

DESCRIPTION OF THE COURSE OF STUDY

Course code	0912-7LEK-C6.1-AiT	
Name of the course in	Polish	Anestezjologia i intensywna terapia
	English	Anaesthesiology and Intensive Care

1. LOCATION OF THE COURSE OF STUDY WITHIN THE SYSTEM OF STUDIES

1.1. Field of study	Medicine
1.2. Mode of study	Full-time
1.3. Level of study	Uniform Master's studies
1.4. Profile of study*	Practical
1.5. Specialization*	lack
1.6. Unit running the course of study	Faculty of Medicine and Health Sciences
1.7. Person/s preparing the course description	Lek. Dominika Polańska-Matwiejew
1.8. Person responsible for the course of study	Lek. Dominika Polańska-Matwiejew
1.9. Contact	

2. GENERAL CHARACTERISTICS OF THE COURSE OF STUDY

2.1. Affiliation with the module	Surgical clinical sciences
2.2. Language of instruction	English
2.3. Semesters in which the course of study is offered	7th - 8 th semester
2.4. Prerequisites*	anatomy, physiology, pathology, microbiology, immunology, pharmacology with toxicology, neurology, paediatrics, neonatology, surgery, paediatric surgery, gynaecology and obstetrics.

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Form of classes	LECTURE: 30 ,CLASSES: 30, PRACTICAL CLASSES – 50	
3.2. Place of classes	Lecture – Classes in didactic rooms of the UJK classes – Paediatric Anaesthesiology and Intensive Care Unit, Anaesthesiology Consultation Clinic; Department of Paediatric Surgery, Urology and Traumatology	
3.3. Form of assessment	lecture – E, classes – credit with grade	
3.4. Teaching methods	seminar, discussion, case study in natural conditions; participation in consultations and senior staff meetings	
3.5. Bibliography	Required reading	1) Anesthesia Student Survival Guide: A Case-Based Approach. 2nd Edition. bJesse M. Ehrenfeld, Richard D. Urman, Scott Segal, Sringer Publishing AG Switzerland 2016. ISBN-13: 978-3-319-11082-0 ISBN-10: 3319110829
	Further reading	1) Clinical Anaesthesia. Carl L. Gwinnutt, Matthew Gwinnutt. 4th Edition. Wiley-Blackwell 2012. ISBN-13: 978-0470658925; ISBN-10: 0470658924 2) Critical Care Handbook of the Massachusetts General Hospital. William E. Hurtford. 5th Edition, Lippincott Williams & Wilkins, 2010, USA. ISBN-13: 978-0781795661; ISBN-10: 0781795664

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED TEACHING OUTCOMES

4.1. Course objectives

C1 - Acquisition of knowledge about the specifics of anaesthesiology and intensive care (adults and children) and risk management in the interdisciplinary field of perioperative medicine;

C2 - Development of skills concerning risk management and optimizing perioperative safety at all stages of conducting a patient (adult and child) through perioperative experience, ie. in the prehospital, hospital and posthospital period.

C3- Development of ethical, holistic and interdisciplinary approach to the conduct of patients (adults and children) in perioperative and intensive care period, in line with the European Charter of Patients' Rights (2002) and the Declaration of Helsinki on Patient Safety in Anaesthesiology (2010).

4.2. Detailed syllabus

LECTURES:

1. Perioperative medicine (1,5 hr.):
 - a. the history and definition of the term "perioperative medicine" as a paradigm shift in the approach to patient safety (20 min.)
 - b. determining the degree of surgery urgency – modes: planned, urgent, urgent deferred, sudden (ie. when immediate threat to patient's life) - the role and responsibility of the surgeon and anesthetist; (20 min.)
 - c. prehospital and hospital preparation versus optimizing perioperative patient's safety through risk management in advance; (30 minutes.)
 - d. factual, legal and ethical responsibility of doctors preparing a patient for surgery, leading a patient during and after the procedure - the coordinating role of the anesthetist. (20 min.)
2. Anesthesiology and intensive therapy as an interdisciplinary field of medicine (8 hr. + 4 hrs. = 12 hrs.):
 - a. the history of the origin and development of anesthesiology; (30 minutes.)
 - b. outline of general anesthesia and regional anesthesia and analgosedation - risk, complications and safety; (3 hrs.)
 - c. qualification of patients for surgery involving evaluation of benefits against risks associated with: (1) the current state of the patient's health (2) operation, (3) selected type of anesthesia; (30 minutes.)
 - d. the role of anesthesia consultative clinic in optimizing perioperative safety of the patient - assessment according to ASA versus requirements of basic and / or additional tests and specialist consultations; (30 minutes.)
 - e. the risks associated with conducting anesthesia and/or analgosedation outside the operating room – qualification of patients. (1 hr.)
 - f. monitoring of the patient in the immediate postoperative period - the role of an anesthetist and an anesthesia nurse in Postoperational Supervision Room, so called "awakening" room and / or the Postoperative Department (30 minutes.)
 - g. the specificity of anesthesia in obstetrics, neurosurgery, thoracic surgery, cardiac surgery, pediatric surgery. (1 hr.)
 - h. Issues related to the anesthesia of patients with multiple illnesses who require surgery and anesthesia. (1 hr.)
the history of the development of intensive care; (45 min.)
 - i. organization and equipment of an intensive care unit (ICU); (20 min.)
 - j. the fundamentals of the functioning of ICU; (25 min.)
 - k. the use of aseptic and antiseptic in ICU; (20 min.)
 - l. intensive care at the junction of specialization - classification of patients for treatment at the ICU by an anesthetist; (45 hrs.)
 - m. rules on transfer and takeover of ICU patient - taking over responsibility for the patient - documentation; (20 min.)
 - n. early palliative care as a complementary part of the patient's treatment in hospital - role of an anesthetist (45 min.)
 - o. the role, rights and obligations of the anesthetist in the system of hospital internal emergency. (20 min.)
3. Legal and ethical aspects related to the anesthesia and treatment of patients in intensive care unit (2 hrs.):
 - a. the consent of the patient and / or their legal treatment as an essential element mounting axiologically and legally the activities of doctors (10 min.)
 - b. the contents of the documents securing the patient's right to make their own decisions about diagnosis and treatment - (Polish Constitution, the Law on the profession of doctor and dentist, Civil Code, Penal Code, Code of Medical Ethics); (10 min.)
 - c. specific circumstances in which a patient can be provided with health services without their consent – the principle of such a decision and its documentation; (10 min.)
 - d. the Law on Patients' Rights and the Ombudsman for Patients' Rights (2008); (10 min.)
 - e. the European Charter of Patients' Rights (2002); (10 min.)
 - f. Declaration of Helsinki on Patient Safety in Anaesthesiology (2010); (10 min.)

- g. Regulation of the Minister of Health from 20 December 2012 on medical procedure standards in the field of anesthesiology and intensive care for medical activity entities (10 min.)
 - h. Palliative care as an alternative for vain, persistent and disproportionate therapy. (50 hours)
4. Pain as the primary symptom in medicine (4.5 hrs.):
- a. Fundamentals of the pathophysiology of acute and chronic pain; (30 minutes.)
 - b. obligation and rules for monitoring post-operative pain equivalent to the monitoring of vital signs - optimizing the safety and comfort of the patient; (30 minutes.)
 - c. pharmacology basics of drugs used for analgesia and sedation; (30 minutes.)
 - d. side effects of opioid and non-opioid analgesics, block anesthetics and drugs used for sedation; (30 minutes.)
 - e. complementary, non-pharmacological methods of pain relief; (30 minutes.)
 - f. the principles and techniques of control and treatment of acute pain after surgery; (30 minutes.)
 - g. risk of complications related to the lack or inadequate controlling of postoperative pain; (30 minutes.)
 - h. evaluation, control and treatment of postoperative pain of children – specificity of neonatal, infancy, early childhood, adolescence. (1hr.)
5. Selected acute life threatenings (9 hrs.)
- a. patient with impaired consciousness; (1 hr.)
 - b. patient with impaired cardiovascular function - invasive and non-invasive hemodynamic support; (1.5 hrs.)
 - c. patient with respiratory failure - principles of oxygen therapy, invasive and non-invasive ventilation, respiratory physical therapy; (1.5 hrs.)
 - d. patient with renal insufficiency - drug therapy, kidney replacement therapy
 - e. shock - causes, diagnosis, treatment; (2 hours.)
 - f. diagnosis and treatment of severe sepsis and septic shock – procedures in respect of the current (2012) guidelines *Surviving Sepsis Campaigning*; (2 hours.)
 - g. multiple organ dysfunction syndrome - traumatic and non-traumatic causes, diagnostics, intensive therapy, invasive and non-invasive treatment, prognostic indicators. (2 hours.)

ANESTHESIOLOGY CLASSES:

1. Classes - 8 hrs.

Review – PRACTICE ON PHANTOMS (1 hr.):

- The principles of recognition of emergency life threatening states;
- The procedure according to the BLS and ALS algorithms;
- Alternative methods of airway intubation (laryngeal tube, laryngeal mask);
- Pharmacotherapy in resuscitation;

Rescue proceedings in sudden cardiac arrest of adults and children - in the simulation laboratory (30 min.)

Seminar (30 min.)

- Confrontation of clinical situation of the patient who is in the state of anesthesia (general and / or block) with the patient in immediate life threat, as a source of clinical approach to perioperative risk management in order to optimize safety.

PRACTICAL ACTIVITIES WITHIN OPERATING BLOCK: (6 hrs.)

- Evaluation of clinical state of an adult patient before surgery;
- Preparation of the patient for general anesthesia;
- Preparation of the patient for regional anesthesia;
- Supervision of the patient in the immediate period after the operation in the "Awakening" room.

2. Classes - 8 godz.

Seminar - PHARMACOTHERAPY I FLUID THERAPY OF ADULTS IN PERIOPERATIVE PERIOD (1 hr.)

- Drugs used to conduct general anesthesia;
- Drugs used to perform regional anesthesia;
- Rules for applying fluid therapy during surgery;

PRACTICAL CLASSES - observation and / or assistance during anesthetist's work (4 hrs.)

- Stages of general anesthesia (introduction, support and recovery from the state of anesthesia).
- Regional anesthesia - equipment, technology of catheter implantation, place and method of drug administration
- Postoperative analgesia - the principle of control and pain therapy with an assessment of vital signs.

3. Classes - 8 hrs.

Seminar - SPECIFICITY OF ANAESTHESIA In PEDIATRICS (2 hrs.):

- Anatomy and physiological differences associated with belonging to an age group (newborn, infant, younger child) - the importance of diversity around the respiratory and cardiovascular systems, central nervous system and kidneys.
- Mental differences of a child
- The basic metabolism, tissue oxygen consumption and water management
- Thermoregulation - requirements concerning outside temperature in the operating room
- Distribution and metabolism of drugs
- Feeding break
- Securing intravenous access
- Premedication
- Child disqualification from anesthesia
- Outpatient anesthesia of a child - the possibilities, limitations, contraindications
- Equipment requirements for anesthesia and intraoperative monitoring
- Demand for fluids during surgery
- Conditions for extubation
- Common causes and type of complications of anesthesia of children

PRACTICAL CLASSES: (6 hrs.)

- Preoperation examination - assessment of perioperative risk (ASA scale)
- Preparation for anesthesia, taking part in supervising anesthesia in Operation Block, Pediatric Surgery Department;
- Post-operative supervision in Post-operative Supervision Room ("awakenings") - pain control and vital signs.

4. Classes - 8 hrs.

Seminar – SPECIFICITY OF ANESTHESIA OUTSIDE THE OPERATING ROOM (2 hrs.):

- Analgosedation for diagnostic and curative treatments in endoscopy room, imaging room and interventional cardiology room;
- Diversity and specificity of ambulatory anesthesia in "one-day surgery" (selection of methods and medicines)
- The equipment required to carry out anesthesia and conduct monitoring in conditions outside the operating room

PRACTICAL CLASSES: (6 hrs.)

- Assisting during anesthesia and / or analgosedation and patient monitoring in imaging room
- Assisting during anesthesia and / or analgosedation and monitor the patient in endoscopic room
- Assisting during anesthesia and / or analgosedation and monitor the patient in invasive cardiology room
- Monitoring of the patient - the principle of decision-making about the possibility of returning home

5. Classes - 8 hrs.

Seminar – SPECIFICITY OF ANESTHESIA WITHIN SYSTEMS BASIC TO HUMAN LIFE (2 hrs.):

- The specificity of anesthesia in neurosurgery;
- The specificity of anesthesia in cardiac surgery;
- The specificity of anesthesia in thoracic surgery.

PRACTICAL CLASSES: (6 hrs.)

- Preparation of the patient for surgery in the field of cardiac surgery, neurosurgery and thoracic surgery;
- Monitoring during anesthesia in cardiac surgery, neurosurgery and thoracic surgery;
- Proceedings in the immediate postoperative period with a patient after surgery in the field of cardiac surgery, neurosurgery and thoracic surgery.

INTENSIVE THERAPY CLASSES:

a. Classes - 8 hrs.

Seminar – ACUTE CENTRAL NERVOUS SYSTEM FAILURE (2 hrs.):

- Qualitative and quantitative disturbance of consciousness (30 min.)
- Epidemiology causes of acute CNS function - (reason: toxicological, metabolic, cardiovascular, traumatic injuries, etc.) (1 hr.)
- The clinical evaluation, imaging studies, laboratory tests - interpretation "at the bedside" (30 min.)

PRACTICAL CLASSES: (in ICU - adult): (6 hours).

- Physical examination with patient's neurological evaluation - indications for intubation and respiratory support through a respirator (1.5 hrs.)
- The rules of laying and care of an unconscious person - anti-bedsore therapy (30 min.)
- Parenteral nutrition and by digestive system - contraindications, indications, implementation time. (1.5 hrs.)
- Early neurophysiotherapy of unconscious patients in ICU (30 min.)

b. Classes - 8 hrs.

Seminar - ACUTE CARDIOVASCULAR FAILURE (2 hrs.):

- Clinical evaluation of the patient's state, imaging studies, laboratory tests (hematology, biochemistry, gasometric) - interpretation of study results regarding image of the clinical symptoms of cardiovascular and other vital signs.

PRACTICAL CLASSES: (in ICU - adult): (6 hours).

- Patient with acute renal hemodynamic system failure - physical examination, rescue priorities (30 min.)
- Immediate initiation of symptomatic treatment, while carrying out the necessary diagnostic procedures enabling implementation of possible causal treatment as soon as possible (30 min.)
- Rules for the use of oxygen therapy in cardiac failure (30 min.)
- Purpose of central venous and peripheral artery cannulation - invasive monitoring of cardiovascular system in ICU (interpretation of the measurements obtained with respect to the patient's clinical status) (1 hr.)
- Classical methods of cardiovascular support (ionic crystalloid and / or colloid infusion - the term "volume resuscitation" and "volume resuscitation" in clinical practice; catecholamines) (30 min.)
- Appliance (non-invasive and invasive) methods of cardiovascular support (1 hr.)

c. Classes - 8 hrs.

Seminar - ACUTE RESPIRATORY FAILURE (2 hrs.):

- The clinical evaluation, imaging studies, laboratory tests - interpretation of study results with respect to the image of clinical respiratory signs and other vital signs.

PRACTICAL CLASSES (in ICU - adult): (6 hours).

- Patient with acute respiratory failure - physical examination, rescue priorities (30 min.)
- Immediate initiation of symptomatic treatment, while carrying out necessary diagnostic procedures enabling implementation of possible causal treatment as soon as possible (30 min.)
- Rules for the use of oxygen therapy in acute and / or intensive chronic respiratory failure (30 min.)
- Clinical and laboratory indications for respirator treatment - invasive monitoring of cardiovascular system in ICU (interpretation of the measurements obtained with respect to the patient's clinical status) (1 hr.)
- Direct respiratory support methods (30 min.)
- Instrumental methods of respiratory support (1 hr.)

d. Classes - 8 hrs.

Seminar - ACUTE RENAL FAILURE (2 hrs.):

- Clinical evaluation, imaging studies, laboratory tests - interpretation of study results regarding image of clinical symptoms.

PRACTICAL CLASSES (in ICU - adult): (6 hours).

- Patient with acute renal failure - physical examination, rescue priorities (30 min.)
- Immediate initiation of symptomatic treatment, while carrying out the necessary diagnostic procedures enabling implementation of causal treatment as soon as possible (30 min.)
- Necessary additional examinations (gasometry, biochemical, imaging) (1hr.)
- Direct methods for supporting renal function (30 min.)
- Instrumental methods of respiratory support - gangplank renal replacement therapy (2 hrs.)

e. Classes - 8 hrs.

Seminar - ACUTE FAILURE: RESPIRATORY, CARDIOVASCULAR, CNS AND KIDNEY OF CHILDREN (2 hrs.):

- Epidemiology of causes of acute life-threatening states of a child considering the age - acute failure of: respiratory, cardiovascular, CNS systems and renal function of children (1 hr.)
- The specificity of clinical image of disorders from systems most important to life, taking into account differences in age groups (neonates, infants, young children, older children and adolescents) (1 hr.)

PRACTICAL CLASSES (in ICU - children): (6 hours).

- Physical examination of a pediatric patient in immediate life threat (including the aspect of life in a mental symbiosis with the mother) (1hr.)

The perception and interpretation of clinical symptoms of children subjected to general analgesia and shallow pharmacological sleep (3 hrs.)

4.3. Education outcomes in the discipline

Code	A student, who passed the course	Relation to teaching outcomes
within the scope of KNOWLEDGE:		
W01	knows the most common life-threatening conditions in children and the rules of conduct in these states;	E.W6.
W02	knows the principles concerning the treatment of pain, including cancer and chronic pain;	E.W29.
W03	knows and understands the capabilities and limitations of laboratory tests in emergency situations;	E.W39.
W04	knows eligibility rules as well as basic and most common complications of surgery and other invasive diagnostic and treatment procedures;	F.W3.
W05	knows perioperative safety rules, preparing a patient for surgery, general and local anesthesia and controlled sedation;	F.W4.
W06	knows postoperative treatment and analgesic therapy as well as post-operative monitoring;	F.W5.
W07	knows indications and rules for the application of intensive therapy;	F.W6.
W08	knows the current guidelines for cardiopulmonary resuscitation of the newborns, children and adults;	F.W7.
W09	knows the principles of the integrated state system of medical rescue;	F.W8.
W10	knows the problem of surgical transplantation, indications for the transplantation of irreducibly damaged organs and tissues, and related procedures;	F.W14.
W11	knows the rules concerning the diagnosis of brain death.	F.W15.
within the scope of ABILITIES:		
U01	conducts a review of medical history of the child and its family;	E.U2.
U02	conducts physical examination of the child at any age;	E.U4.
U03	performs differential diagnosis of the most common diseases in adults and children;	E.U12.
U04	assesses and describes the somatic and mental state of patients;	E.U13.
U05	recognizes states of a direct threat to life;	E.U14.
U06	recognizes when a patient is under the influence of alcohol, drugs and other addictive products;	E.U15.
U07	plans diagnostic, therapeutic and preventive procedures;	E.U16.
U08	conducts analysis of the potential side effects of each drug and the interaction between them;	E.U17.
U09	applies dietary treatment (including enteral and parenteral feeding);	E.U25.
U10	implements the basic therapeutic procedure in acute poisoning;	E.U33.
U11	monitors the status of a patient poisoned by chemical substances or drugs;	E.U34.

U15	X	X			X			X											
U16	X	X			X			X											
U17	X	X			X			X											
U18	X	X			X			X											
U19	X	X			X			X											
U20	X	X			X			X											
U21	X	X			X			X											
U22	X	X			X			X											
U23	X	X			X			X											
U24	X	X			X			X											
U25	X	X			X			X											

4.5. Criteria of assessment of the intended teaching outcomes

Form of classes	Grade	Criterion of assessment
lecture (L)	3	Learning core curriculum on the basic level, replies chaotic, leading questions necessary. obtained 61-68% of possible points
	3,5	Learning core curriculum on the basic level, answers systematized, requires assistance from the teacher. obtained 69-76% of possible points
	4	Learning core curriculum on the basic level, answers systematized, independent. Solving of problems in typical situations. obtained 77-84% of possible points
	4,5	The scope of presented knowledge exceeds the basic level based on the supplementary literature provided. Solving of problems in new complex situations obtained 85-92% of possible points
	5	The scope of presented knowledge exceeds the basic level based on independently acquired scientific sources of information. obtained 93-100% of possible points
classes (C)*	3	Learning core curriculum on the basic level, replies chaotic, leading questions necessary. obtained 61-68% of possible points
	3,5	Learning core curriculum on the basic level, answers systematized, requires assistance from the teacher. obtained 69-76% of possible points
	4	Learning core curriculum on the basic level, answers systematized, independent. Solving of problems in typical situations. obtained 77-84% of possible points
	4,5	The scope of presented knowledge exceeds the basic level based on the supplementary literature provided. Solving of problems in new complex situations obtained 85-92% of possible points
	5	The scope of presented knowledge exceeds the basic level based on independently acquired scientific sources of information. obtained 93-100% of possible points

Practical classes*	3	Learning core curriculum on the basic level, replies chaotic, leading questions necessary. obtained 61-68% of possible points
	3,5	Learning core curriculum on the basic level, answers systematized, requires assistance from the teacher. obtained 69-76% of possible points
	4	Learning core curriculum on the basic level, answers systematized, independent. Solving of problems in typical situations. obtained 77-84% of possible points
	4,5	The scope of presented knowledge exceeds the basic level based on the supplementary literature provided. Solving of problems in new complex situations obtained 85-92% of possible points
	5	The scope of presented knowledge exceeds the basic level based on independently acquired scientific sources of information. obtained 93-100% of possible points

- **Thresholds are valid from 2018/ 2019 academic year**

Criteria for evaluation of oral answer

1. Provision of a comprehensive answer to the problem (task)
2. Skill of integration of knowledge from allied domains (disciplines)
3. Independence and/or creativity in the presentation of the scope of problems, proposals of solutions
4. Presentation of the current knowledge related with the discipline (domain)
5. Recognition of problems resulting from the task

Criteria for evaluation of written answer

1. Compliance with the essence of the subject matter of work (task) /
2. Provision of a comprehensive answer to the problem (task) /
3. Skill of integration of knowledge from allied domains (disciplines) /
4. Independence and/or creativity in the presentation of the scope of problems
5. Presentation of the current knowledge related with the discipline (domain), pertinent selection of literature

5. BALANCE OF ECTS CREDITS – STUDENT’S WORK INPUT

Category	Student's workload
	Full-time studies
<i>NUMBER OF HOURS WITH THE DIRECT PARTICIPATION OF THE TEACHER /CONTACT HOURS/</i>	110
<i>Participation in lectures*</i>	30
<i>Participation in classes, seminars, laboratories*</i>	80
<i>Preparation in the exam/ final test*</i>	
<i>Others*</i>	
<i>INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/</i>	40
<i>Preparation for the lecture*</i>	20
<i>Preparation for the classes, seminars, laboratories*</i>	10
<i>Preparation for the exam/test*</i>	10
<i>Gathering materials for the project/Internet query*</i>	
<i>Preparation of multimedia presentation</i>	
<i>Others*</i>	
TOTAL NUMBER OF HOURS	150
ECTS credits for the course of study	5

Accepted for execution (date and signatures of the teachers running the course in the given academic year)

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