

MINISTRY OF HEALTH PROTECTION OF UKRAINE

ODESSA NATIONAL MEDICAL UNIVERSITY

Department of General and Military Surgery



Vice-rector for scientific and pedagogical work

Eduard BURYACHKOVSKY

September 1, 2023

CURRICULUM ON EDUCATIONAL DISCIPLINE

" Basics of videolaparoscopy "

Level of higher education: second (master's degree)

Field of knowledge: 22 "Health care"

Specialty: 222 "Medicine"

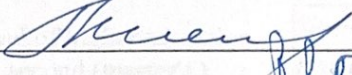
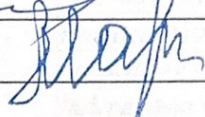
Educational and professional program : Medicine

Odesa 2023


The curriculum is compiled on the basis of the educational and professional program "Medicine" for the training of specialists of the second (master's) level of higher education in the specialty 222 "Medicine" of the field of knowledge 22 "Health care", approved by the Scientific Council of ONMedU (protocol No. 8 of June 29, 2023).

Developers: MD, Prof. M.A. Kashtalyan , Ph.D. , Assoc. Davydov D.M., Ph.D. Kvasnevsky O.A. Ph.D. Kolotvin A.O.

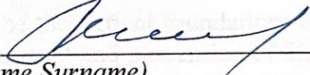
The program was discussed at the meeting of the department of general and military surgery Protocol No. 1 dated August 28, 2023.

Head of the department  Mykhailo KASHTALYAN
Agreed with the guarantor of the EPP  Valery MARICHEREDA

The program was approved at the meeting of the subject cycle commission for surgical disciplines of the ONMedU Protocol No. 1 dated 08/30/2023.

The head of the subject cycle methodical Committee on Surgical Disciplines  Vasyl Myshchenko

Reviewed and approved at the meeting of the department Department of general, pediatric's and military surgery with a course of ophthalmology Protocol No. 1 of "04" 09, 2023

Head of Department  Mykhailo KASHTALYAN
(signature) (First Name Surname)

Reviewed and approved at the meeting of the department

Protocol No. ___ of "___" _____ 20__

- IC - Ability to solve typical and complex problems, including those of a research and innovation nature in the field of medicine. Ability to continue learning with a high degree of autonomy.
- General (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 analysis of professional activity
 - GC5 Ability to adapt and act in a new situation
 - GC6 Ability to make informed decisions
 - GC7 Ability to work in a team
 - GC10 Ability to evaluate and ensure the quality of professional work
- Special (SC):
 - SC6 Ability to determine the principles and nature of professional and scientific research

1. Description of the academic 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 modules: 4	Branch of knowledge 22 "Health care" Specialty 222 "Medicine" Level of higher education second (master's)	<i>Full-time education</i> <i>Elective discipline</i> <i>Year of training: 6</i> <i>Semesters XI-XII</i> <i>Lectures (0 hours)</i> <i>Seminars (0 hours)</i> <i>Practical (30 hours)</i> <i>Laboratory (0 hours)</i> <i>Independent work (60 hours)</i> <i>including individual tasks (0 hours)</i> <i>Final control form - credit</i>

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

Purpose : The student's acquisition of knowledge and formation of elements of professional competences in the field of surgery, and improvement of skills and competences acquired during the study of previous disciplines.

Task:

1. To know the theoretical foundations of the chosen discipline, its scientific orientation, diagnosis, clinic, treatment and prevention of diseases with video laparoscopy .
2. Be able to determine tactics, treatment, general complications of laparoscopic operations.
3. Mastering the skills of operating endoscopic equipment in the operating room and tools, safety rules. Learning the rules of using surgical energy in laparoscopy .

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

- IC – Ability to solve typical and complex problems, including those of a research and innovation nature in the field of medicine. Ability to continue learning with a high degree of autonomy.
- **General (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.
 - GC5 Ability to adapt and act in a new situation
 - GC6 Ability to make informed decisions
 - GC7 Ability to work in a team
 - GC16 Ability to evaluate and ensure the quality of performed works .
- **Special (SC):**
 - SC6 Ability to determine the principles and nature of treatment and prevention of diseases.

- SC8 Ability to determine tactics and provide emergency medical care.
- SC10 Ability to perform medical manipulations
- SC24 Compliance with ethical principles when working with patients and laboratory animals

Program learning outcomes (PRO):

PRO 1 To 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.

PRO14. 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.

PRO17 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.

PRO24 To organize the necessary level of individual safety (own and the persons they care about) in case of typical dangerous situations in the individual field of activity.

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

Know: endoscopic instruments, the formation of endoscopic nodes, methods of positioning the instruments and the patient, the main stages of laparoscopic interventions for diseases of abdominal organs;

Be able:

- use endoscopic instruments;
- place the patient on the operating table taking into account the purpose of the operation and the general condition of the patient;
- carry out carboxyperitoneum ;

3. Content of the academic discipline

BASICS OF VIDEOLAPAROSCOPY

Content module 1. History of endoscopic surgery. Modern and new endoscopic studies.

Topic 1. The main stages of development of laparoscopy and laparoscopic surgery.

The first mentions of endoscopy. Laparoscopic surgery of the 19th century. Founders of endoscopy.

Topic 2. General information about laparoscopy in surgery. The future of laparoscopic surgery

Basic information about surgical laparoscopy , equipment and tools. Robotic surgery.

Content module 2. Use of surgical equipment and surgical instruments. Position of the patient on the operating table.

Topic 3. Instrumentation, trocars, optical devices in laparoscopy .

Veresha needle for carboxyperitoneum. Trocars for laparoscopy. Trocars for obese patients. Grasping and dissecting forceps . Metal outer tubes, scissors. Instruments for monopolar and bipolar coagulation.

Topic 4. Use of instruments, trocars, optical devices in laparoscopy .

Tool requirements. Standard tools. Special tools. Tools - holders. Dissectors . Needle holders. Tools for stapling . Requirements for optical devices. 3D optics

Topic 5. Formation of endoscopic knots and sutures.

Component parts of the node. Types of nodes. Knot tying technique. Hardware suture application technique.

Content module 3. Basics of laparoscopy .**Topic 6. Patient posture and the principle of gravitational displacement**

Criteria for patient placement during laparoscopic surgery interventions . Basic rules of patient placement . The main criteria for the patient's posture. Operating table and materials. The principle of gravitational displacement. Positional injuries and their consequences.

Topic 7. Techniques of various options for placing the first trocar.

Carboxyperitoneum. General principles of access and manipulation during robotic and laparoscopic surgical interventions .

Topic 8. Two-port surgery.

Introduction. Single Laparoscopic Access System (SILS). Various port systems. Technical options for managing tools. Instruments for single-port surgery.

Topic 9. Diagnostic laparoscopic interventions.

Diagnostic laparoscopy . Introduction. Indication. Special preoperative diagnostics. Placement of the patient. Specifications. Examination of the patient. Expanding the volume of laparoscopic operations. Specific intraoperative complication and their copying .

Topic 10. Simultaneous laparoscopic interventions.

Indications, contraindications. Methods of placement of trocars and the patient. Indication.

Content module 4. Modern video laparoscopic treatment for diseases and injuries of abdominal organs.**Topic 11. Laparoscopy for injuries of abdominal organs.**

Laparoscopy for abdominal injuries. Laparoscopy for abdominal complaints of unclear origin .

Topic 12. Laparoscopy in oncology.

The choice of the method of surgical intervention. Expanding the volume of intervention. Practical recommendations. Open surgery or laparoscopic ?

Topic 13. Acute appendicitis Laparoscopic surgery of the esophagus and stomach.

A minimally invasive approach in the diagnosis and treatment of acute appendicitis and its complications. The technique of different variants of appendectomy . Indications for antireflux surgical treatment. Laparoscopic operations for reflux diseases. Fundoplication according to Nissen and Toupe. Special indications, contraindications.

Topic 14. Acute cholecystitis.

Minimally invasive approach in diagnosis and treatment. Technical features and prevention of complications Laparoscopic cholecystectomy for acute cholecystitis. Diagnosis and treatment of postoperative complications .

Topic 15. Bariatric laparoscopic interventions for obesity.

Indications, contraindications. Methods of placement of trocars and the patient. Installation of a gastric balloon. Gastric banding . Sleeve resection of the stomach. Gastric bypass. Biliopancreatic bypass. Advantages of bariatric surgery.

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

Names of topics	Number of hours	
	In total	Including

		Lectures	Seminars	Practical	Laboratory	IWS
Content module 1. History of endoscopic surgery. Modern and new endoscopic studies.						
Topic 1. The main stages of development of laparoscopy and laparoscopic surgery. The first mentions of endoscopy. Laparoscopic surgery of the 19th century. Founders of endoscopy.	6	0	0	2	0	4
Topic 2. General information about laparoscopy in surgery. The future of laparoscopic surgery Basic information about surgical laparoscopy , equipment and tools. Robotic surgery.	6	0	0	2	0	4
<i>Together according to content module 1</i>	12	0	0	4	0	8
Content module 2. Use of surgical equipment and surgical instruments. Position of the patient on the operating table.						
Topic 3. Instrumentation, trocars, optical devices in laparoscopy . Veresha needle for carboxyperitoneum . Trocars for laparoscopy . Trocars for obese patients. Grasping and dissecting forceps . Metal outer tubes, scissors. Instruments for monopolar and bipolar coagulation	6	0	0	2	0	4
Topic 4. Use of instruments, trocars, optical devices in laparoscopy . Tool requirements. Standard tools. Special tools. Tools - holders. Dissectors . Needle holders. Tools for stapling . Requirements for optical devices. 3D optics	6	0	0	2	0	4
Topic 5. Formation of endoscopic knots and sutures. Component parts of the node. Types of nodes. Knot tying technique. Hardware suture application technique.	6	0	0	2	0	4
<i>Together according to content module 2</i>	18	0	0	6	0	12
Content module 3. Basics of laparoscopy .						

Topic 6. The patient's posture and principle gravitational displacement Criteria for patient placement during laparoscopic surgery interventions . Basic rules of patient placement . The main criteria for the patient's posture. Operating table and materials. The principle of gravitational displacement. Positional injuries and their consequences.	6	0	0	2	0	4
Topic 7. Techniques of various options for placing the first trocar. Carboxyperitoneum . General principles of access and manipulation during robotic and laparoscopic surgical interventions .	6	0	0	2	0	4
Topic 8. Two-port surgery. Introduction. Single laparoscopic access system (SILS). Various port systems. Technical options for managing tools. Instruments for single-port surgery.	6	0	0	2	0	4
Topic 9. Diagnostic laparoscopic interventions. Diagnostic laparoscopy . Introduction. Indication. Special preoperative diagnostics. Placement of the patient. Specifications. Examination of the patient. Extended volume laparoscopic operations. Specific intraoperative complication and their cutting	6	0	0	2	0	4
Topic 10. Simultaneous laparoscopic interventions. Indications, contraindications. Methods of placement of trocars and the patient. Indications, contraindications.	6	0	0	2	0	4
<i>Together according to content module 3</i>	30	0	0	10	0	20
Content module 4. Modern video laparoscopic treatment for diseases and injuries of abdominal organs.						

Topic 11. Laparoscopy for injuries of abdominal organs. Laparoscopy for abdominal injuries. Laparoscopy for abdominal complaints of unclear origin	6	0	0	2	0	4
Topic 12. Laparoscopy in oncology. The choice of the method of surgical intervention. expanding the volume of intervention. Practical recommendations. Open surgery or laparoscopic ?	6	0	0	2	0	4
Topic 13. Acute appendicitis. Laparoscopic surgery of esophagus and stomach. A minimally invasive approach in the diagnosis and treatment of acute appendicitis and its complications. The technique of different variants of appendectomy . Indications for antireflux surgical treatment. Laparoscopic operations for reflux diseases. Fundoplication according to Nissen and Toupe. Special indications, contraindications.	6	0	0	2	0	4
Topic 14. Acute cholecystitis. Minimally invasive approach in diagnosis and treatment. Technical features and prevention of laparoscopic complications cholecystectomy for acute cholecystitis. Diagnosis and treatment of postoperative complications .	6	0	0	2	0	4
Topic 15. Bariatric laparoscopic interventions for obesity. Indications, contraindications. Methods of placement of trocars and the patient. Installation of a gastric balloon. Gastric banding . Sleeve resection of the stomach. Gastric bypass.	6	0	0	2	0	4

Biliopancreatic bypass. Advantages of bariatric surgery.						
<i>Together according to content module 4</i>	30	0	0	10	0	20
Credit.	0	0	0	0	0	0
Together:	90	0	0	30	0	60

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

5.1. Topics of lectures

Lectures are not provided.

5.2. Topics of seminar classes

Seminar classes are not provided.

5.3. Topics of practical classes

No	Topic name	Number of hours
1	Topic 1. Practical class 1. The main stages of development of laparoscopy and laparoscopic surgery. The first mentions of endoscopy. Laparoscopic surgery of the 19th century . Founders of endoscopy.	2
2.	Topic 2. Practical class 2. General information about laparoscopy in surgery. The future of laparoscopic surgery. Basic information about surgical laparoscopy , equipment and tools. Robotic surgery.	2
3	Topic 3. Practical class 3. Instrumentation, trocars, optical devices in laparoscopy . Veresha needle for carboxyperitoneum . Trocars for laparoscopy . Trocars for obese patients. Grasping and dissecting forceps . Metal outer tubes, scissors. Instruments for monopolar and bipolar coagulation.	2
4	Topic 4. Practical class 4. Use of instruments, trocars, optical devices in laparoscopy . Tool requirements. Standard tools. Special tools. Tools - holders. Dissectors . Needle holders. Tools for stapling . Requirements for optical devices. 3D optics	2
5	Topic 5. Practical class 5. Formation of endoscopic knots and sutures. Component parts of the node. Types of nodes. Knot tying technique. Hardware suture application technique.	2
6	Topic 6. Practical class 6. Patient posture and the principle of gravitational displacement. Criteria for patient placement during laparoscopic surgery interventions . Basic rules of patient placement . The main criteria for the patient's posture. Operating table and materials. The principle of gravitational displacement. Positional injuries and their consequences.	2
7	Topic 7. Practical class 7. The technique of various options for placing the first trocar.	2

	Carboxyperitoneum . General principles of access and manipulation during robotic and laparoscopic surgical interventions .	
8	Topic 8. Practical class 8. Two-port surgery. Introduction. Single laparoscopic access system (SILS). Various port systems. Technical options for managing tools. Instruments for single-port surgery.	2
9	Topic 9. Practical class 9. Diagnostic laparoscopic interventions. Diagnostic laparoscopy . Introduction. Indication. Special preoperative diagnostics. Placement of the patient. Specifications. Examination of the patient. Extended volume laparoscopic operations. Specific intraoperative compilation and their cutting	2
10	Topic 10. Practical class 10. Simultaneous laparoscopic interventions. Indications, contraindications. Methods of placement of trocars and the patient. Indications, contraindications.	2
11	Topic 11. Practical class 11. Laparoscopy for injuries of abdominal organs. Laparoscopy for abdominal injuries. Laparoscopy for abdominal complaints of unclear origin .	2
12	Topic 12. Practical class 12. Laparoscopy in oncology. The choice of the method of surgical intervention. Expanding the volume of intervention. Practical recommendations. Open surgery or laparoscopic ?	2
13	Topic 13. Practical class 13. Acute appendicitis Laparoscopic surgery of esophagus and stomach. A minimally invasive approach in the diagnosis and treatment of acute appendicitis and its complications. The technique of different variants of appendectomy . Indications for antireflux surgical treatment. Laparoscopic operations for reflux diseases. Fundoplication according to Nissen and Toupe. Special indications, contraindications.	2
14	Topic 14. Practical class 14. Acute cholecystitis. Minimally invasive approach in diagnosis and treatment. Technical features and prevention of complications Laparoscopic cholecystectomy for acute cholecystitis. Diagnosis and treatment of postoperative complications.	2
15	Topic 15. Practical class 15. Bariatric laparoscopic interventions for obesity. Indications, contraindications. Methods of placement of trocars and the patient. Installation of a gastric balloon. Gastric banding . Sleeve resection of the stomach. Gastric bypass. Biliopancreatic bypass. Advantages of bariatric surgery. Test.	2
	Together	30

5.4. Laboratory topics classes

Laboratory classes are not provided .

6. Independent work of a student of higher education

No	Title of the topic / types of tasks	Number of hours
1.	Topic 1. Preparation for practical class 1 The main stages of development of laparoscopy and laparoscopic surgery. The first mentions of endoscopy. Laparoscopic surgery of the 19th century . Founders of endoscopy.	4
2.	Topic 2. Preparation for practical class 2 General information about laparoscopy in surgery. The future of laparoscopic surgery. Basic information about surgical laparoscopy , equipment and tools. Robotic surgery.	4
3.	Topic 3. Preparation for practical class 3 Instrumentation, trocars, optical devices in laparoscopy . Veresha needle for carboxyperitoneum . Trocars for laparoscopy . Trocars for obese patients. Grasping and dissecting forceps . Metal outer tubes, scissors. Instruments for monopolar and bipolar coagulation.	4
4.	Topic 4. Preparation for practical class 4 Use of instruments, trocars, optical devices in laparoscopy . Tool requirements. Standard tools. Special tools. Tools - holders. Dissectors . Needle holders. Tools for stapling . Requirements for optical devices. 3D optics	4
5.	Topic 5. Preparation for practical class 5 Formation of endoscopic knots and sutures. Component parts of the node. Types of nodes. Knot tying technique. Hardware suture application technique.	4
6.	Topic 6. Preparation for practical class 6 Patient posture and the principle of gravitational displacement. Criteria for patient placement during laparoscopic surgery interventions . Basic rules of patient placement . The main criteria for the patient's posture. Operating table and materials. The principle of gravitational displacement. Positional injuries and their consequences.	4
7.	Topic 7. Preparation for practical class 7 The technique of various options for placing the first trocar. Carboxyperitoneum . General principles of access and manipulation during robotic and laparoscopic surgical interventions .	4
8.	Topic 8. Preparation for practical class 8 Two-port surgery. Introduction. Single laparoscopic access system (SILS). Various port systems. Technical options for managing tools. Instruments for single-port surgery.	4
9.	Topic 9. Preparation for practical class 9 Diagnostic laparoscopic interventions. Diagnostic laparoscopy . Introduction. Indication. Special preoperative diagnostics. Placement of the patient. Specifications. Examination of the patient. Extended volume laparoscopic operations. Specific intraoperative complication and their cutting	4
10.	Topic 10. Preparation for practical class 10 Simultaneous laparoscopic interventions. Indications, contraindications. Methods of placement of trocars and the patient. Indications, contraindications.	4
11.	Topic 11. Preparation for practical class 11 Laparoscopy for injuries of abdominal organs. Laparoscopy for abdominal injuries. Laparoscopy for abdominal complaints	4

	of unclear origin .	
12.	Topic 12. Preparation for practical class 12 Laparoscopy in oncology. The choice of the method of surgical intervention. Expanding the volume of intervention. Practical recommendations. Open surgery or laparoscopic ?	4
13.	Topic 13. Preparation for practical class 13 Acute appendicitis Laparoscopic surgery of esophagus and stomach. A minimally invasive approach in the diagnosis and treatment of acute appendicitis and its complications. The technique of different variants of appendectomy . Indications for antireflux surgical treatment. Laparoscopic operations for reflux diseases. Fundoplication according to Nissen and Toupe. Special indications, contraindications.	4
14.	Topic 14. Preparation for practical class 14 Acute cholecystitis. Minimally invasive approach in diagnosis and treatment. Technical features and prevention of complications Laparoscopic cholecystectomy for acute cholecystitis. Diagnosis and treatment of postoperative complications.	4
15.	Topic 15. Preparation for practical class 15 Bariatric laparoscopic interventions for obesity. Indications, contraindications. Methods of placement of trocars and the patient. Installation of a gastric balloon. Gastric banding . Sleeve resection of the stomach. Gastric bypass. Biliopancreatic bypass. Advantages of bariatric surgery. Test.	4
	Together	60

7. Teaching methods

Practical classes: conversation, solving clinical situational problems, demonstration and practice of manipulation skills according to list 5, instruction and practice of skills on simulation dummies.
Independent work: independent work with the textbook, independent solution of clinical tasks.

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

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

Final control : credit.

The structure of the current evaluation in the practical class :

- Evaluation of theoretical knowledge on the subject of the class:
 - methods: survey, solving a situational clinical problem;
 - the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2 .
- Evaluation of practical skills and manipulations on the subject of the class:
 - methods: assessment of the correctness of the performance of practical skills
 - the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2 .

Current assessment criteria for practical training:

Rating	Evaluation criteria
Perfectly "5"	The applicant is fluent in the material, takes an active part in discussing and solving a situational clinical problem, confidently demonstrates practical skills and interpretations of clinical, laboratory and instrumental research

	data, expresses his opinion on the subject of the class, demonstrates clinical thinking.
Fine "4"	The applicant has a good command of the material, participates in the discussion and solution of a situational clinical problem, demonstrates practical skills and interpretations of clinical, laboratory and instrumental research data with some errors, expresses his opinion on the subject of the class, demonstrates clinical thinking.
Satisfactorily "3"	The applicant does not have sufficient knowledge of the material, is unsure of participating in the discussion and solution of a situational clinical problem, demonstrates practical skills and interpretations of clinical, laboratory and instrumental research data with significant errors.
Unsatisfactorily "2"	The applicant does not possess the material, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate practical skills and interpretation of clinical, laboratory and instrumental research data.

Credit is given to the applicant who completed all tasks of the work program of the academic discipline, took an active part in practical classes, completed and defended an individual assignment and has an average current grade of at least 3.0 and has no academic debt.

Test is carried out: at the last class before the beginning of the examination session - at ribbon system teaching, on to the last occupation - with a cyclical system of education. The credit score is the arithmetic mean of all components on a traditional four-point scale and has a value that is rounded using the statistical method with two decimal places after the decimal point.

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:

Conversion table of a traditional assessment into a multi-point scale

Traditional four-point scale	Multipoint 200-point scale
Excellent ("5")	185 - 200
Good ("4")	151 - 184
Satisfactory ("3")	120-150
Unsatisfactory ("2")	Below 120

Multi-point scale (200-point scale) characterizes the actual success rate of each applicant in mastering 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% achievers
B	The next 25% of earners
C	The next 30% of earners
D	The next 25% of earners
E	The next 10% of earners

10. Methodological support

- Working program of the academic discipline
- Syllabus of the academic discipline
- Situational clinical tasks
- Methodical development of practical classes

11. Questions for preparing for the final inspection

1. Advantages of minimally invasive interventions for the patient.
2. Advantages of minimally invasive interventions for the surgeon.
3. Types of minimally invasive surgical approaches .
4. The effect of carboxyperitoneum on the patient's cardiovascular system .
5. The effect of carboxyperitoneum on the patient's respiratory system.
6. The effect of carboxyperitoneum on the patient's urinary system.
7. Peculiarities of anesthesiological support during minimally invasive surgical interventions .
8. Basic principles of Fast Track surgery.
9. Use of minimally invasive technologies in tumor diseases.
10. Contraindications to minimally invasive surgical operations.
11. Material costs for minimally invasive surgical interventions .
12. Visualization equipment.
13. Equipment for creating carboxyperitoneum .
14. Types of instruments for endoscopic surgery.
15. Types of instruments for laparoscopy .
16. Types of instruments and devices for robotic surgery.
17. Types of energy used in minimally invasive interventions .
18. Safety rules when working with electrosurgical equipment.
19. Sanitary and hygienic regulations for the use of equipment and tools for minimally invasive interventions .
20. Safety rules when working in the X-ray operating room .
21. Planning of surgical access during minimally invasive operations.
22. Selection of the patient's position on the operating table depending on the type of surgical intervention.
23. The main general stages of minimally invasive operations.
24. Rules for installing the first trocar and creating a carboxyperitoneum .

25. The rules for placing trocars depending on the surgical intervention plan.
26. Creating a "workspace". Rules for working with tools for separating fabrics.
27. Rules of hemostasis and means of stopping bleeding during minimally invasive surgical interventions .
28. Rules for removing micro- and macropreparation in minimally invasive procedures interventions . Peculiarities of removing the drug during operations for oncopathology .
29. minimally invasive drainage interventions .
30. Complications are possible when installing trocars and creating a carboxyperitoneum .
31. General intraoperative complications in laparoscopic and robotic operations.
32. Complications are associated with the use of electrosurgery and ultrasound.
33. Intraoperative bleeding and means of stopping it.
34. Cavernous organ injury during laparoscopic and robotic operations. Prevention and elimination.
35. Complications with NOTES interventions .
36. Early surgical postoperative complications after minimally invasive operations.
37. Late surgical postoperative complications after minimally invasive operations.
38. General postoperative complications. Features related to minimally invasive access.
39. Long-term surgical complications after minimally invasive operations.
40. Classification of surgical complications according to Clavien Dindo .

A list of practical skills, the acquisition of which is monitored during the assessment

1. Apply carboxyperitoneum .
2. Stopping intraoperative bleeding.
3. Drainage of the abdominal cavity during laparoscopy .
4. Introduction and removal of instruments through trocars.
5. Mobilization, fixation, separation of tissues during laparoscopy .
6. Removal of the micropreparation.
7. Make a plan for drug treatment in the early postoperative period after minimally invasive intervention.

12. Recommended literature

Main:

1. Berducci M., Fuchs H.F., Omelanczuk P. et al. Phase II clinical experience and long-term follow-up using the next-generation single-incision platform FMX314 // *Surg. Endosc.* 2016. Vol. 30. P. 953-960.
2. Lujan J.A., Soriano M.T., Abrisqueta J. et al. Single-port Colectomy VS Multi-port Laparoscopic Colectomy. Systematic Review and Meta-analysis of More Than 2800 Procedures // *Chir. ESP.* 2014. Vol. 93. P. 307-319.
3. Pryor Ad., Tushar J.R., Di Bernardo L.R. Single-port cholecystec-tomy with the TransEnterix SPIDER: simple and safe // *Surg. Endosc.* 2010. Vol. 24. P. 917-923.
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