Ministry of Health of Ukraine
Poltava State Medical University

Department of surgery № 1

SYLLABUS

Endoscopic technologies in surgery

(selective educational discipline)

level of higher education	the second (master's) level of higher education
field of knowledge	22 «Healthcare»
specialty	222 «Medicine»
academic qualification	Master of Medicine
professional qualification	Medical Doctor
academic and professional program	«Medicine»
mode of study	full-time
course(s) and semester(s) of study of the discipline	VI course, XI, XII semesters

«APPROVED»
At the meeting of Department of Surgery № 1
Acting head of Department _____ Mykola KRAVTSIV
Protocol from **29 AUG 2023** № **1**

Poltava – 2023

INFORMATION ABOUT LECTURERS WHO DELIVER THE ACADEMIC DISCIPLINE

Surname, name, patronymic of the lecturer (lecturers), scientific degree, academic title	– Kravtsiv Mykola, PhD., Head of the Department – Ivashchenko Dmytro, PhD., assistant; – Prykhidko Roman, PhD., assistant; – Shevchuk Mykola, assistant; – – Zaiets Serhii, assistant;
Profile of the lecturer (lecturers)	https://surgery-four.pdmu.edu.ua/team
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Department page at the website of PDMU	https://surgery-four.pdmu.edu.ua/

MAIN CHARACTERISTICS OF THE ACADEMIC DISCIPLINE

The volume of discipline

Number of credits / hours – **3,0 / 90**, of which:

Lectures (hours) – **not planned**

Practical classes (hours) – **36**

Independent work (hours) – **54**

Type of control – **credit**

The policy of the academic discipline

The policy of the academic discipline is developed taking into account the norms of Ukrainian legislation on academic integrity, the Statute, regulations of the University and other normative documents. The organization of the educational process in the selective educational discipline "Endoscopic technologies in surgery" is implemented at the Department of Surgery № 1 of the Poltava State Medical University, in accordance with the "Regulations on the Organization of the Educational Process in the Poltava State Medical University (https://www.pdmu.edu.ua/storage/department-npr/docs_links/0nrGNrEzksWWytpXV8j05INcg9wbyVjkYx9FrbEY.pdf) and other valid regulatory documents (https://www.pdmu.edu.ua/n-process/department-npr/normativni-dokumenti).

The educational process in the selective educational discipline "Endoscopic technologies in surgery" in special conditions (martial law, quarantine during a pandemic, etc.) is carried out with the help of distant learning technologies, practical classes can be conducted using the platforms ZOOM, Google Meet, Google Classroom and in.

When organizing the educational process in PSMU, teachers and students act in accordance with:

- Regulations on making up for missed classes and unsatisfactory grades by students of higher education at the Poltava State Medical University (https://www.pdmu.edu.ua/storage/department-npr/docs_links/Tw1ZR7sjAmDI8i0uE6kRX5q2F80J6AiwtZ2dvVlQ.pdf)
- Regulations on distance education at Poltava State Medical University (https://www.pdmu.edu.ua/storage/department-npr/docs_links/03JNND8Ilh5H8KhDdFbMIJPEIQnAzB7UNwxCvRGy.pdf)
- Regulations on non-formal and informal education of participants in the educational process of the Poltava State Medical University (https://www.pdmu.edu.ua/storage/department-npr/docs_links/fKBks6cPo5jzq0brID6eI7LKTEACqmrdjrewYFvL.pdf)
- Provisions on the organization of independent work of students of higher education at the Poltava State Medical University (https://www.pdmu.edu.ua/storage/department-npr/docs_links/wRYAl5n5X9cgYzgLLwxjtYa8Y3OQ9wK6iAEtkjca.pdf)
- Regulations on the organization and methodology of evaluating the educational activities of higher education applicants at the Poltava State Medical University (https://www.pdmu.edu.ua/storage/department-npr/docs_links/NMQ6RVrpAGYuKpw1JoSJaApnMMMwbKdxQN9FC2hu.pdf)
- Internal regulations for students of Poltava State Medical University (https://www.pdmu.edu.ua/storage/department-npr/docs_links/OaN2nwysLPFAUDRvuDPvFSpzM1j9E9CwQQkgr93b.pdf)

During their stay at the department, students must:

- to observe the business style of dress adopted in medicine;
- maintain order in classrooms and classrooms;
- treat property (furniture, equipment, technical equipment) with care and attention;
- not to take out things and equipment from classrooms without permission, and in case of intentional damage - to compensate for their cost in the manner prescribed by current legislation;
- not to allow illegal actions, immoral acts.

For students is prohibited:

- disrupt the schedule of the educational process and allow non-fulfillment of the curriculum and individual curriculum without good reason;
- be late and miss classes without good reason.
- leave the classroom without the teacher's permission;
- use a mobile phone and other means of communication during classes to obtain information without the teacher's permission;
- engage in extraneous activities, distract other students and interfere with the teacher;
- use a medical uniform and its individual elements that do not meet sanitary and hygienic requirements;
- hand over to teachers any material values for the performance or non-performance by them of certain actions using their position;
- use narcotic drugs, psychotropic substances and their analogues, alcoholic beverages, smoke;
- commit immoral acts that humiliate human dignity, use profanity;

commit illegal actions and carry out any actions that may create conditions that are dangerous to the health and / or life of others/

Observance of academic integrity by a student includes:

- independent fulfillment of educational tasks, tasks of current and final control of learning outcomes;
- links to sources of information in the case of using ideas, developments, statements, information;
- observance of the norms of legislation on copyright and related rights;
- providing reliable information about the results of their own educational (scientific, creative) activities, used research methods and sources of information.

It is considered a violation of academic integrity:

- academic plagiarism - the disclosure (partially or completely) of scientific (creative) results obtained by other persons as the results of their own research (creativity) and / or reproduction of published texts by other authors without attribution;

- self-plagiarism - the disclosure (partially or completely) of one's own previously published scientific results as new scientific results;
- fabrication - the composition of data or facts used in the educational process or scientific research;
- falsification - deliberate change or modification of existing data concerning the educational process or scientific research;
- cheating - performance of written work with the involvement of external sources of information, except for those permitted for use, in particular when assessing learning outcomes;
- deception - provision of deliberately false information on one's own educational (scientific, creative) activities or organization of the educational process.

Description of the academic discipline

The aim of a discipline "Endoscopic technologies in surgery" – to provide medical students with information about the latest technologies that can be used to treat patients in terms of providing them with surgical care. The topics presented for consideration concern modern aspects of the use of endoscopic devices in diagnostics, surgical operations and postoperative treatment of patients. The subject of study of the discipline "Endoscopic technologies in surgery" are:

- The basics of technical support for video endoscopic interventions;
- The basics of endoscopic anatomy of a human body cavity;
- Examination and diagnosis of surgical diseases,
- Treatment and prevention of surgical pathology;
- Surgical treatment techniques using video endoscopic minimally invasive techniques;
- The acquisition of basic practical skills.

The discipline "Endoscopic technologies in surgery" is taught to students of the VI course, specialty of “Medicine”. The discipline is adapted to the needs of clinical medicine and contains separate sections. The educational process is organized according to the requirements of the European credit transfer system.

Pre-requisites and post-requisites of the academic discipline

The discipline is based on students studying morphological disciplines - human anatomy, physiology, pathophysiology; clinical disciplines - general surgery, clinical anatomy and operative surgery, surgery, propaedeutics of internal medicine, pharmacology and integrates with these disciplines.

The discipline lays an array of knowledge for students on minimally invasive technologies in medicine and, in particular, their use in surgical specialties, which provides for the integration of teaching with urology, obstetrics and gynecology, oncology and radiation medicine, anesthesiology and intensive care and other disciplines where surgical

methods of treatment are used, as well as with other clinical disciplines - internal medicine, emergency and emergency care, it forms the ability to apply the acquired knowledge in the process of professional activity at the level of general practitioner and specialist.

The aim and tasks of the academic discipline:

The aim of the study of the discipline is the assimilation of theoretical and practical knowledge of the etiology, pathogenesis, typical and atypical clinical manifestations, diagnostic methods, conservative and surgical treatment, rehabilitation of surgical pathology in patients using modern video endoscopic methods in the framework corresponding to the preparation of a general practitioner taking into account features of his specialty.

The main tasks of studying the discipline are:

- To form the correct concept of moral and ethical principles of a medical specialist in a surgical specialty among students;
- To form a system of theoretical knowledge among students about the possibility of using the latest video endoscopic methods for the diagnosis and treatment of surgical diseases;
- Formation of skills for preparing patients for minimally invasive interventions; communication and interaction skills with the team, colleagues, patients and relatives, skills in working with medical records;
- Provide practical knowledge and skills on the use of endoscopic and minimally invasive technologies in surgery;
- To form knowledge regarding the most common clinical symptoms and syndromes in the clinic of surgical diseases, examination of the patient, formulation of the diagnosis, interpretation of examination methods, determination of management tactics (principles of surgical interventions and conservative treatment, rehabilitation measures) and prevention of the most common surgical diseases in which it is possible to use video endoscopic and minimally invasive technologies;
- The formation of the necessary knowledge to identify atypical clinical options and complications of the most common surgical diseases using endoscopic and minimally invasive technologies, and providing emergency medical care.

Competences, formation of which is facilitated by the discipline (integral, general, special)

Integral: the ability to solve typical and complex specialized problems and practical problems in the learning process, involves research, innovation and is characterized by the complexity and uncertainty of conditions and requirements.

Common:

1. Ability to apply knowledge in practical situations.

2. Knowledge and understanding of the subject area and understanding of professional activity.
3. Ability to adapt and act in a new situation.
4. Ability to make informed decisions; work in a team; interpersonal skills.
5. Ability to communicate in the state language both orally and in writing; ability to communicate in a foreign language; ability to use international Greco-Latin terms, abbreviations and clichés in professional oral and written speech.
6. Skills in the use of information and communication technologies.
7. Definiteness and perseverance in terms of tasks and responsibilities.
8. Ability to act socially responsibly and consciously.

Special:

1. Ability to determine the required list of laboratory and instrumental studies and assess their results
2. The ability to establish a preliminary and clinical diagnosis of the disease;
3. Ability to determine the principles and nature of the treatment of diseases.

Learning outcomes of the academic discipline:

Upon completion of the study, students have to:

Know:

- Types of equipment necessary for endovideoscopic and minimally invasive operations;
- Anatomical and physiological features of the organs of the chest, abdominal cavity, retroperitoneal space when using endoscopic equipment;
- Etiology, pathogenesis and classification of surgical diseases of the organs of the chest, abdominal cavity, retroperitoneal space, the possibility of using endoscopic and minimally invasive methods for each pathology;
- The clinical picture, diagnostic methods and the results of laboratory and instrumental studies in surgical patients;
- Differential diagnosis of diseases of the abdominal cavity, retroperitoneal space and chest;
- Modern methods and algorithms for conservative and surgical treatment of surgical diseases: digestive, respiratory, genitourinary systems, depending on the symptomatic and syndromic features of their clinical manifestations, indications and contraindications for endoscopic interventions;
- Postoperative monitoring and rehabilitation of surgical diseases;
- Risk factors for complications during minimally invasive and endoscopic interventions in surgical patients, methods for their prevention and correction;
- Emergency medical care for urgent abdominal surgical diseases, pathology of the respiratory and genitourinary systems.

Be able to:

- Prepare for work and configure endoscopic equipment;
- To interpret the etiology, pathogenesis and classification of surgical diseases;
- Choose the optimal method of video endoscopic research to identify functional morphological changes in the pathology of various organs and systems;
- Interpret indications, contraindications, principles of video endoscopic research and treatment methods;
- Recognize the clinical picture of the main surgical diseases of the organs of the chest, abdominal cavity, retroperitoneal space, urogenital system;
- Determine the necessary diagnostic methods and interpret the results of laboratory and instrumental studies;
- Conduct differential diagnosis of diseases of the abdominal cavity, retroperitoneal space and chest;
- To draw up algorithms and schemes for conservative and surgical treatment of these diseases using endoscopic and minimally invasive methods of treatment;
- Prescribe postoperative treatment and rehabilitate patients after endoscopic and minimally invasive interventions;
- Identify risk factors for complications during minimally invasive and endoscopic interventions in surgical patients;
- To provide emergency medical care in case of urgent surgical diseases;
- Demonstrate mastery of the moral and ethical principles of a medical specialist and the principles of professional subordination in surgery;
- To make a prognosis of life and ability to work in patients after endoscopic and minimally invasive interventions;
- Demonstrate the ability to maintain medical records in the clinic of surgical diseases.

Thematic plan of lectures (by modules), specifying the basic issues, which are considered at the lecture:

- Lectures are not planned.

Thematic plan of seminar classes by modules and content modules, specifying the basic issues, which are considered at the seminar class:

- Seminar classes are not planned.

Thematic plan of practical classes by modules and content modules, specifying the basic issues, which are considered at the practical class:

№	Topic name	Hours
1	Organization of medical staff working process at surgical department, operating unit and anesthesiological service. Laparoscopic equipment and principles of its functioning: *The principles of functioning of the laparoscopic operating room. Classification of laparoscopic instruments. Principles of disinfection and use of equipment.*	4
2	Laparoscopy of biliary tract.: *Indications for laparoscopic cholecystectomy. Contraindications to laparoscopic cholecystectomy. Technique for laparoscopic cholecystectomy. Treatment in the postoperative period.*	3
3	Laparoscopic operations on the stomach: *Indications and contraindications for laparoscopic surgery. Stages and types of operations, necessary equipment. Postoperative treatment.*	4
4	Bariatric surgery. Laparoscopic surgery of the spleen: *Indications and contraindications for bariatric surgery. Types of bariatric operations, execution technique. Preparation of bariatric operations. Indications for laparoscopic splenectomy. Technique of splenectomy.*	3
5	Laparoscopic operations at the inguinal area: *Indications and contraindications for laparoscopic hernioplasty. Operation technique, necessary equipment. Postoperative treatment*.	3
6	Laparoscopic operations on the pelvic organs: *Indications and contraindications for laparoscopic surgery for gynecological diseases. Stages and types of operations, necessary equipment. Postoperative treatment.*	4
7	Laparoscopic operations on the large intestine: *Indications for laparoscopic hemicolectomy. The technique of performing the operation, the technique of applying anastomoses. Postoperative treatment.*	4
8	Endoscopic thoracic surgery: *Indications and contraindications for thoracoscopy. Diagnostic and therapeutic thoracoscopy.*	3
9	Laparoscopic operations on the genitourinary system: *Endoscopic treatment of urolithiasis. Endoscopic treatment of prostate adenoma.*	4
10	Laparoscopic surgery in context of urgent surgical diseases:	4

	Laparoscopic diagnosis of acute diseases of the abdominal cavity. Laparoscopic appendectomy. Laparoscopic suturing of perforated ulcers. Credit.	
	Total	**36**

Self-directed work

№	Topic	Hours
I.	Preparation for practical classes – preparation of the theoretical and practical skills	30
II.	Study of topics that are not included in the lesson plan (a list indicating the main issues to be studied)	
	1. Highly specialized endoscopic equipment. *Welding electrocoagulation apparatus. Ultrasonic dissectors in endoscopic surgery. Equipment for transurethral manipulations.*	6
	2. Possibilities of choledochoscopy in the treatment of obstructive jaundice and cholelithiasis. *The structure and purpose of the choledochoscope, auxiliary tools. The main causes of cholelithiasis. The role of choledochoscopy in the management of cholelithiasis.*	6
	3. The role of endoscopy in the treatment of urolithiasis. *Equipment for cystoureteroscopy. Minimally invasive treatment of urolithiasis. Percutaneous nephrolithotripsy.*	6
	4. Robotic surgery. *Principles of operations on the "Da-Vinci" device. Indications, contraindications, conditions for the use of robotic surgery.*	6
Total		**54**

Individual tasks

1. Preparation of reports for student scientific conferences;
2. Creation of illustrative material (videos, stands, etc.);
3. Participation in student olympiads in surgery.

The list of questions that the student have to learn when studying the academic discipline (control form - credit)

1. Preparation of the patient and equipment for video endoscopic intervention. Processing and storage of optical instruments. Organization of work of the operating room and personnel during of video endoscopic operations;

2. Indications and contraindications for laparoscopic and thoracoscopic interventions. Features of anesthetic management of patients when performing minimally invasive and video endoscopic operations;
3. Technique of laparoscopic approaches, selection of trocar insertion sites. Veress needle insertion technique. Technique of joining of the tissues. Intracorporeal and extracorporeal knot tying techniques. Methods of hemostasis when performing video endoscopic operations. Completion of the transaction. Trocar removal technique, suturing of the musculoaponeurotic layer and skin.
4. Complications of laparoscopic surgery: bleeding, electric burns, perforation of hollow organs. Diagnostics, prevention, treatment. Features of the postoperative period after minimally invasive and video endoscopic operations.
5. Laparoscopic anatomy of the biliary tract. Laparoscopic cholecystectomy, choledochotomy indications, contraindications, technique. Complications of laparoscopic operations on the biliary tract, their diagnosis and prevention.
6. Laparoscopic anatomy of the stomach, spleen. Laparoscopic gastric resection, treatment of metabolic syndrome, splenectomy: indications, contraindications, technique.
7. Laparoscopic anatomy of the abdominal wall, types of hernias, indications, contraindications to operations, technique. Laparoscopic treatment of recurrent hernias and hernias of rare localizations.
8. Laparoscopic anatomy of the pelvic organs. Laparoscopic interventions on the uterus, uterine appendages. Indications, contraindications, technique. Laparoscopic surgery for urgent gynecological pathology and acute inflammatory diseases of the female reproductive organs
9. Laparoscopic anatomy of the large intestine. Indications and contraindications for hemicolectomy, laparoscopic appendectomy, technique of execution. Types of intestinal anastomoses, methods of application.
10. Laparoscopic anatomy of the chest cavity organs. Possibilities of thoracoscopy in the diagnosis and treatment of diseases of the chest cavity.
11. Laparoscopic anatomy of the genitourinary system. Laparoscopic nephrectomy, kidney cyst surgery, spermatic cord varicose veins. Indications, contraindications, technique.
12. Laparoscopic interventions for acute pancreatitis, acute intestinal obstruction, intra-abdominal bleeding: indications, contraindications, technique.

The form of final control of academic performance - <u>Credit</u>

Teaching methods:

When studying the discipline "Endoscopic technologies in surgery" a set of methods is used:

- Verbal, providing perception and assimilation of knowledge by students (explanation, story, conversation, instruction, discussion);
- Methods of visual transmission and visual perception of educational information (display and demonstration of patients, tables, diagrams, slides, videos);
- Active:
  - Case-method with the analysis of histories of patients who will undergo minimally invasive endoscopic surgery, with the determination of indications, contraindications for surgery, the choice of the operation method, discussion of postoperative treatment;
  - Simulation tasks on patented laparoscopic simulators "Surgery Assist", for practicing the technique of using endoscopic instruments and simulating the stages of surgical interventions
  - Presentation of online broadcasts of endoscopic interventions from the operating room of the surgical department to applicants of higher education.

- Practical:
  - The solution of clinical situational tasks and tests, tasks from the base of the Krok-2 exam;
  - Surveys and physical examinations of patients with surgical pathology;
  - Studies of the functional state of organs and systems of patients;
  - Making up a plan for examining patients with surgical pathology;
  - Mastering the skills of surgical equipment when working in the dressing room and operating room;
  - Participation on duty at the clinic;
  - Participation in the preparation of medical documentation.

Control methods:

- verbal questioning;
- written control;
- test control;
- programmable control;
- practical inspection;
- self-control;
- self-esteem.

The system of current and final control:

Current control is carried out at each practical lesson in accordance with specific goals for each topic. The student's grade corresponds to the ratio of the level of formation of professional and general competencies established during the assessment to the planned learning outcomes (in percentage). We use standardized and generalized criteria for assessing students' knowledge, which are shown in the table.

Criteria for assessing of current educational knowledge:

4-point scale	ECTS grade	Assessment criteria
5 (excellent)	A	The student shows special abilities, knows how to independently acquire knowledge, without the help of a teacher finds and processes the necessary information, knows how to use the acquired knowledge and skills to make decisions in non-standard situations, convincingly argues for answers, independently reveals his own talents and inclinations, has at least 90% of knowledge on the topic both during the survey and all types of control.
4 (good)	B	The student is fluent in the studied volume of material, applies it in practice, freely solves exercises and problems in standardized situations, independently corrects errors, which number is insignificant, has at least 85% of knowledge on the topic during both the survey and all types of control.
	C	The student is able to compare, generalize, systematize information under the guidance of a scientific-pedagogical specialist, in general independently apply it in practice, control his own activities; is able to correct mistakes, among which there are significant ones, to select arguments to confirm thoughts, has at least 75% of knowledge on the topic both during the survey and all types of control.
3 (satisfactorily)	D	The student reproduces a significant part of the theoretical material, reveals knowledge and understanding of the main provisions with the help of a scientific-pedagogical specialist can analyze the educational material, correct errors, among which a significant number are significant, has at least 65% of knowledge on the topic both during the survey and all types of control.
	E	The student knows the educational material at a level higher than the initial one, reproduces a significant part of it at the reproductive level. Owns at least 60% of knowledge on the topic both during the survey and all types of control.

2 (unsatisfactory)	FX	The student knows the material at the level of separate fragments that are an insignificant part of the material, has less than 60% of knowledge on the topic both during the survey and all types of control.
	F	The student knows the material at the level of elementary recognition and reproduction of separate facts, elements, has less than 60% of knowledge on the topic both during the survey and all types of control.

Discipline credit regulations

The student receives a credit in the last lesson in the discipline based on the results of the current marks. This type of final control does not provide for any additional written work, surveys, tests at the last lesson.

Credit is received by students who have scored the required minimum number of points during the current control (average grade point 3.0 and above), have no unworked absences in lectures, seminars and practical classes, and have fulfilled all the requirements for each academic discipline provided for by the working curriculum for discipline (defense of medical history, etc.).

The learning outcome is assessed on a two-point scale (passed / not passed) and a multi-point scale. The maximum number of points that a student can receive in a discipline is 200. The minimum number of points that a student must get is 122.

The average grade for current activities is converted into points on a 200-point scale, in accordance with the unified table:

Average score for current progress (A)	Points for current success in the module (A * 24)	Points for the final module control (A*16)	Points for the module and / or exam (A*24 + A*16)	ECTS category	4-point scale
2	48	32	80	**F**	**2**
2,1	50	34	84	**FX**	**unsatisfactory**
2,15	52	34	86		
2,2	53	35	88		
2,25	54	36	90		
2,3	55	37	92		
2,35	56	38	94		
2,4	58	38	96		
2,45	59	39	98		
2,5	60	40	100		
2,55	61	41	102		
2,6	62	42	104		
2,65	64	42	106		
2,7	65	43	108		

2,75	66	44	110		
2,8	67	45	112		
2,85	68	46	114		
2,9	70	46	116		
2,95	71	47	118		
3	72	50	122	**E**	**3 satisfactorily**
3,05	73	50	123		
3,1	74	50	124		
3,15	76	50	126		
3,2	77	51	128		
3,25	78	52	130	**D**	
3,3	79	53	132		
3,35	80	54	134		
3,4	82	54	136		
3,45	83	55	138		
3,5	84	56	140	**C**	**4 good**
3,55	85	57	142		
3,6	86	58	144		
3,65	88	58	146		
3,7	89	59	148		
3,75	90	60	150		
3,8	91	61	152		
3,85	92	62	154		
3,9	94	62	156		
3,95	95	63	158		
4	96	64	160	**B**	
4,05	97	65	162		
4,1	98	66	164		
4,15	100	66	166		
4,2	101	67	168		
4,25	102	68	170		
4,3	103	69	172		
4,35	104	70	174		
4,4	106	70	176		
4,45	107	71	178		
4,5	108	72	180	**A**	**5 excellent**
4,55	109	73	182		
4,6	110	74	184		
4,65	112	74	186		
4,7	113	75	188		
4,75	114	76	190		
4,8	115	77	192		
4,85	116	78	194		
4,9	118	78	196		
4,95	119	79	198		
5	120	80	200		

Methodical support:

1. Methodical instructions for independent work of students in preparation for a practical class and at the class;
2. Diagnostic and surgical equipment, equipment and instruments;
3. Test tasks for the current control of knowledge for each practical lesson;
4. Multimedia presentations.
5. Tasks for the current control of knowledge for each practical lesson;
6. Samples of medical records.

Recommended literature

Basic:

1. Surgery: [textbook for students of higher medical educational institutions of Ministry of Health of Ukraine] / ed. Bereznyts'kyy Ya. S., Zakharash M. P., Mishalov V. G.; K. M. Amosova, Ya. S. Bereznyts'kyy, A. O. Burka et al. - 2nd ed. - Vinnytsia : Nova Knyha, 2018. - 711 p.
2. Tsyhykalo, O. V. Topographical anatomy and operative surgery: textbook for english-speaking foreign students / O. V. Tsyhykalo. - 2nd ed. - Vinnytsia: Nova Knyha, 2017. - 528 p.

Additional:

1. Urgent abdominal surgery / V. I. Liakhovskyi, I. I. Nemchenko, O. M. Liulka at al.; Ministry of healthcare of Ukraine, UMSA, Department of surgery № 1. - Poltava : Astraya, 2020. - 163 p.
2. John Hunter, Donn Spight, Corinne Sandone, Jennifer Fairman. Atlas of Minimally Invasive Surgical Operations / June 12th 2018
3. Michael Parker, Werner Hohenberger. Lower Gastrointestinal Tract Surgery: Vol.1, Laparoscopic procedures (Springer Surgery Atlas Series). / Springer; 1st ed. 2019 edition (July 30, 2019). – 706 p.
4. Dean Griffin. Current Progress in Laparoscopic Surgery / Foster Academics (June 25, 2019). – 203 p.
5. Ahmed Al-Kandari, Inderbir S Gill. Difficult Conditions in Laparoscopic Urologic Surgery / 2018, Springer International Publishing AG
6. David Page. The Laparoscopic Surgery Revolution: Finding a Capable Surgeon in a Rapidly Advancing Field / 2017, Praeger
7. Rajendra S Sankpal, Mahantesh Karoshi, Late Louis G Keith. Simplified Laparoscopic Hysterectomy: Practical, Safe and Economic Methodology / 2018, Jaypee Brothers Medical Publishers

Informational resources:

Department web-page;

PubMed;

http://sls.org/
https://www.youtube.com/
https://www.thetrocar.com/
https://websurg.com/en/

Developers:

- Head of the department
  Associate professor, PhD. _____ Mykola KRAVTSIV

- Assistant, PhD. _____ Dmytro IVASHCHENKO