 1 of "04" 09 2023

Head of the Chair



Mykhailo KASHI ALYAN

Reviewed and approved at the meeting of the Department \_\_\_\_\_

Protocol No. \_\_\_ of "\_\_\_" \_\_\_\_\_ 202 .

Head of the Chair \_\_\_\_\_



## 1. Description of the discipline:

Name of indicators	Field of knowledge, specialty, specialization, level of higher education	Characteristics of the academic discipline
The total number of: Credits - 3 Hours - 90 Content sections - 3	The field of knowledge 22 "Health care"  Specialty 222 "Medicine"  The second (master's) level of higher education	<i>Full-time education</i> <i>Mandatory discipline</i> <i>A year of training: 5</i> <i>Semesters IX</i> <i>Lectures (0 hours)</i> <i>Workshops (0 hours)</i> <i>Practical (30 hours)</i> <i>Laboratory (0 hours)</i> <i>Individual work (60 hours)</i> <i>including individual tasks (0 hours)</i> <i>The form of the final control - differential exam</i>

## 2. The purpose and tasks of the educational discipline, competences, program learning outcomes.

**Purpose:** deepening theoretical and practical knowledge of etiology, pathogenesis, clinical manifestations of kidney failure, improving and mastering practical skills, acquiring a professional level of readiness of future doctors to work independently with patients suffering from acute and chronic kidney damage.

The main **tasks** of studying the discipline "Fundamentals of Nephrology" are laying the theoretical foundations of nephrology as a science (terminology, research methods, general clinical symptoms of the main diseases of the urinary system, principles of diagnosis and treatment, prevention of morbidity) and practicing practical skills in research and methods of providing emergency care:

- identify new scientific directions, theoretical and practical problems in the field of nephrology;
- have an idea about the structure and functions of the kidneys;
- classify kidney diseases; determine the stage of chronic kidney disease;
- conduct surveys and clinical examinations of patients with kidney diseases and analyze their results; identify clinical variants and complications of kidney diseases;
- determine etiological and pathogenetic factors of kidney diseases;
- prescribe laboratory and instrumental examination of patients with kidney diseases, using the latest research methods;
- on the basis of the evaluation of the results of laboratory and instrumental examination, make a differential diagnosis, substantiate and establish a clinical diagnosis of kidney diseases;



- determine the necessary mode of work and rest, know the peculiarities of medical nutrition during the treatment of kidney diseases;
- prescribe the most up-to-date effective treatment, including prognosis-modifying treatment, of kidney diseases;
- comply with the requirements of ethics, bioethics and deontology in their professional activities.

The process of studying the discipline is aimed at forming elements of the following **competencies**:

**- General Competencies (GC):**

- GC1. Ability to abstract thinking, analysis and synthesis.
- GC2. Ability to learn and master modern knowledge.
- GC3. Ability to apply knowledge in practical situations.
- GC4. Knowledge and understanding of the subject area and understanding of professional activity.
- GC6. Ability to make informed decisions.
- GC7. Ability to work in a team.
- GC8. Ability to interpersonal interaction.
- GC10. Ability to use information and communication technologies.
- GC11. Ability to search, process and analyze information from various sources.
- GC12. Determination and persistence in relation to assigned tasks and assumed responsibilities.

**- Special Competencies (SC):**

- SC1. Ability to collect medical information about the patient and analyze clinical data.
- SC2. Ability to determine the necessary list of laboratory and instrumental studies and evaluate their results.
- SC3. Ability to establish a preliminary and clinical diagnosis of the disease.
- SC4. The ability to determine the necessary regime of work and rest in the treatment and prevention of diseases.
- SC5. The ability to determine the nature of nutrition in the treatment and prevention of diseases.
- SC6. Ability to determine the principles and nature of treatment and prevention of diseases.
- SC7. Ability to diagnose emergency conditions.
- SC8. Ability to determine tactics and provide emergency medical care.
- SC10. Ability to perform medical manipulations.
- SC13. Ability to carry out sanitary and hygienic and preventive measures.
- SC14. Ability to plan and carry out preventive and anti-epidemic measures for infectious diseases.
- SC16. Ability to maintain medical documentation, including electronic forms.
- SC24. Adherence to ethical principles when working with patients and laboratory animals.
- SC25. Adherence to professional and academic integrity, to be responsible for the reliability of the obtained scientific results.
- SC26. The ability to determine the management tactics of persons subject to dispensary supervision.
- SC27. The ability to diagnose and determine the management tactics of patients with extrapulmonary and widespread forms of tuberculosis, including co-infection of TB/HIV with a chemoresistant course.



### **Program learning outcomes (PLO):**

- PLO1. Have thorough knowledge of the structure of professional activity. To be able to carry out professional activities that require updating and integration of knowledge. To be responsible for professional development, the ability for further professional training with a high level of autonomy.
- PLO2. Understanding and knowledge of basic and clinical biomedical sciences, at a level sufficient for solving professional tasks in the field of health care.
- PLO3. Specialized conceptual knowledge that includes scientific achievements in the field of health care and is the basis for conducting research, critical understanding of problems in the field of medicine and related interdisciplinary problems.
- PLO4. Identify and identify leading clinical symptoms and syndromes (according to list 1); according to standard methods, using preliminary data of the patient's history, data of the patient's examination, knowledge about the person, his organs and systems, establish a preliminary clinical diagnosis of the disease (according to list 2).
- PLO5. Collect complaints, history of life and diseases, evaluate psychomotor and physical development of the patient, state of organs and systems of the body, based on the results of laboratory and instrumental studies, evaluate information regarding the diagnosis (according to list 4), taking into account the age of the patient.
- PLO6. To establish a final clinical diagnosis by making a reasoned decision and analyzing the received subjective and objective data of clinical, additional examination, carrying out differential diagnosis, observing the relevant ethical and legal norms, under the control of the managing physician in the conditions of the health care institution (according to the list 2).
- PLO7. Assign and analyze additional (mandatory and optional) examination methods (laboratory, functional and/or instrumental) (according to list 4), patients with diseases of organs and body systems for differential diagnosis of diseases (according to list 2).
- PLO8. To determine the main clinical syndrome or symptom, which determines the severity of the condition of the victim/victim (according to list 3) by making a reasoned decision about the condition of a person under any circumstances (in the conditions of a health care institution, outside its borders), including in conditions of emergency and hostilities, in field conditions, in conditions of lack of information and limited time.
- PLO9. Determine the nature and principles of treatment (conservative, operative) of patients with diseases (according to list 2), taking into account the age of the patient, in the conditions of the health care institution, outside its borders and at the stages of medical evacuation, including in field conditions, on the basis of a preliminary clinical diagnosis, observing the relevant ethical and legal norms, by making a reasoned decision according to existing algorithms and standard schemes, in case of the need to expand the standard scheme, be able to justify personalized recommendations under the control of the head physician in the conditions of a medical institution.
- PLO10. Determine the necessary mode of work, rest and nutrition on the basis of the final clinical diagnosis, observing the relevant ethical and legal norms, by making a reasoned decision according to existing algorithms and standard schemes.
- PLO14. Determine tactics and provide emergency medical care in emergency situations (according to list 3) in limited time in accordance with existing clinical protocols and treatment standards.
- PLO17. Perform medical manipulations (according to list 5) in the conditions of a medical institution, at home or at work based on a previous clinical diagnosis and/or indicator of the patient's condition by making a reasoned decision, observing the relevant ethical and legal norms.



- PLO18. To determine the state of functioning and limitations of a person's vital activities and the duration of incapacity for work with the preparation of relevant documents, in the conditions of a health care institution, based on data about the disease and its course, peculiarities of a person's professional activity, etc. Maintain medical documentation regarding the patient and contingent
- PLO21. Search for the necessary information in the professional literature and databases of other sources, analyze, evaluate and apply this information.
- PLO30. Determine the management tactics of persons subject to dispensary supervision (children, pregnant women, workers whose professions require mandatory dispensary examination).
- PLO31. To determine the management tactics of persons suffering from chronic infectious diseases subject to dispensary supervision.

**As a result of studying the academic discipline, the student of higher education must:**

***Know:***

- subject and tasks of the discipline "Fundamentals of Nephrology";
- modern concepts of domestic and foreign theoretical and practical nephrology;
- the main principles of the organization of nephrological care for the population of Ukraine;
- anatomical and physiological features of the urinary system;
- etiological and pathogenetic factors of kidney diseases;
- etiology, pathogenesis and classification, clinical picture in kidney diseases;
- symptoms and syndromes in nephrology;
- the main etiological and pathogenetic risk factors and to draw up a plan for comprehensive diagnosis of the patient;
- theoretical foundations of modern antiseptics;
- theoretical aspects of preventing the occurrence and spread of intra-hospital infection;
- diagnostic methods, algorithms of conservative treatment for diseases of the urinary system;
- principles of treatment, rehabilitation and prevention of the most common kidney diseases;
- complications during hemotransfusion, measures for their prevention and treatment;
- the basics of resuscitation, clinical manifestations of terminal conditions, their diagnosis, stages and measures during cardiopulmonary resuscitation;
- clinic, diagnosis and treatment of certain purulent-inflammatory kidney diseases,
- the structure of the medical card of an inpatient.

***Be able:***

- Assess the anatomical structure of the external urinary system;
- Assess the state of male sexual development.
- Determine the main etiological and pathogenetic factors of the most common diseases in the field of andrology and sexopathology.
- Classify and analyze the typical clinical picture of the most common kidney diseases;
- Interpret the general principles of treatment, rehabilitation and prevention of the most common kidney diseases;
- Draw up an examination plan and analyze the data of laboratory and instrumental examinations in the typical course of kidney diseases;
- Demonstrate the ability to perform the necessary medical manipulations.
- Conduct primary and secondary prevention of the most common diseases of the male reproductive system;
- Prescribe laboratory and instrumental examination of patients with kidney diseases;



- Based on the evaluation of the results of laboratory and instrumental examination, carry out a differential diagnosis, substantiate and establish a clinical diagnosis of kidney diseases;
- Determine the necessary medical nutrition during the treatment of kidney diseases;
- Provide emergency medical care.
- Carry out differential diagnosis, substantiate and formulate a preliminary diagnosis.
- Prescribe treatment, including prognosis-modifying treatment, of kidney diseases;
- Assess the prognosis and working capacity of patients with kidney diseases;
- Determine the tactics of preventive measures to prevent kidney damage;
- Demonstrate the ability to maintain medical records.

### 3. Content of the academic discipline

#### Content of the academic discipline:

#### Content module 1:

Topic 1. **The history of the formation of nephrology as a science.** Anatomical structure and functions of kidneys. Basic and additional methods of researching kidney functions and condition. Modern methods of diagnosis of kidney diseases.

Topic 2. **Congenital and hereditary kidney diseases.** Definition. Classification. Clinical manifestations. Instrumental and laboratory methods of diagnosis. Differential diagnosis. Complication. Treatment.

Topic 3. **Pyelonephritis.** Definition. The role of infection in inflammatory diseases of the kidneys and urinary tract. Classification. Clinical manifestations. Instrumental and laboratory methods of diagnosis. Differential diagnosis. Complication. Treatment. Primary and secondary prevention. Forecast and performance.

Topic 4. **Tubulointerstitial nephritis.** Definition. Etiology. Pathogenesis. Clinical manifestations. Diagnostic criteria and differential diagnosis. Complication. Treatment. Primary and secondary prevention. Forecast and performance.

Topic 5. **Urinary stone disease:** Etiological factors. Pathogenesis. Complication. Clinical signs, diagnosis and treatment.

#### Content module 2:

Topic 6. **Glomerulonephritis:** modern approaches to diagnosis and treatment. Peculiarities of management of patients with urinary and nephrotic syndromes.

Topic 7. **Kidney amyloidosis.** Definition. Etiology. Pathogenesis. Classification. Clinical manifestations. Diagnostics. Differential diagnosis. Complication. Treatment. Primary and secondary prevention. Forecast and performance.

Topic 8. **Kidney damage in systemic diseases.** Pathogenesis. Clinical manifestations. Diagnostic criteria. Differential diagnosis. Complication. Treatment.

Topic 9. **Secondary arterial hypertension.** Causes of occurrence and features of the clinical course of secondary arterial hypertension in nephrological patients; modern recommendations for treatment.



Topic 10. **Nephropathy of pregnant women: diagnosis and features of treatment.** Nephropathy in patients with connective tissue diseases. Kidney damage in patients with diabetes.

**Content module 3:**

Topic 11. **Acute kidney damage.** Etiological factors. Pathogenesis. Classification. Clinical manifestations. Diagnostic criteria. Differential diagnosis. Complication. Treatment.

Topic 12. **Chronic kidney failure.** Definition. Etiological factors. Pathogenesis of lesions of organs and systems, their clinical manifestations. Classification. Clinical manifestations and changes in laboratory parameters depending on the stage. Diagnostic criteria. Differential diagnosis. Complication.

Topic 13. **Methods of kidney replacement treatment.** Methods of conservative and substitute treatment in patients with chronic kidney disease. Treatment depending on the stage and renoprotection. Renal replacement therapy: hemodialysis, kidney transplantation. Indications and contraindications for renal replacement therapy, complications. Primary and secondary prevention. Forecast and performance.

Topic 14. **Prospects for the development of transplantology** and modern possibilities in the treatment of the terminal stage of chronic kidney disease.

Topic 15. **Credit class: verification of practical and theoretical training.**

**4. The structure of the academic discipline**

Names of content modules and topics	Number of hours				
	That's all	including			
		Auditorium Lectures	Practical lessons	Independently - on student's work	Individual work
1	2	3	4	5	6
<b>Module 1</b>					
<b>Content module 1</b>					
Topic 1. <b>The history of the formation of nephrology as a science.</b> Anatomical structure and functions of kidneys. Basic and additional methods of researching kidney functions and condition. Modern methods of diagnosis of kidney diseases.	6		2	4	



Topic 2. <b>Congenital and hereditary kidney diseases.</b> Definition. Classification. Clinical manifestations. Instrumental and laboratory methods of diagnosis. Differential diagnosis. Complication. Treatment.	6		2	4	
Topic 3. <b>Pyelonephritis.</b> Definition. The role of infection in inflammatory diseases of the kidneys and urinary tract. Classification. Clinical manifestations. Instrumental and laboratory methods of diagnosis. Differential diagnosis. Complication. Treatment. Primary and secondary prevention. Forecast and performance.	6		2	4	
Topic 4. <b>Tubulointerstitial nephritis.</b> Definition. Etiology. Pathogenesis. Clinical manifestations. Diagnostic criteria and differential diagnosis. Complication. Treatment. Primary and secondary prevention. Forecast and performance.	6		2	4	
Topic 5. <b>Urinary stone disease:</b> Etiological factors. Pathogenesis. Complication. Clinical signs, diagnosis and treatment.	6		2	4	
<b>Together according to content module 1</b>	<b>30</b>		<b>10</b>	<b>20</b>	
<b>Content module 2.</b>					
Topic 6. <b>Glomerulonephritis:</b> modern approaches to diagnosis and treatment. Peculiarities of management of patients with urinary and nephrotic syndromes.	6		2	4	
Topic 7. <b>Kidney amyloidosis.</b> Definition. Etiology. Pathogenesis. Classification. Clinical manifestations. Diagnostics. Differential diagnosis. Complication. Treatment. Primary and secondary prevention. Forecast and performance.	6		2	4	
Topic 8. <b>Kidney damage in systemic diseases.</b> Pathogenesis. Clinical manifestations. Diagnostic criteria. Differential diagnosis. Complication. Treatment.	6		2	4	



Topic 9. <b>Secondary arterial hypertension.</b> Causes of occurrence and features of the clinical course of secondary arterial hypertension in nephrological patients; modern recommendations for treatment.	6		2	4	
Topic 10. <b>Nephropathy of pregnant women: diagnosis and features of treatment.</b> Nephropathy in patients with connective tissue diseases. Kidney damage in patients with diabetes.	6		2	4	
<b>Together according to content module 2</b>	<b>30</b>		<b>12</b>	<b>24</b>	
<b>Individual work (if available)</b>					
<b>Content module 3.</b>					
Topic 11. <b>Acute kidney damage.</b> Etiological factors. Pathogenesis. Classification. Clinical manifestations. Diagnostic criteria. Differential diagnosis. Complication. Treatment.	6		2	4	
Topic 12. <b>Chronic kidney failure.</b> Definition. Etiological factors. Pathogenesis of lesions of organs and systems, their clinical manifestations. Classification. Clinical manifestations and changes in laboratory parameters depending on the stage. Diagnostic criteria. Differential diagnosis. Complication.	6		2	4	
Topic 13. <b>Methods of kidney replacement treatment.</b> Methods of conservative and substitute treatment in patients with chronic kidney disease. Treatment depending on the stage and renoprotection. Renal replacement therapy: hemodialysis, kidney transplantation. Indications and contraindications for renal replacement therapy, complications. Primary and secondary prevention. Forecast and performance.	6		2	4	
Topic 14. <b>Prospects for the development of transplantology</b> and modern possibilities in the treatment	6		2	4	



of the terminal stage of chronic kidney disease.				
<b>Final modular control</b>	6		2	4
<b>TOTAL HOURS</b>	90		30	60

## 5. Topics of lectures / seminars / practical / laboratory classes

### 5.1. Topics of lectures

### 5.2. Topics of seminar classes

Seminar classes are not provided.

### 5.3. Topics of practical classes

TOPIC	Number of hours
Topic 1. <b>The history of the formation of nephrology as a science.</b> Anatomical structure and functions of kidneys. Basic and additional methods of researching kidney functions and condition. Modern methods of diagnosis of kidney diseases.	2
Topic 2. <b>Congenital and hereditary kidney diseases.</b> Definition. Classification. Clinical manifestations. Instrumental and laboratory methods of diagnosis. Differential diagnosis. Complication. Treatment	2
Topic 3. <b>Pyelonephritis.</b> Definition. The role of infection in inflammatory diseases of the kidneys and urinary tract. Classification. Clinical manifestations. Instrumental and laboratory methods of diagnosis. Differential diagnosis. Complication. Treatment. Primary and secondary prevention. Forecast and performance.	2
Topic 4. <b>Tubulointerstitial nephritis.</b> Definition. Etiology. Pathogenesis. Clinical manifestations. Diagnostic criteria and differential diagnosis. Complication. Treatment. Primary and secondary prevention. Forecast and performance.	2
Topic 5. <b>Urinary stone disease:</b> Etiological factors. Pathogenesis. Complication. Clinical signs, diagnosis and treatment.	2
Topic 6. <b>Glomerulonephritis:</b> modern approaches to diagnosis and treatment. Peculiarities of management of patients with urinary and nephrotic syndromes.	2
Topic 7. <b>Kidney amyloidosis.</b> Definition. Etiology. Pathogenesis. Classification. Clinical manifestations. Diagnostics. Differential diagnosis. Complication. Treatment. Primary and secondary prevention. Forecast and performance.	2
Topic 8. <b>Kidney damage in systemic diseases.</b> Pathogenesis. Clinical manifestations. Diagnostic criteria. Differential diagnosis. Complication. Treatment.	2
Topic 9. <b>Secondary arterial hypertension.</b> Causes of occurrence and features of the clinical course of secondary arterial hypertension in nephrological patients; modern recommendations for treatment.	2



Topic 10. <b>Nephropathy of pregnant women: diagnosis and features of treatment.</b> Nephropathy in patients with connective tissue diseases. Kidney damage in patients with diabetes.	2
Topic 11. <b>Acute kidney damage.</b> Etiological factors. Pathogenesis. Classification. Clinical manifestations. Diagnostic criteria. Differential diagnosis. Complication. Treatment.	2
Topic 12. <b>Chronic kidney failure.</b> Definition. Etiological factors. Pathogenesis of lesions of organs and systems, their clinical manifestations. Classification. Clinical manifestations and changes in laboratory parameters depending on the stage. Diagnostic criteria. Differential diagnosis. Complication.	2
Topic 13. <b>Methods of kidney replacement treatment.</b> Methods of conservative and substitute treatment in patients with chronic kidney disease. Treatment depending on the stage and renoprotection. Renal replacement therapy: hemodialysis, kidney transplantation. Indications and contraindications for renal replacement therapy, complications. Primary and secondary prevention. Forecast and performance.	2
Topic 14. <b>Prospects for the development of transplantology</b> and modern possibilities in the treatment of the terminal stage of chronic kidney disease.	2
<b>Final modular control</b>	2
<b>TOTAL HOURS</b>	<b>30</b>

#### 5.4. Laboratory topics classes

Laboratory classes are not provided.

### 6. Independent work of a student of higher education

TOPIC	Number of hours	type of control
Topic 1. <b>The history of the formation of nephrology as a science.</b> Anatomical structure and functions of kidneys. Basic and additional methods of researching kidney functions and condition. Modern methods of diagnosis of kidney diseases.	2	Current control during practical classes
Topic 2. <b>Congenital and hereditary kidney diseases.</b> Definition. Classification. Clinical manifestations. Instrumental and laboratory methods of diagnosis. Differential diagnosis. Complication. Treatment	2	Current control during practical classes
Topic 3. <b>Pyelonephritis.</b> Definition. The role of infection in inflammatory diseases of the kidneys and urinary tract. Classification. Clinical manifestations. Instrumental and laboratory methods of diagnosis. Differential diagnosis. Complication. Treatment. Primary and secondary prevention. Forecast and	2	Current control during practical classes



performance.		
Topic 4. <b>Tubulointerstitial nephritis.</b> Definition. Etiology. Pathogenesis. Clinical manifestations. Diagnostic criteria and differential diagnosis. Complication. Treatment. Primary and secondary prevention. Forecast and performance.	2	Current control during practical classes
Topic 5. <b>Urinary stone disease:</b> Etiological factors. Pathogenesis. Complication. Clinical signs, diagnosis and treatment.	2	Current control during practical classes
Topic 6. <b>Glomerulonephritis:</b> modern approaches to diagnosis and treatment. Peculiarities of management of patients with urinary and nephrotic syndromes.	2	Current control during practical classes
Topic 7. <b>Kidney amyloidosis.</b> Definition. Etiology. Pathogenesis. Classification. Clinical manifestations. Diagnostics. Differential diagnosis. Complication. Treatment. Primary and secondary prevention. Forecast and performance.	2	Current control during practical classes
Topic 8. <b>Kidney damage in systemic diseases.</b> Pathogenesis. Clinical manifestations. Diagnostic criteria. Differential diagnosis. Complication. Treatment.	2	Current control during practical classes
Topic 9. <b>Secondary arterial hypertension.</b> Causes of occurrence and features of the clinical course of secondary arterial hypertension in nephrological patients; modern recommendations for treatment.	2	Current control during practical classes
Topic 10. <b>Nephropathy of pregnant women: diagnosis and features of treatment.</b> Nephropathy in patients with connective tissue diseases. Kidney damage in patients with diabetes.	2	Current control during practical classes
Topic 11. <b>Acute kidney damage.</b> Etiological factors. Pathogenesis. Classification. Clinical manifestations. Diagnostic criteria. Differential diagnosis. Complication. Treatment.	2	Current control during practical classes
Topic 12. <b>Chronic kidney failure.</b> Definition. Etiological factors. Pathogenesis of lesions of organs and systems, their clinical manifestations. Classification. Clinical manifestations and changes in laboratory parameters depending on the stage. Diagnostic criteria. Differential diagnosis. Complication.	2	Current control during practical classes
Topic 13. <b>Methods of kidney replacement treatment.</b> Methods of conservative and substitute treatment in patients with chronic kidney disease. Treatment depending on the	2	Current control during practical classes



stage and renoprotection. Renal replacement therapy: hemodialysis, kidney transplantation. Indications and contraindications for renal replacement therapy, complications. Primary and secondary prevention. Forecast and performance.		
Topic 14. <b>Prospects for the development of transplantology</b> and modern possibilities in the treatment of the terminal stage of chronic kidney disease.	2	Current control during practical classes
<b>Final modular control</b>	2	

### 7. Teaching methods

**Lectures:** educational, informative, lecture-visualization, lecture-discussion, lecture-consultation.

**Practical classes:** oral and written interviews, solving clinical situational problems, practicing patient examination skills, solving test tasks.

**Independent work:** independent work with the recommended basic and additional literature, with electronic information resources, independent work with the bank of Step-2 test tasks, independent solution of clinical tasks.

### 8. Forms of control and assessment methods (including criteria for evaluating learning outcomes)

**Current control:** oral survey, testing, solution of situational clinical tasks, assessment of activity in class.

**Final control:** differentiated assessment

**Evaluation of the current educational activity in a practical session:**

1. Evaluation of theoretical knowledge on the subject of the lesson:

- methods: survey, solving a situational clinical problem
- maximum score – 5, minimum score – 3, unsatisfactory score – 2.

2. Assessment of practical skills:

- the ability to properly treat the patient, prescribe and interpret the results of laboratory and instrumental examination, justify the diagnosis based on the analysis of clinical and auxiliary methods of examination.

- maximum score – 5, minimum score – 3, unsatisfactory score – 2.

The grade for one practical session is the arithmetic average of all components and can only have a whole value (5, 4, 3, 2), which is rounded according to the statistical method.

#### Current assessment criteria for practical training:

Rating	Evaluation criteria
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Perfectly "5"	The student is fluent in the material, takes an active part in discussing and solving situational clinical problem, confidently demonstrates practical skills during examination of a patient and the interpretation of clinical, laboratory and instrumental research data, expresses his opinion on the topic of the class, demonstrates clinical thinking.
Fine "4"	The student has a good command of the material, participates in the discussion solution of a situational clinical problem, demonstrates practical skills during examination of a patient and the interpretation of clinical, laboratory and instrumental research data with some errors, expresses his opinion on the topic of the class demonstrates clinical thinking.
Satisfactorily "3"	The student does not have sufficient knowledge of the material, is unsure participating in the discussion and solution of the situational clinical problem demonstrates practical skills during the examination of the patient and the interpretation of clinical, laboratory and instrumental research data with significant errors.
Unsatisfactorily "2"	The student does not possess the material, does not participate in the discussion solution of the situational clinical problem, does not demonstrate practical skills during the examination of the patient and the interpretation of clinical, laboratory and instrumental research data.

Students are admitted to the final examination (differentiated assessment) if they have no academic debt and have an average score for the current educational activity of at least 3.00.

#### Evaluation of learning results during the final control

The content of the evaluated activity	Scores
Answers to theoretical questions.	4
Evaluation of the radiograph.	1

#### Criteria for evaluating the results of education of students on differentiated assessment

Rating	Evaluation criteria
Perfectly "5"	It is awarded to the applicant who worked systematically during the semester, showed during the final control comprehensive and in-depth knowledge of the program material, is able to successfully perform the tasks provided for in the program, mastered the content of the main and additional literature, realized the relationship of individual sections of the discipline, their importance for the future profession, showed creative abilities in



	understanding and using educational program material, showed the ability to independently update and replenish knowledge; the level of competence is high (creative);
Fine "4"	It is awarded to the applicant who has demonstrated complete knowledge of the curriculum material, successfully completes the tasks provided for by the program, mastered the basic literature recommended by the program, has shown a sufficient level of knowledge in the discipline and is capable of their independent updating and renewal in the course of further education and professional activity; the level of competence is sufficient (constructive and variable)
Satisfactorily "3"	It is presented to the applicant who has demonstrated knowledge of the basic curriculum material in the amount necessary for further education and subsequent work in the profession, copes with the tasks provided for in the program, made some mistakes in the answers on the differentiated assessment and when performing the tasks on the differential assessment, but possesses the necessary knowledge to overcome mistakes made under the guidance of a scientific and pedagogical worker; level of competence - average (reproductive)
Unsatisfactorily "2"	It is presented to the applicant who did not demonstrate sufficient knowledge of the main educational program material, made fundamental mistakes in the performance of the tasks provided for by the program, cannot use the knowledge in further studies without the help of a teacher, did not manage to master the skills of independent work; the level of competence is low (receptive-productive)

### 9. Distribution of points received by students of higher education

The obtained average score for the academic discipline for applicants who have successfully mastered the work program of the academic discipline is converted from a traditional four-point scale to points on a 200-point scale, as shown in the table:

**Table of conversion of traditional assessment to multi-point assessment**

National assessment for discipline	The sum of points for the discipline
Perfectly("5")	185 – 200
Good ("4")	151 – 184
Satisfactory ("3")	120 – 150
Unsatisfactory ("2")	Lower 120

A multi-point scale (200-point scale) characterizes the actual success of each applicant in learning the educational component. The conversion of the traditional grade (average score for the academic discipline) into a 200-point grade is performed by the information and technical department of the University.



According to the obtained points on a 200-point scale, the achievements of the applicants are evaluated according to the ECTS rating scale. Further ranking according to the ECTS rating scale allows you to evaluate the achievements of students from the educational component who are studying in the same course of the same specialty, according to the points they received.

The ECTS scale is a relative-comparative rating, which establishes the applicant's belonging to the group of better or worse among the reference group of fellow students (faculty, specialty). An "A" grade on the ECTS scale cannot be equal to an "excellent" grade, a "B" grade to a "good" grade, etc. When converting from a multi-point scale, the limits of grades "A", "B", "C", "D", "E" according to the ECTS scale do not coincide with the limits of grades "5", "4", "3" according to the traditional scale. Acquirers who have received grades of "FX" and "F" ("2") are not included in the list of ranked acquirers. The grade "FX" is awarded to students who have obtained the minimum number of points for the current learning activity, but who have not passed the final examination. A grade of "F" is given to students who have attended all classes in the discipline, but have not achieved a grade point average (3.00) for the current academic activity and are not admitted to the final examination.

Applicants who study in one course (one specialty), based on the number of points scored in the discipline, are ranked on the ECTS scale as follows:

#### Conversion of the traditional grade from the discipline and the sum of points on the ECTS scale

Evaluation on the ECTS scale	Statistical indicator
AND	Top 10% achievers
IN	The next 25% of earners
WITH	The next 30% of earners
D	The next 25% of earners
IS	The next 10% of earners

#### 10. Methodological support

- Working program of the academic discipline
- Syllabus
- Methodical developments for practical classes
- Methodical recommendations for independent work of higher education applicants
- Multimedia presentations
- Situational clinical tasks
- Electronic bank of test tasks by subdivisions of the discipline.

#### Recommended Books

##### List of recommended literature:

##### a) main:

1. Internal diseases. The textbook is based on the principles of evidence-based medicine 2018/19. Practical Medicine Publishing House, Krakow, Poland - 1632p.
2. Internal diseases: in 2 parts. Part 1. Chapters 1-8: textbook. Under the editorship L.V. Hlushka, S.V. Fedorova, I.M. Skrypnika and others. 2019. 584 p.
3. Nephrology: National textbook / Ed. L. V. Piroga, D. D. Ivanova. Kyiv, 2014. 314 p.
4. Perederii V.G., Tkach S.M. Basics of internal medicine. Volume 2. Textbook for students of higher medical educational institutions. Vinnytsia: New Book. 2017. 784 p.



5. Pyrig L.A., Ivanov D.D., Taran O.I. etc. Nephrology: a national textbook. /under the editorship L.A. Piroga, D.D. Ivanova. Donetsk: O. Yu. Zaslavskiy; 2014. 315 p.
6. Modern classifications and standards of treatment of diseases of internal organs. Emergency conditions in therapy. Analyzes. Normative indicators. Interpretation of changes. Under the editorship Mostovogo Yu. M. Kyiv, Center of the State Land Cadastre. 2019.
7. Chronic kidney disease: early detection and treatment of chronic kidney disease in adults in primary and secondary care / NICE, 2014. News of medicine and pharmacy in Ukraine. 2016. No. 1 (561). P. 16–18.
8. Davidson's Principles and Practice of Medicine 23rd Edition. Editors: Stuart Ralston, Ian Penman, Mark Strachan Richard Hobson. Elsevier. - 2018. - 1440 p.
9. USMLE Step 2 CK Lecture Notes 2017: Internal Medicine (Kaplan Test Prep). - 2016. - Published by Kaplan Medical. - 474 pages.

b) additional:

1. Pasychnikov S.P., Zaitsev V.I. Modern problems of urology in the practice of a family doctor: a doctor's guide. Kyiv: LLC "Library "Health of Ukraine", 2015. 126 p.
2. Order of the Ministry of Health of Ukraine dated February 11, 2016 No. 89. Unified clinical protocol of secondary (specialized) and tertiary (highly specialized) medical care. Treatment of patients with stage V chronic kidney disease: diagnosis and correction of disorders of phosphorus-calcium metabolism.
3. Internal Medicine: General Practitioner's Advisor: Study Guide. A.S. Svintsitskyi, O.O. Abrahamovych, P. M. Bodnar and others. K.: VSP "Medicine"; 2014. 1272 p.
4. Modern classifications and standards of treatment of diseases of internal organs. Emergencies in therapy: a handbook. Under the editorship Yu. M. Mostovoy. Vinnytsia. 16th ed., add. and rework. K.: Center of the State Land Cadastre; 2014. 679 p.
5. Taran O. I. Cardiovascular complications (diseases) in chronic renal failure. Part I. News of medicine and pharmacy in Ukraine. 2016. No. 1 (561). P. 28–29.
6. Unified clinical protocol of secondary (specialized) and tertiary (highly specialized) medical care in the treatment of patients with chronic kidney disease stage V of intermittent hemodialysis. 2016.

**Information resources:**

University website <https://onmedu.edu.ua>

Library [library.odmu.edu.ua](http://library.odmu.edu.ua)

1. <https://uroweb.org/>

2. <https://www.nccn.org/>

3. <https://www.auanet.org>

4. <https://www.inurol.kiev.ua/>

5. <https://www.souu.org.ua/>