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
"UROLOGY"

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.

Developers:
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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 KASHTALYAN

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 d iscipline
The total number of: Credits - 3 Hours - 90 Content sections - 4	The field of knowledge 22 "Health care" Specialty 222 "Medicine" The second (master's) level of higher education	*Full-time education* *Mandatory discipline*
		A year of training: 4
		Semesters VII- VIII
		Lectures (6 hours)
		Workshops (0 hours)
		Practical (54 hours)
		Laboratory (0 hours)
		Individual work (46 hours)
		including individual tasks (0 hours)
		The form of the final control - Differential offset

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

The purpose is: mastery by the acquirer of knowledge and formation of elements of professional competences in the field of urology and improvement of skills and competences acquired during the study of previous disciplines.

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

- study of the main duties and working conditions of secondary medical personnel in a urological hospital;
- study of urological terminology;
- study of the practical organization of the work of the urological hospital and operating unit;
- study of the strategy of nursing care for patients treated in a urological hospital; familiarization of students with the basics of medical psychology, ethics and deontology in urology;
- teaching students medical procedures and manipulations;
- teaching the methodology of examination of a urological patient;
- study of the principles of treatment of urological patients;
- study of features of etiology, pathogenesis and treatment of certain forms of urological pathology;
- tactical and therapeutic measures for certain forms of urological pathology, and features of patient care in the conditions of treatment in a specialized urological department;
- also, the program envisages teaching students to perform the list of diagnostic and therapeutic manipulations in the urology clinic provided for by the functional duties.

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.
GC16. The ability to evaluate and ensure the quality of the work performed.

- 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.
SC24. Adherence to ethical principles when working with patients and laboratory animals.
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 indicators 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.
PLO32. The ability to diagnose and determine the management tactics of patients with extrapulmonary and common forms of tuberculosis, including co-infection of TB/HIV with a chemoresistant course.

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

- modern concepts of domestic and foreign theoretical and practical urology;
- basic principles of organizing urological care for the population of Ukraine;
- the basics of organizing a rational regimen and treatment of a urological patient;
- general elements of care for urological patients;
- theoretical aspects of dressing material and methods of its application;
- theoretical foundations of modern antiseptics;
- theoretical aspects of preventing the occurrence and spread of intra-hospital infection;

- classification, clinical manifestations, consequences of bleeding, methods of temporary and final stopping of bleeding, use of hemostatic agents in urology;
- theoretical and practical aspects of transfusion of donor blood preparations and blood substitutes;
- 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;
- general issues of traumatology, oncology and transplantology;
- means and methods of transport immobilization;
- theoretical aspects of wounds and the wound process, wound treatment;
- general issues of surgery and HIV infection;
- clinic, diagnosis and treatment of certain purulent-inflammatory diseases of soft tissues,
- patient examination methodology, features of examination of a patient with urological pathology;
- the structure of the medical card of an inpatient.

***Be able*:**

- carry out disinfection of various tools and items for patient care;
- organize appropriate sanitary and epidemic conditions for various premises of the urology department;
- perform subcutaneous and intramuscular injections, perform venipuncture, place an intravenous catheter, set up a system for transfusion of blood substitutes and donor blood components;
- perform bladder catheterization with a soft catheter, perform a cleansing and siphon enema, wash the stomach with a probe;
- prepare the operating field;
- apply measures to prevent the occurrence of bedsores;
- carry out differential diagnosis of bleeding, identify signs of hemorrhagic shock development;
- apply methods of temporary stopping of bleeding, choose a method for final stopping of bleeding;
- determine the blood group according to the ABO and Rh system, carry out tests for the individual compatibility of the blood of the recipient and the donor, select compatibility tests for the transfusion of donor blood components, organize and carry out the transfusion of erythrocyte mass, fresh frozen plasma;
- choose an adequate method of anesthesia for carrying out one or another intervention;
- diagnose terminal conditions, perform basic life support measures;
- to diagnose various damage to organs of the genitourinary system;
- provide first aid for various external injuries of the genitourinary organs;
- choose surgical tactics in the treatment of various stages of the wound process;
- choose means for local use in the treatment of wounds depending on the stage of the wound process;
- diagnose various inflammatory urological diseases, carry out differential diagnosis between them;
- choose appropriate surgical tactics for different stages of development of urological infection;
- draw up a treatment program for various infectious urological diseases;
- conduct anamnesis collection and objective examination of a urological patient;
- draw up an inpatient card for a patient with urological pathology.

3. Content of the academic discipline

Content module 1.

Symptoms of urological diseases. Clinical anatomy and physiology of the organs of the urinary and male reproductive systems. Research methods of urological patients. Anomalies of the development of the organs of the urinary and male reproductive systems. Traumatic damage to the organs of the urinary and male reproductive systems. Urogenital fistulae in women.

Topic 1. Symptoms of urological diseases. Peculiarities of the structure of diseases of the genitourinary system in the Odesa region.

Pain in the lumbar region. General characteristics of pain, etiology, localization, irradiation. Renal colic. Etiology and pathogenesis of pain in diseases of the bladder, prostate gland and external genital organs. Urinary disorders. Definition, etiology, pathogenesis. Polyuria, pollakiuria, nocturia. Urinary incontinence, its types. Urinary incontinence. Acute and chronic retention of urine. Residual urine and methods of its determination. Paradoxical ischuria.

Quantitative changes in urine: physiological and pathological polyuria. Oliguria. Anury. Types of anuria: prerenal, renal, postrenal, their causes.

Qualitative changes in urine: hematuria, its types, causes. Pyuria. Bacteriuria, its types. Pneumaturia. Hyluria, its types. Urethrorrhagia, its causes.

Topic 2. Modern methods of examination of urological patients.

Ultrasound examination: definition, types: percutaneous endovesical, transrectal and transvaginal examination, indications for them. Puncture examination of the kidney, renal pelvis and prostate gland under ultrasound control.

Electrophysiological research methods: reorenography, electromyography of the bladder and ureter. Definition, indications for use, diagnostic significance.

Urethroscopy. Cysto- and chromocystoscopy. Tools for endoscopic examination. Technique of performing urethroscopy, cystoscopy, chromocystoscopy. Complications of cystoscopy, their prevention and treatment. Technique of catheterization of ureters. Ureteroscopy, pyeloscopy. Methods of studying urodynamics: X-ray television pyeloureteroscopy, uroflowmetry, cystomanometry. Thermographic methods: definitions, types, indications for use. Diagnostic value.

Excretory urography, its types. Types of contrast agents. Implementation method. Interpretation of excretory urograms. Contraindications to excretory urography. Possible complications and their prevention. Retrograde ureteropyelography. Types of contrast agents for retrograde ureteropyelography, the amount of the drug that must be injected into the renal pelvis. Interpretation of ureteropyelograms. Advantages and disadvantages of retrograde ureteropyelography.

Computer and nuclear magnetic tomography, indications for their use, diagnostic possibilities. Cystography. The essence of the method, indications and methods of implementation. Modifications of cystography: sediment, micturition, polycystography, pericystography. Prevention of inflammatory complications during cystography.

Urethrography, its types: ascending and descending micturition, method of execution, diagnostic value. Complications during urethrography and their prevention.

Lymphoadenography. Genitography, method of execution, diagnostic value.

Isotopic renography, nephroscintigraphy, scanning, method of execution. Diagnostic value.

Topic 3. Anomalies of the development of the upper urinary system. Nephroptosis. Hydronephrosis.

The frequency of anomalies of the development of the upper urinary tract. Modern classification of anomalies of development of kidneys and ureters. Anomalies of renal vessels, kidneys, ureters. Clinical significance of developmental anomalies, methods of their diagnosis. Violations of uro- and hemodynamics with kidney abnormalities. Possible diagnostic and tactical errors in kidney abnormalities.

Topic 4. Anomalies of the development of the lower urinary system and organs of the male reproductive system.

The frequency of abnormalities in the development of the lower urinary tract and the male reproductive system. Modern classification of abnormalities of the development of the bladder, urethra, and

male genital organs. Anomalies of the urachus, bladder, urethra, male genital organs. Clinical significance of abnormalities in the development of the lower urinary tract, methods of their diagnosis. Violations of urodynamics with abnormalities of the bladder and urethra. Possible diagnostic and tactical errors in lower urinary tract abnormalities.

Topic 5. Traumatic damage to the kidneys and upper urinary tract.

Kidney damage: open and closed. Kidney damage combined with injury to other organs. Classification. Clinic. Diagnostics. Conservative and operative treatment.

Damage to the ureters. Causes of damage and mechanism of injury. Clinic, diagnosis, treatment. Urinary congestion as a characteristic consequence of damage to the upper urinary tract. Drainage of urohematoma. The possibility of primary plastic surgery of the ureter. Plastic surgery on the ureter. Performance technique.

Iatrogenic damage to kidneys and ureters: clinic, diagnosis, treatment

Topic 6. Traumatic injuries of the lower urinary system and organs of the male reproductive system. Urogenital fistulae in women.

Damage to the bladder: open and closed, intra- and extra-peritoneal. Urinary congestion as a characteristic consequence of damage to the urinary bladder.

Bladder neck tear. Symptoms, diagnosis. Zeldovich test with bladder filling. Cystography is the main method of diagnosing bladder damage. Performance technique.

Damage to the urinary bladder during surgical interventions on the organs of the abdominal cavity, pelvis, gynecological surgical interventions, childbirth, during endoscopic manipulations and operations. Diagnostics. Treatment.

Damage to the urethra. Causes of damage and mechanism of injury. Clinic, diagnosis, treatment. Ascending urethrocystography and its diagnostic value. Epicystostomy and drainage of urohematoma. The possibility of primary plastic surgery of the urethra. Plastic surgical interventions on the urethra: the operations of Kholtsov, Podrez-Vyshnevskyi, Solovyov, their features and long-term results.

Damage to the organs of the scrotum: types of damage, symptoms, diagnosis, treatment.

Testicular torsion: etiology, symptoms, diagnosis, treatment.

Content module 2. Inflammatory diseases of the genitourinary system and urolithiasis.

Topic 7. Acute pyelonephritis.

Classification. Etiology, pathogenesis, ways of spreading infection. The significance of pelvic-renal reflux, venous stasis of the general state of the body, its immunobiological reactivity in the occurrence of pyelonephritis. Local factors that contribute to the development of pyelonephritis. Different pathomorphological forms of acute pyelonephritis: serous, apostematous, kidney carbuncle, kidney abscess, necrotic papillitis. Clinic, diagnosis. Treatment: conservative and operative. Urgent methods of restoring the passage of urine from the kidney: catheterization, stent installation, puncture percutaneous nephrostomy.

Topic 8. Chronic pyelonephritis. Pyonephrosis Paranephritis. Nephrogenic hypertension.

Chronic pyelonephritis. Etiology. Phases of the clinical course. Clinic. Diagnostics. Treatment.

Pyonephrosis: clinic, diagnosis, treatment. The most common antibacterial drugs. The importance of determining the sensitivity of urine microflora.

Acute and chronic paranephritis.

Paranephritis: definition, ways of infection. Clinic. Ways of breaking through manure. Diagnostics. Treatment.

Ormond's disease or retroperitoneal fibrosis: definition, etiology, clinical picture, diagnosis, treatment.

Topic 9. Inflammatory diseases of the lower urinary tract and male genital organs. Prevalence of urinary disorders in the Southern region.

Cystitis: classification, ways of infection. Factors contributing to the occurrence of cystitis: local, general. Symptoms. Diagnostics. Treatment.

Prostatitis: definition, classification, etiology, clinic. Diagnostics. Ways of breakthrough of prostate gland abscess. Treatment of prostatitis.

Urethritis: etiology and pathogenesis, classification. Types of pathogens. Clinical course, diagnosis. Treatment of urethritis and their complications.

Epididymitis: definition, etiology, pathogenesis. Clinical course, diagnosis and treatment.

Cavernitis: definition, etiology, clinical course, diagnosis, treatment.

Topic 10. Tuberculosis of the genitourinary system. Parasitic diseases in urology.

Kidney tuberculosis: etiology, pathogenesis. Ways of penetration of the causative agent of the disease. Stages of disease development. Pathological and anatomical picture. Semiology. Diagnostic methods. Provocation tests with tuberculin. Modern methods of treatment. Dispensary supervision. Indications for urgent surgical treatment.

Tuberculosis of the urinary bladder. Pathological and anatomical picture. Semiology. Diagnostic methods. Modern methods of treatment. Dispensary supervision. Indications for urgent surgical treatment. Tuberculosis of the male genital organs: etiology, pathogenesis, clinical course. Diagnosis and methods of treatment.

Topic 11. Urinary stone disease.

Spread of urolithiasis. Recurrent nature of the disease. Etiology and pathogenesis. Characteristics of stones in terms of shape, location and chemical composition. X-ray optical properties of stones.

Kidney stones: clinical picture, diagnosis, treatment. Coral-like nephrolithiasis, classification, clinic, diagnosis, treatment. Complications of kidney stones. Modern methods of treatment of urolithiasis. Indications for operative treatment.

Bladder stones: etiology, clinical picture, diagnosis, treatment.

Prostate stones: clinic, diagnosis, treatment.

Hydronephrosis, ureterohydronephrosis: etiology and pathogenesis of the disease. Stages of hydronephrosis. Clinical course. Diagnostics. Methods of treatment. Principles and types of plastic surgery for hydronephrosis. Surgical correction of ureterohydronephrosis, ureteroneocystonastomosis technique, antireflux operations.

Content module 3. Neoplasms of organs of the urinary and male reproductive systems. Acute and chronic renal failure.

Topic 12. Neoplasms of organs of the urinary and male reproductive systems.

Kidney parenchymal cancer: etiology, pathological anatomy, symptoms, diagnosis, ways of metastasis, treatment.

Wilms tumor - adenomyosarcoma: symptoms, diagnosis, treatment.

Cancer of the renal pelvis: symptoms, diagnosis, treatment.

Tumors of the ureters: symptoms, diagnosis, treatment.

Bladder tumors: etiology and pathogenesis. Classification. Symptoms. Diagnostics. Methods of treatment: surgery, chemotherapy, radiation therapy. The place of endoscopic surgery in the treatment of bladder cancer.

Tumors of the male reproductive system: etiology and pathogenesis. Classification. Symptoms. Diagnostics. Methods of treatment: surgery, chemotherapy, radiation therapy. Testicular tumors. Pathogenetic significance of testicular trauma and cryptorchidism in the development of testicular tumors. Ways of metastasis. Clinical picture. Diagnosis, treatment.

Penile cancer. Etiology. The role of phimosis and balanoposthitis in the development of penile cancer. Clinic, diagnosis. Principles of treatment.

Topic 13. Benign hyperplasia of the prostate gland.

Etiology and pathogenesis. Etiology, pathogenesis, stages of the disease. Clinical manifestations, complications. Diagnostics. Modern methods of treatment. Principles of conservative therapy. Indications for surgical treatment. Minimally invasive methods of surgical treatment, indications for their implementation.

Topic 14. Prostate cancer. Differential diagnosis of neoplasms of the prostate gland.

Prostate cancer. Etiology. Stages of the disease, ways of metastasis. Clinical picture, diagnosis. Modern treatment tactics. Methods of treatment: surgery, hormone therapy, chemotherapy, radiation therapy. The value of PSA in the diagnosis of prostate cancer.

Topic 15. Acute and chronic kidney failure.

Acute renal failure: etiology, pathogenesis, stages of the disease. Symptoms. Diagnostics. Principles of conservative therapy. Intestinal dialysis, peritoneal dialysis and hemodialysis in the treatment of acute renal failure.

Etiology and pathogenesis of chronic renal failure. Stages and forms of the clinical course. Clinic, diagnosis, treatment. Indications for peritoneal dialysis and hemodialysis.

Kidney transplantation. Indications for kidney transplantation. Preparation of the recipient.

Donor selection. Management of the postoperative period. Modern immunosuppressive drugs.

Content module 4. Emergency care for urological diseases.

Topic 16. Transplantology. Deontological aspects, legal and legal bases of transplantation, donor selection. Neurogenic disorders of urination.

History of transplantology in Ukraine and the world. Ethical, socio-legal and religious aspects of transplantation and donation. Organization of transplant assistance to the population in Ukraine. Diagnosis of brain death, principles of donor conditioning. Living donation in modern transplantology. Transplantation immunology. Immunobiology and clinic of transplant rejection. Principles of immunosuppressive therapy.

Topic 17. Emergency care for urological diseases.

Renal colic. Mechanism of occurrence of renal colic. The main signs of renal colic. Differential diagnosis with other diseases. Methods of stopping renal colic.

Hematuria in kidney diseases. Reasons. Diagnostics. First aid.

Acute purulent pyelonephritis, bacteriotoxic shock. Causes of anuria. Symptoms. Diagnostics. Treatment.

Anury. Types of anuria. Causes of anuria. Symptoms. Diagnostics. Treatment.

Acute retention of urine. Reasons. Diagnostics. First aid.

Hematuria in diseases of the bladder and prostate. Reasons. Diagnostics. First aid.

Paraphimosis. Diagnostics. First aid.

Injuries of the bladder, urethra and testicles. Symptoms. Diagnostics. First aid.

4. Approximate structure of academic discipline

Names of content modules and topics	Number of hours			
	Total	including		
		Classroom		Independent work of students
		Lectures	Classes	
1	2	3	4	5
Module 1				
Content module 1. Symptoms of urological diseases. Clinical anatomy and physiology of organs of the urinary and male reproductive system. Methods of examination in urological patients. Congenital anomalies the urinary and male reproductive system organs. Traumatic injuries of the urinary and male genital systems. Urogenital fistulae.				
Topic 1. Symptoms of urological diseases. Peculiarities of the structure of diseases of the genitourinary system in Odesa region.	3		2	1
Topic 2. Modern methods of examination of urological patients.	5		4	1
Topic 3. Congenital anomalies of the upper urinary system. Nephroptosis. Hydronephrosis.	4		2	2
Topic 4. Congenital anomalies of the lower urinary system and male reproductive system.	4		2	1
Topic 5. Traumatic injuries of kidneys and upper urinary tract.	4	1	2	1
Topic 6. Traumatic injuries of lower urinary tract and male reproductive system. Urogenital fistulae in women.	5	1	2	2
Together on the content module 1	**24**	**2**	**14**	**8**
Content module 2. Inflammatory diseases of the urogenital system and urolithiasis				
Topic 7. Acute pyelonephritis	4		2	2
Topic 8. Chronic pyelonephritis. Pyonephrosis. Paranephritis. Nephrogenic hypertension	4		2	2
Topic 9. Inflammatory diseases of the lower urinary tract and male genital organs. Prevalence of urinary disorders in the Southern region.	3		4	1

Topic 10. Tuberculosis of the genitourinary system. Parasitic diseases in urology.	4		2	2
Topic 11. Urolithiasis	10	2	6	2
Together on the content module 2	**27**	**2**	**16**	**9**
Content module 3. Neoplasms of the urinary and male reproductive systems. Acute and chronic renal failure.				
Topic 12. Tumors of the urinary and male reproductive systems.	10	2	6	2
Topic 13. Benign prostatic hyperplasia	6		4	2
Topic 14. Prostate cancer. Differential diagnosis of prostate tumors.	3		2	1
Topic 15. Acute and chronic renal insufficiency.	6		4	2
Together on the content module 3	**25**	**2**	**16**	**7**
Topic 16. Transplantology. Deontological aspects, legal bases of transplantation, donor selection.	4		2	2
Topic 17. Emergency care for urological diseases.	6		4	2
Together on the content module 4	**10**		**6**	**4**
Differential offset	**4**		**2**	**2**
TOTAL HOURS	**90**	6	54	30

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

5.1. Topics of lectures

№	Topic of lecture	Hours
1.	Introductory lecture. Traumatic injuries of the urinary and male reproductive systems.	2
2.	Urolithiasis. Hydronephrosis.	2
3.	Tumors of the urinary system	2
	Together	6

5.2. Topics of seminar classes

Seminar classes are not provided.

5.3. Topics of practical classes

Topic	Hours
Topic 1. Symptoms of urological diseases. Peculiarities of the structure of diseases of the genitourinary system in Odesa region.	2
Topic 2. Modern methods of examination of urological patients.	2
Topic 3. Congenital anomalies of the upper urinary system. Nephroptosis. Hydronephrosis.	2
Topic 4. Congenital anomalies of the lower urinary system and male reproductive system.	2
Topic 5. Traumatic injuries of kidneys and upper urinary tract.	2
Topic 6. Traumatic injuries of lower urinary tract and male reproductive system. Urogenital fistulae in women.	2
Topic 7. Acute pyelonephritis	2
Topic 8. Chronic pyelonephritis. Pyonephrosis. Paranephritis. Nephrogenic hypertension	2
Topic 9. Inflammatory diseases of the lower urinary tract and male genital organs. Prevalence of urinary disorders in the Southern region.	2
Topic 10. Tuberculosis of the genitourinary system. Parasitic diseases in urology.	2
Topic 11. Urolithiasis	2
Topic 12. Tumors of the urinary and male reproductive systems.	2
Topic 13. Benign prostatic hyperplasia	2
Topic 14. Prostate cancer. Differential diagnosis of prostate tumors.	2
Topic 15. Acute and chronic renal insufficiency.	2
Topic 16. Transplantology. Deontological aspects, legal bases of transplantation, donor selection.	2
Topic 17. Emergency care for urological diseases.	2
Differential offset	4
Together	38

5.4. Topics of laboratory classes.

Laboratory classes are not provided.

6. Independent work of a student of higher education

№	TOPIC	Hours
1.	Preparation for practical classes - theoretical training and development of practical skills	34
2.	Topics for self-study:	
	- nephroptosis	1
	-parasitic diseases in urology	1
	-neurogenic urination disorders; enuresis; overactive bladder; prevalence of urination disorders in the Southern region of Ukraine.	1
	-Urogenital fistulas in women	1
	- nephrogenic arterial hypertension	1
	-modern endoscopic methods for diagnosis and treatment of diseases of the bladder, urethra and prostate	1
3.	-Individual IWS. Male infertility: the impact of adverse environmental factors. Andrological rehabilitation of patients with reproductive disorders.	4
4.	Preparation for the final control of mastering the module - clinical urology	2
	Together	46

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:

	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
A	Top 10% of students
B	The next 25% of students
C	The next 30% of students
D	The next 25% of students
E	The next 10% of students

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.

11. Questions for preparing for the final inspection.

1. Urinary disorders. Definition, etiology, pathogenesis.
2. Polyuria, pollakiuria, nocturia.
3. Urinary incontinence, its types. Urinary incontinence.
4. Quantitative changes in urine: physiological and pathological polyuria. Oliguria. Anury. Types of anuria: prerenal, renal, postrenal, their causes.
5. Qualitative changes in urine: hematuria, its types, causes. Pyuria. Bacteriuria, its types.
6. Ultrasound examination: definition, types: percutaneous endovesical, transrectal and transvaginal examination, indications for them.
7. Puncture examination of the kidney, renal pelvis and prostate gland under ultrasound control.

8. Excretory urography, its types. Types of contrast agents. Implementation method. Interpretation of excretory urograms. Contraindications to excretory urography. Possible complications and their prevention.
9. Retrograde ureteropyelography. Interpretation of ureteropyelograms. Advantages and disadvantages of retrograde ureteropyelography.
10. Computer and nuclear magnetic tomography, indications for their use, diagnostic possibilities.
11. Cystography. Indications and methods of performance. Prevention of inflammatory complications during cystography.
12. Urethrography, its types: ascending and descending micturition, method of execution, diagnostic value. Complications during urethrography and their prevention.
13. Isotopic renography, nephroscintigraphy, scanning, performance method. Diagnostic value.
14. Classification of anomalies of the development of kidneys and ureters.
15. Anomalies of renal vessels, kidneys, ureters. Clinical significance of developmental anomalies, methods of their diagnosis.
16. Anomalies of the urachus, bladder, urethra, male genital organs.
17. Classification of kidney damage. Kidney damage combined with injury to other organs. Clinic. Diagnostics. Conservative and operative treatment.
18. Damage to the ureters. Causes of damage and mechanism of injury. Clinic, diagnosis, treatment.
19. Iatrogenic damage to kidneys and ureters: clinic, diagnosis, treatment.
20. Bladder damage. Causes of damage and mechanism of injury. Clinic, diagnosis, treatment.
21. Bladder damage during surgical interventions on organs of the abdominal cavity, pelvis, gynecological surgical interventions, childbirth, during endoscopic manipulations and operations. Diagnostics. Treatment.
22. Damage to the urethra. Causes of damage and mechanism of injury. Clinic, diagnosis, treatment. Ascending urethrocystography and its diagnostic value.
23. Epicystostomy and drainage of urohematoma.
24. Damage to the scrotal organs: types of damage, symptoms, diagnosis, treatment.
25. Testicular torsion: etiology, symptoms, diagnosis, treatment.
26. Acute pyelonephritis. Classification. Etiology, pathogenesis, ways of spreading infection. Clinic, diagnosis. Treatment: conservative and operative.
27. Urgent methods of restoring the passage of urine from the kidney: catheterization, stent placement, puncture percutaneous nephrostomy.
28. Chronic pyelonephritis. Etiology. Phases of the clinical course. Clinic. Diagnostics. Treatment.
29. Pyonephrosis: clinic, diagnosis, treatment. The most common antibacterial drugs. The importance of determining the sensitivity of urine microflora.
30. Paranephritis: definition, ways of infection. Clinic. Ways of breaking through manure. Diagnostics. Treatment.
31. Ormond's disease or retroperitoneal fibrosis: definition, etiology, clinical picture, diagnosis, treatment.
32. Cystitis: classification, ways of infection. Factors contributing to the occurrence of cystitis: local, general. Symptoms. Diagnostics. Treatment.
33. Prostatitis: definition, classification, etiology, clinic. Diagnostics. Ways of breakthrough of prostate gland abscess. Treatment of prostatitis.
34. Urethritis: etiology and pathogenesis, classification. Types of pathogens. Clinical course, diagnosis. Treatment of urethritis and their complications.
35. Epididymitis: definition, etiology, pathogenesis. Clinical course, diagnosis and treatment.
36. Cavernitis: definition, etiology, clinical course, diagnosis, treatment.
37. Kidney tuberculosis: etiology, pathogenesis. Ways of penetration of the causative agent of the disease. Stages of disease development. Diagnostic methods. Modern methods of treatment. Dispensary supervision. Indications for urgent surgical treatment.

38. Tuberculosis of the urinary bladder. Semiology. Diagnostic methods. Modern methods of treatment. Dispensary supervision. Indications for urgent surgical treatment.
39. Tuberculosis of the male genital organs: etiology, pathogenesis, clinical course. Diagnosis and methods of treatment.
40. Urinary stone disease. Etiology and pathogenesis. Characteristics of stones in terms of shape, location and chemical composition. X-ray optical properties of stones.
41. Kidney stones: clinical picture, diagnosis, treatment. Complications of kidney stones. Modern methods of treatment of urolithiasis. Indications for operative treatment.
42. Bladder stones: etiology, clinical picture, diagnosis, treatment.
43. Hydronephrosis, ureterohydronephrosis: etiology and pathogenesis of the disease. Stages of hydronephrosis. Clinical course. Diagnostics. Methods of treatment.
44. Cancer of the kidney parenchyma: etiology, pathological anatomy, symptoms, diagnosis, ways of metastasis, treatment.
45. Wilms' tumor - adenomyosarcoma: symptoms, diagnosis, treatment.
46. Cancer of the renal pelvis: symptoms, diagnosis, treatment.
47. Tumors of the ureters: symptoms, diagnosis, treatment.
48. Bladder tumors: etiology and pathogenesis. Classification. Symptoms. Diagnostics. Methods of treatment.
49. Testicular tumors. Pathogenetic significance of testicular trauma and cryptorchidism in the development of testicular tumors. Ways of metastasis. Clinical picture. Diagnosis, treatment.
50. Penile cancer. Etiology. Clinic, diagnosis. Principles of treatment.
51. Benign hyperplasia of the prostate gland. Etiology, pathogenesis, stages of the disease. Clinical manifestations, complications. Diagnostics.
52. Benign hyperplasia of the prostate gland. Modern methods of treatment. Principles of conservative therapy. Indications for surgical treatment. Minimally invasive methods of surgical treatment, indications for their implementation.
53. Prostate cancer. Differential diagnosis of neoplasms of the prostate gland.
54. Prostate cancer. Etiology. Stages of the disease, ways of metastasis. Clinical picture, diagnosis. Modern treatment tactics. Methods of treatment: surgery, hormone therapy, chemotherapy, radiation therapy.
55. Acute renal failure: etiology, pathogenesis, stages of the disease. Symptoms. Diagnostics. Principles of conservative therapy.
56. Etiology and pathogenesis of chronic renal failure. Stages and forms of the clinical course. Clinic, diagnosis, treatment. Indications for peritoneal dialysis and hemodialysis.
57. Kidney transplantation. Indications for kidney transplantation. Preparation of the recipient. Donor selection. Management of the postoperative period. Modern immunosuppressive drugs.
58. Diagnosis of brain death, principles of donor conditioning. Living donation in modern transplantology. Transplantation immunology. Transplant rejection clinic. Principles of immunosuppressive therapy.
59. Renal colic. Mechanism of occurrence of renal colic. The main signs of renal colic. Differential diagnosis with other diseases. Methods of stopping renal colic.
60. Hematuria in kidney diseases. Reasons. Diagnostics. First aid.
61. Acute purulent pyelonephritis, bacteriotoxic shock. Causes of anuria. Symptoms. Diagnostics. Treatment.
62. Anuria. Types of anuria. Causes of anuria. Symptoms. Diagnostics. Treatment.
63. Acute and chronic retention of urine. Residual urine and methods of its determination. Paradoxical ischuria. Reasons. Diagnostics. First aid.
64. Hematuria in diseases of the bladder and prostate. Reasons. Diagnostics. First aid.
65. Paraphimosis. Diagnostics. First aid.

12. Recommended literature.

Basic:

1. S.P. Pasechnikov; Urology: textbook/ Ed. S. P. Pasyechnikova, S. A. Vozianov, V. N. Lesovy [and others]. - View. 3rd – Vinnytsia: New Book, 2019.
2. Pasechnikov S.P. Modern problems of urology: [manual]: doctor's guide/ S.P. Pasechnikov, V.I. Zaitsev. - Kyiv: L-ry Health of Ukraine; 2017.
3. Stus V.P. Urology (practical skills for intern doctors) / V.P. Stus, S.P. Pasechnikov. Teaching and methodical manual. - Dnipropetrovsk: Akcent PP LLC, 2016.
4. Sarychev L.P. Symptoms of urological diseases: method. rec. For teachers / L. P. Sarychev, S. M. Suprunenko, S. A. Sukhomlyn, Ya. V. Sarychev. – Poltava, 2019.
5. O.V., Lyulko, O.F. Vozianov Textbook "Urology" 3rd edition. Thresholds Dnipropetrovsk. - 2012 p.
6. "Urology (Methodical development of practical classes for students)" edited by Professor V.P. Stus, second edition, supplemented. / A.P. Stus, Moiseinko M.M., Fridberg A.M., Pollion M.Yu., Barannik K.S., Suvaryan A.L., Krasnov V.M., Kryzhanivskyi O.Yu. - Dnipro: Accent LLC. - 2018. - 336c.
7. Urology: textbook for students. higher med. academic established: translation from Ukrainian publications / S.P. Pasechnikov, S.A. Vozianov, V.N. Lesovoy, F.I. Kostev, V.P. Stus, et al./ Ed. S.P. Pasechnikov - Edition 2. - Vinnytsia: Novaya Knyga, 2015. - 456 p.: illustr.
8. Uro1ogy: textbook for students of higher medical education Institutions /S.P. Pasechnikov, S.O. Vozianov, V.M. Lesovoy (et at.); ed. by Pasechnikov. / S.P. Pasechnikov, S.O. Vozianov, V.M. Lesovoy (et at.) - Vinnytsia: Nova Knyha, 2016. - 400 p.
9. EAU Guidelines, edition presented at the 28th EAU Annual Congress, Milan 2021. ISBN 978-90-79754-71-7. EAU Guidelines Office, Arnhem, The Netherlands.
10. Alan W. Partin, Alan J. Wein, et. all - Campbell Walsh Wein Urology, E-Book (12th ed.) – 2020.
11. Omar M. Aboumarzouk - Blandy's Urology, 3rd Edition – 2019.
12. David Thurtle, Suzanne Biers, Michal Sut, James Armitage. - Emergencies in Urology – 2017.
13.Philipp Dahm, Roger Dmochowski - Evidence-based Urology, 2nd Edition – 2018.

Additional:

1. Boyko M.I., Pasechnikov S.P., Stus V.P. and others Clinical andrology // Doctor's guide "Androlog". - K.: LLC "Library "Health of Ukraine", 2013. - 222 p.
2. Sarychev L.P. Clinical anatomy and physiology of organs of the urinary and male reproductive system: method. rec. for teachers / comp. L. P. Sarychev, S. A. Sukhomlyn, S. M. Suprunenko. – Poltava, 2019. – 11 p.
3. Sarychev L.P. Symptoms of urological diseases: method. rec. for teachers / L. P. Sarychev, S. M. Suprunenko, S. A. Sukhomlyn, Ya. V. Sarychev. – Poltava, 2019. – 14 p.
4. Medical student's library. Urology. Edited by F.I. Kosteva. - Odesa, 2004. – 296p.
5. Atlas-guide to urology. Ed. A.F. Vozianova, A.V. Lulko Dnipropetrovsk, 2002.-T. 1,2,3
6. Urology / Ed. Prof. O.S. Fedoruk - Chernivtsi: Bukovyna State Medical University, 2011. - 344p.

Information resources:

University website https://onmedu.edu.ua
Library 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/