Semmelweis University, Faculty of Medicine - single, long-cycle medical training
Name of the host institution (and any contributing institution):
Városmajori Szív- és Érgyógyászati Klinika - Kísérletes Kardiológiai és Sebészeti Műtéttani Tanszék

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Name of subject: Basic Surgical Techniques
in English: Basic Surgical Techniques
in German: Grundlegende Chirurgische Technik

Credit value: 2
Semester: 5. szemeszter
(in which the subject is taught according to the curriculum)

Hours per week	Lecture	Practical lesson	Seminar
0.0	0.0	0.0	0.0

Hours per semester	Lecture	Practical lesson	Seminar
28.0	7.0	21.0	0.0

Type of course:
obligatory

Academic year:
2025/26

Language of instruction (for optional and elective subjects):
english

Course code:

(in the case of a new course, to be completed by the Dean's Office, following approval)

Course coordinator name: Dr. Radovits Tamás (klinikai főorvos)
Course coordinator location of work, telephone availability: +36-20-825-88-95 Nagyvárad tér 4
Course coordinator position:professor Head of the Department
Course coordinator Date and number of habilitation:2020, 07/2020

Objective of instruction and its place in the curriculum:

The goal of the practical sessions is to teach basic suturing techniques, laparoscopic tasks and microsurgical tasks on skill models and to teach the basics of asepsis, antisepsis, the rules and standards of behaviour in the operating theatre, (scrubbing, dressing, preparation of the operating field etc.), knowledge of basic surgical instruments and equipment, knotting and suturing techniques. In addition to the classical surgical techniques, it is important to develop and enhance the knowledge and skills of video-endoscopy. Laparoscopic exercises are practiced in pelvitrainer,

it develops eye-brain-hand coordination.
The course aims to provide:
(1) Practice-oriented surgical training in small groups.
(2) To enable all graduating physicians to perform basic surgical procedures (e.g. wound treatment, suture removal, etc.)
(3) To provide a stable foundation for understanding and performing the manual skills taught in the clinical module
(4) The main objective of the course is to assess the manual skills of the students and to assist them in further specialization.

Method of instruction (lecture, group work, practical lesson, etc.):

lecture+ practical lessons

Competencies acquired through completion of course:

Knowledge of the rules of asepsis (from scrubbing to theatre preparation, basic surgical instruments, knotting techniques by hand and with instruments, suturing and suture removal techniques, FLS (fundamental laparoscopic skills) for training eye-brain-hand coordination.

Course outcome (names and codes of related subjects):

Prerequisites for course registration and completion: (CODE):

anatomy and physiology

In the case of multi-semester courses, position on the possibility of and conditions for concurrent registration:

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The number of students required to start the course (minimum, maximum), student selection method:

minimum 15, maximum 400 students, Registration in Neptun

Detailed course syllabus (if the course can be divided into modules, please indicate): (Theoretical and practical instruction must be broken down into hours (weeks), numbered separately; names of instructors and lecturers must be listed, indicating guest lecturers/instructors. It cannot be attached separately! For guest lecturers, attachment of CV is required in all cases!)

There will be 8 lectures (45 minutes each) during the first half of the semester:
1st and 2nd lecture will be held during the 2nd week of the semester,
3rd and 4th lecture during the 3rd week of the semester
5th and 6th lecture 4th week of the semester
7th and 8th lecture 5th week of the semester

Lectures:
1. Prof. Dr. József Sándor: The structure and equipments of the operating room. Asepsis and antisepsis. Sterilisation and disinfetion. Surgical site infection. Nosocomial infections.
2. Dr. Kálmán Benke: The role of the experimental surgery in medicine
3. Dr. Györgyi Szabó: Classification and management of wounds, principle of wound-healing. Haemorrhage and bleeding control.
4. Dr. Eva Toronyi: Process and types of wound healing. Tetanus: signs and symptoms, vaccination. Gas gangrene.
5. Dr. Daniella Fehér: Basic surgical tools and suture materials.
6. Dr. Györgyi Szabó: Basic and special suturing techniques in surgery.
7. Prof. Dr. Masashi Yoshida Surgical procedures: acute, elective. Preoperative patient management. Surgical approaches.
8. Prof. Dr. József Sándor: Basics of laparoscopic surgery

Practicals: 3x45 minutes every second week
1. Basics of surgerical instruments, Basic suturing techniques in vivo. Tying surgical knots with both hands
2.
a. Knowing the rules of operating theatre, behaviour in operating theatre, scrubbing, gowning, gloving. Preparation and disinfection of the operating area
b. Introduction to the hybrid operating theatre, viewing the performed procedures
c. Introduction to Experimental Surgery, description of the experiment, importance of the animal experiments
3. The groups will be divided into two further groups and then swapped at half time:
a. Practice of basic suturing techniques on ex vivo animal tissue (interrupted sutures).
b. Laparoscopic tools and instruments. Demonstration of the laparoscopic tower. Laparoscopic movements (sorting different coloured pieces of paper, inserting a hypodermic needle back into the sheath)
4. The groups are divided into two further groups and then swapped at half-time:
a. Practice basic suturing techniqes ex vivo on animal tissue (running sutures).
b. Practice of laparoscopic movements on pelvitrainer. PEG transfer, special excercises
5. The groups will be divided into two further groups and then swapped at half time:
a. Practice the exercises learned until now, PEG transfer, time measurement
b. Practice of microsurgical tasks with the help of a magnifying glass (pulling and pushing back a thread from the gauze, knotting)
6. Practice of intestinal suture on a pig's bowel,
Consultation
7. Practical exam

Other courses with overlapping topics (obligatory, optional, or elective courses) in interdisciplinary areas. To minimalize overlaps, topics should be coordinated. Code(s) of courses (to be provided):

Requirements for attendance, options for making up missed sessions, and method of absence justification:

Attendance during practices is compulsory. It is possible to be absent from 1 practice during the semester. One missed practice can be made up in a two-week period by attending the same pratice of another group. Registration on the website xoyondo is required for the replacement practicals.

In case of two missed practices, extra dates will be offered for replacement during the 12th week of the semester. The student has to send this request by e-mail to kksmtnet@semmelweis. hu (stating their group number and the number of missed practices).
More than two missed practicals can be made up only with special authorisation from the head of the department.

The number of missed practices may not exceed more than 25%. That means only one absence is acceptable during the Semester.

Assessment methods during semester (number, topics, and dates of midterms and reports, method of inclusion in the course grade, opportunities for make-up and improvement of marks):

(number, topics, and dates of midterms and reports, method of inclusion in the course grade, opportunities for make-up and improvement of marks)

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Number and type of individual assignments to be completed, submission deadlines:

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Requirements for the successful completion of the course:

No more than 25% absences of the practices.

Type of assessment:
kollokvium_en

Examination requirements (list of examination topics, subject areas of tests, lists of mandatory parameters, figures, concepts and calculations, practical skills, optional topics for the project assignment recognized as an exam and the criteria for its completion and

evaluation)

The exam has a practical and a theoretical part.
Practical part:
All students have to take a practical exam during the 7th practice.
Stations:
1. Answering a series of questions containing minimum requirements by the student. We provide the students with a pre-compiled set of "minimum requirements" that includes the questions, their answers, and explanations. From this set of questions, we will ask three questions, and a 2-3 sentence answer will be expected.
2. Recognising surgical instruments and showing their correct use.
3. Showing surgical knot tying with both hands.
4. Performing basic suturing techniques on ex vivo animal tissue.
5. Recognising laparoscopic instruments and showing their correct use.
6. Performing different tasks on the pelvitrainer with time measurement.

Theoretical part:
The theoretical part of the examination consists of a written test, which must be taken in person at the specified examination times during the examination period. 60 questions in 45 minutes have to be answered. The minimum requirement for the written test are 40 points out of 60.
If the student does not get 40 points, the written test must be repeated. Students who attend the lectures get 3 test questions at the end of each lecture. If a student answers these test questions and collects a minimum of 18 points out of 24 in 8 lectures, they get an additional 10 points, which will be added to the score of the theoretical test. The test includes single choice, multiple choice and true-false question types and pictures,
tables, lists, groupings from the textbook Basic Surgical Techniques. Example questions: “What is in the picture?, Write the name of the device in the picture and its parts marked with letters. Put the procedure in chronological order.” Latin terms and author names that are part of basic medical literacy are regularly asked, and the proper spelling is expected. The practical and theoretical exam results are summarized to determine the grade as written
below.

Topics for the theoretical exam:
1. ASEPSIS, ANTISEPSIS
Historical background of asepsis (Semmelweis)
The definition of asepsis
Asepsis in practice: dressing up, wearing a cap and mask
Preparing the hands and fingers for surgery
Surgical scrubbing
Scrubbing and skin protection
Sterile surgical gown
The rubber gloves
Preparation of the surgical site: cleaning, shaving, scrubbing, isolation
Behaviour in the operating room
Historical background of antisepsis (Lister)
Definition of antisepsis
Antiseptic wound management
Antibiotic administration as an antiseptic procedure

Sterilisation and expectations of sterilisation procedures
General aspects of surgical sterilisation
Sterilisation by heat
Cold sterilisation
Sterilisation by gas
Plasma sterilization
Sterilisation by irradiation
Disinfection
Definition, mechanism and effectiveness of disinfection
Disinfection in surgical practice

2. THE OPERATING ROOM
Historical development of the operating theatre/room
Location of the operating room
The zones and movement in the operating site block
Rooms of the operating site block
Design and equipment of the operating room. The operating table
Forms of patient positioning
Lighting of the operating room
Furniture in the operating room
Technical equipment of the operating room
Textiles and dressings used in the operating room
The operating room staff, their duties and responsibilities: the operating surgeon and assistants, the operating nurse and assistant, the anaesthetist and assistant
Position in the operating room
Rules and work discipline in the operating room
Disinfection and ventilation of the operating room

3. SURGICAL INSTRUMENTS
The history of the surgical instruments
Disposable surgical instruments
Reusable surgical instruments
Groups of surgical instruments
Role and groups of cutting and dissecting instruments
Cutting and dissecting instruments: scalpels, scissors, haemostatic clamps, dissectors, amputation knives, saws, raspatories
Cutting and dissecting instruments: the operation of an electric knife (diathermy)
Biological effects of electric knife (diathermy)
Cutting mode
Coagulation mode
Monopolar diathermy
Dangers of monopolar diathermy
Bipolar diathermy
Functions and groups of grasping instruments
Grasping instruments: forceps, towel clamps, haemostatic clamps, needle holders, organ clamps, dressing forceps
Function and groups of haemostatic instruments

Haemostatic instruments: ultrasonic knife, clips
Function and groups of retracting instruments
Retracting instruments. Hand-held retractors: spatula, hook, hook
Self-retaining retractors
Functions and groups of tissue-unifying tools and materials
Tissue-unifying tools and materials: sewing machines, staples and wound closure strips, tissue adhesives
Functions and groups of special instruments (bone surgery, thoracic surgery, abdominal surgery, gynaecology, cardiovascular surgery, burns and plastic surgery, microsurgery instruments).
Special instruments used by a wide range of surgical specialities: Volkmann curette, round-ended probe, biopsy forceps, suction equipment, implants, Argon Beam Coagulator, Laser
Packaging of instruments, surgical trays

4. SURGICAL SUTURES, NEEDLES, SUTURE TYPES
History of surgical sutures
General properties of suture materials
Classification of suture materials
Natural suture materials
Synthetic suture materials
Monofilament suture materials
Multifil suture materials
Absorbable suture materials
Non-absorbable suture materials
Suture material size, tensile strength, colour, handling, knotting
General characteristics of surgical needles
Traumatic needles
Atraumatic needles
Needle parts, needle shapes
Types of needles (circular needles, cutting needles)
Use of needles
Connection between atraumatic needle and suture material
Sterilisation and packaging of suture material and needles
Antibacterial threads
Wound closure without knotting
Tissue unifying methods: hand-held needles
Simple interrupted suture
Vertical mattress suture
Horizontal mattress sutures, corner stitch
Simple running suture
Running locked suture
Intracutaneous running stitch
Tobacco bag suture
Suture removal
Ligatures
Bowel anastomoses
Vascular anastomoses

Other tissue unifying methods: use of staplers

5. INJURY, WOUND
Definition of injury
Definition of wound
Definition of simple wound
Definition of compound wound
Description of a wound
Questions to clarify in the case of wounds.
Risk of tetanus infection depending on the characteristics of the injury.
Vaccination order for adults suspected of tetanus infection.
Classification of wounds according to their origin
Characteristics of surgical wounds.
Mechanical wounds (abraded wound, puncture wound, incised wound, cut wound, laceration, torn wound, gunshot wound, bite wound)
Thermal wounds
Chemical wounds
Irradiation wounds
Special wounds
Classification of wounds according to the bacterial contamination
Classification of wounds according to the time
Treatment of acute wounds
Chronic wound care
Use of antibiotics in surgery

6. WOUND HEALING
The process of hemostasis
The inflammatory phase
The granulation and proliferation phase
The process of maturation and remodelling
Scarless wound healing in fetal age
Types of wound healing
Local factors disturbing wound healing
Systemic factors disturbing wound healing
Classification of wound healing disorders according to their time of onset
Haematoma
Seroma
Wound disruption
Wound infections
Athrophic scar
Hypertrophic scar
Keloid
Procedures to facilitate wound healing

7. BLEEDING AND HAEMOSTASIS
Local and general symptoms of haemorrhage

Concept of surgical haemostasis
Mechanical haemostasis in the prehospital phase
Intraoperative mechanical haemostasis
Intraoperative prophylactic surgical haemostasis and postoperative haemostasis
Thermal haemostatic procedures
The use of chemical-biological haemostatic materials

8. THE OPERATION
Operative indication
Operative contraindication
The risk of surgical intervention
Preoperative procedures
The operation
Principles of oncological surgical operations
The surgical team and patient's assurance
One-day surgical intervention
Complication of operations
The importance of the surgical safety checklist
Principles of surgical incision lines
Incisions on the face and in the cervical region
Surgical incisions on the thoracic wall
Surgical incisions on the abdominal wall, opening of the abdominal cavity
Longitudinal laparotomies
Transverse and oblique laparotomies
Gridiron incisions
Incisions on the hand
Surgical incisions (trocar positions) in laparoscopic operations
Closure of operating wounds
Complications of wound closure

9. THE BASICS OF VIDEO-ENDOSCOPIC TECHNIQUE
Disadvantages of open surgery and advantages of laparoscopic surgery
Difficulties of the laparoscopic technique
Classification of video-endoscopic procedures
Structure and usage of flexible video-endoscopy
Laparoscopic tools of image creation: optics, video system, monitor, light source, light cable
Trocars
Hand-held laparoscopic instruments: graspers and dissectors, scissors, clip appliers, needle-thread complex,
knotting, electrocoagulation, ultrasonic cutting instruments
Personal requirements of laparoscopic operations
Options for creating a surgical space for laparoscopic operations
Pneumoperitoneum
Hand-assisted laparoscopy
Scarless surgery (NOTES)
Single-port laparoscopic surgery
Comparison of open and endoscopic surgery

Advantages of robotic surgery
The first robotic assistant equipments
Robotic surgical systems, robots nowadays
Telesurgery, surgery in space

Method and type of grading (Share of theoretical and practical examinations in the overall evaluation. Inclusion of the results in the end-of-term assessment. Possibilities of and conditions for offered grades.): (Share of theoretical and practical examinations in the overall evaluation, Inclusion of the results in the end-of-term assessment, Possibilities of and conditions for offered grades)

Determination of the grade:

The results of the practical test (60 points) and the written test (60 points) are added up and the final mark is determined on the basis of a 120-points system.
The grade limits are the following:
Unsatisfactory (1) 0 -69,99 points
Pass (2) 70 - 89,99 points
Average (3) 90 - 99,99 points
Good (4) 100 - 109,99 points
Excellent (5) 110 - 120 points

The practical exam (60 points) and the written test result (60 points) are summed up and the final grade is determined on a 120-point scale.

Anyone who attends the lectures and correctly answers the 3 test questions at the end of each lectures, meaning answering 18 out of 24 questions correctly in the case of 8 lectures, will receive an additional 10 points, which will be added to their score on the theoretical test exam.

Students who achieve an outstanding performance in the competitions can be offered a grade 5 (excellent) based on their results.

Sutura competition
One student from each group can participate in the competition based on their performance in the 4th suture technique exercise. All participants of the competition will receive a grade 5 (excellent) in the subject.

Laparoscopy competition
One student from each group can participate in the competition based on their performance in the 5th laparoscopic practice. All participants of the competition will receive a grade 5 (excellent) in the subject.

List of coursebooks, textbooks, study aids and literature facilitating the acquisition of knowledge to complete the course and included in the assessment, precisely indicating which requirement each item is related to (e.g., topic by topic) as well as a list of important

technical and other applicable study aids; possibility of individual or group student consultation, if available:
Online resources:

Required	Yes
Title	Ferencz, A. et al. (Ed.) (2021). Basic Surgical Techniques. Semmelweis Publishers
Link	https://www.semmelweiskiado.hu/termek/1732/basic-surgical-techniques

Signature of habilitated instructor (course coordinator) announcing the course:

Signature of the director of the host institution:

Date of submission: