Faculty of Medicine in Rijeka

Curriculum
2023/2024

For course

Anaesthesiology, Reanimatology and Intensive Medicine

Study program:	**Medical Studies in English (R)** University integrated undergraduate and graduate study
Department:	**Department of Anesthesiology, Resustacitation and Intensive Care Medicine**
Course coordinator:	**prof. dr. sc. Sotošek Vlatka, dr. med.**
Year of study:	**5**
ECTS:	**4**
Incentive ECTS:	**0 (0.00%)**
Foreign language:	**Possibility of teaching in a foreign language**

Course information:

Anesthesiology, Reanimatology and Intensive Care Medicine is a compulsory course on the 5th year of the Integrated Undergraduate and Graduate Study of Medicine in English. It consists of 12 hours of lectures, 68 hours of practicals, and a total of 80 hours (4 ECTS credits). The course is held at the Department of Anaesthesiology, Reanimatology, Emergency and Intensive Care Medicine, Clinical Hospital Center Rijeka and at The Institute of Emergency Medicine of the Primorje-Gorski kotar County.

Course objectives: The goal of this course is to encounter students with basic knowledge and skill of anesthesiology, reanimation and intensive care medicine. Further goal is to introduce to the students different anesthesia techniques, its indications and contraindications. Special attention is on training students to perform basic and advanced life support in adult and in children. Furthermore, the aim of the course is to encounter students with intensive care units, monitors of vital signs and treatment of critically ill patients. Additional goal is to introduce to the students different techniques of pain management.

Course content:
Anesthesiology: Historical review of the development of anesthesiology. Preoperative preparation of patients and operative risk assessment. Organization of anesthesia service and postoperative anesthesia care unit. General anesthesia, inhaled anesthetics, intravenous anesthetics and opioids, muscle relaxants. Regional anesthesia. Acute and chronic pain.
Reanimatology: Basic and advanced life support procedures. Approach to the patient with multiple injuries in outpatient emergency medical service. Approach to the patient with multiple injuries in the hospital emergency medical service.
Intensive care medicine: Organization of intensive care units. Vital signs monitoring in anesthesiology and intensive care medicine. Approach to the circulatory unstable patient. Sepsis and septic shock. Shock. Mechanical ventilation and Acute respiratory distress syndrome. Acute toxicity. Brain death and maintenance of a deceased organ donor for organ transplantation.

Teaching:
Classes are organized in the form of lectures and practicals. The estimated duration of course is 3 weeks. Lectures will be held on lecture room or on-line (MS Teams, Merlin platform) depending on epidemiological situation. Practicals are supervised by anesthesiologist and intensive care medicine physician, and the student are actively involved in practicals in accordance with epidemiological recommendations. Teaching staff will discuss with the students practicals. By completing all teaching activities, the students must pass obligatory test and final exam. By completing all teaching activities, the students will acquire 4 ECTS credits

List of assigned reading:

Šustić A, Sotošek V et al. Handbook of Anesthesiology, Reanimatology and Intensive Care Medicine for student of Medicine and Dental Medicine, Zagreb: Medicinska naklada; 2021.

List of optional reading:

Allman KG, Wilson IH. Oxford handbook of anaesthesia. Oxford: Oxford University Press; 2016.

Curriculum:

Lectures list (with titles and explanation):

L1 – Introduction to the course and historical review

Understanding to the aims, contents, and requirements of the course. To know brief historical overview of anesthesiology, reanimatolology and intensive medicine

L2 - Shock

To define shock. To distinguish different types of shock (cardiogenic, hypovolemic, distributive and obstructive shock). To know main principle of shock treatment.

L3 – Basic and advanced life support

To define basic principles of basic and advanced life support. To recognize life threatening conditions. To know algorithms of basic and advanced life support.

L4 – Approach of the patient with multiple injuries in outpatient emergency medical service and in the hospital emergency medical service

To know basic principles of the patient with multiple injuries in outpatient emergency medical service. To describe outpatient emergency medical service. To describe organization of hospital emergency medical service.

L5 – Preoperative preparation of patients and operative risk assessment

To describe the procedure of preoperative preparation of patient for anesthesia. To describe ASA classification. To know the methods of operative risk assessment. To know about premedication procedures

L6 - General anesthesia, inhaled anesthetics, intravenous anesthetics and opioids, muscle relaxants

To know basic principles of general anesthesia. To describe different techniques of general anesthesia. To understand stages of general anesthesia. To know basic characteristic of inhaled and intravenous anesthetics. To describe anatomy and function of neuromuscular plate and mechanism of action for muscle relaxants. To describe pharmacokinetic and pharmacodynamics principles of muscle relaxants

L7 – Regional anesthesia and local anesthetics

To describe different techniques of regional anesthesia. To understand the basic principles of regional anesthesia. To describe indications and contraindications for regional anesthesia. To describe mechanism of actions and characteristics of local anesthetics

L8 – Monitoring in anesthesia and intensive medicine

To describe different types of monitors for anesthesia and intensive care medicine. To describe the purpose of electrocardiograph, pulse oximetry, device for invasive and noninvasive measurement, neuromuscular monitoring device etc.

L9 - Approach to the circulatory unstable patient. Sepsis

To recognize and know how to treat circulatory unstable patient. To know the causes of hemodynamic instability. To recognize septic patients.

L10 – Mechanical ventilation and ARDS

To describe characteristics of mechanical ventilation. To know different modes of mechanical ventilation. To know the most common causes of ARDS, its diagnostic and treatment.

L11 – Acute poisoning

To describe the most common causes of acute poisoning. To understand symptoms of acute poisoning. To know specific and symptomatic treatment of acute poisoning

L12 - Acute and chronic pain treatment

To define acute and chronic pain. To understand pain pathway. To know different method of pain assessment. To know the most common causes of acute and chronic pain. To understand pharmacological and nonpharmacological methods of pain management.

Practicals list (with titles and explanation):

P1 BLS - Basic Life Support

To know basic life support. To describe algorithm of basic life support. To know how to use automated external defibrillator

P2 ALS - Advanced Life Support

To know advanced life support. To describe algorithm of advanced life support.

P3 Approach of the patient in outpatient emergency medical service

To describe the organization of outpatient emergency medical service. To know how to treat patients in outpatients emergency medical service

P4 Basic of anesthesia

To know basics of preoperative preparation of patient for anesthesia, to assess the risk for anesthesia an surgery. To know different techniques of general and regional anesthesia. To know different type of monitoring during anesthesia

P5 Basic of intensive medicine

To know basic characteristic of intensive care unit organization. To know basic principles of intensive care of critically ill patients. To describe different type of monitoring in intensive care unit.

Obligatory test

Skills Lab Simulation Centre

Student obligations:

Attendance on lectures and practicals is mandatory. Communication between the teaching stuff and students will take place on Merlin e-learning system or by e-mail addresses (@uniri.hr)

Exam (exam taking, description of the written/oral/practical part of the exam, point distribution, grading criteria):

Student assessment is carried out in accordance with the current University of Rijeka Study Regulations and the Student Regulations at the Faculty of Medicine Rijeka (adopted by the Faculty Council of the Faculty of Medicine Rijeka). Students' performance will be evaluated during the course and at the final exam. Out of a total of 100 credits, a student can earn 50 credits (50%) during the course, and 50 credits (50%) at the final exam. Student assessment is performed using ECTS (A-F) and number system (1-5). Student assessments in ECTS system is carried out by is performed by absolute distribution, and according to graduate assessment criteria. Out of a total of 50 credits that can be earn during the course, student must earn 25 credits to take final exam.

The student acquires grade points by completing the tasks as follows I. During the course (maximum 50 credits): Obligatory test (maximum 50 credits) During the course students must take obligatory test of BLS and ALS and can earn maximum (range 25-50). The obligatory test is held the Skills Lab Simulation Center (Kabinet vještina). During the obligatory test teacher grades knowledge and skills of each student as follows:

grade	credits
sufficient	25
good	33
very good	42
excellent	50

II. Final exam (maximum 50 credits): Final exam is consist of obligatory written exam on Merlin platform. Student who earn 25 or more credits during the course can take final exam. Student who earn less than 25 credits during the course cannot take final exam. Final exam is scored maximal up to 50 credits. Final exam is consist of 24 questions and brings 50 credits (rage 25-50). To earn the credits student must pass 50% of final test. Correct answers are converted in credits by the following criteria:

CORRECT ANSWERS (%)	credits
50-54,99%	25
55-59,99%	30
60-64,99%	32,5
65-69,99%	35
70-74,99%	37,5
75-79,99%	40
80-84,99%	42,5
85-89,99%	45
90-94,99%	47,5
95-100%	50

For a passing grade during classes and on the final exam, student has to obtain minimum of 50 credits. The ECTS grading system is defined by the following criteria:
A (5) – 90 -100% credits
B (4)– 75 - 89,9% credits
C (3) – 60 - 74,9% credits
D (2) -- 50 - 59,9% credits
F (1) – 0 - 49,9% credits

Grades in ECTS grading system are converted in numerical system by the following criteria:
A = excellent (5)
B = very good (4)
C = good (3)
D = sufficient (2)
F = insufficient (1)

Other notes (related to the course) important for students:

Course content and all information related to the course as well as exam dates can be found on the Merlin elearning system and on the web pages of the Department of Anesthesiology, Reanimatology, Emergency and Intensive care. All student inquiries, regarding the course and possible problems, remarks and inquiries are provided exclusively using the official e-mail addresses (@medri.uniri.hr) or via the Merlin e-learning system. It is possible to arrange consultations with the teaching staff during working hours

COURSE HOURS 2023/2024

Anaesthesiology, Reanimatology and Intensive Medicine

Lectures (Place and time or group)	**Practicals** (Place and time or group)
20.06.2024	

L5 – Preoperative preparation of patients and operative risk assessment:
• P5-112 (16:00 - 17:30) [464]
  ○ ARAIC
 	
L6 - General anesthesia, inhaled anesthetics, intravenous anesthetics and opioids, muscle relaxants:
• P5-112 (16:00 - 17:30) [464]
  ○ ARAIC
	P1 BLS - Basic Life Support:
	• Cabinet of skills, training ground 1 (08:00 - 15:30) [1913]
	  ○ ARIC-P1A
	
	P2 ALS - Advanced Life Support:
	• Cabinet of skills, training ground 1 (08:00 - 15:30) [1913]
	  ○ ARIC-P1A
	
	P4 Basic of anesthesia:
	• Clinic for anesthesiology and intensive care KBC Rijeka - Rijeka location (08:15 - 15:00) [1915]
	  ○ ARIC-P2A
	• Clinic for anesthesiology and intensive treatment KBC Rijeka - location Sušak (08:15 - 15:00) [2305]
	  ○ ARIC-P3A
	
	P5 Basic of intensive medicine:
	• Clinic for anesthesiology and intensive care KBC Rijeka - Rijeka location (08:15 - 15:00) [468]
	  ○ ARIC-P4A
	• Clinic for anesthesiology and intensive treatment KBC Rijeka - location Sušak (08:15 - 15:00) [352]
	  ○ ARIC-P5A

doc. dr. sc. Bobinac Mirna, dr. med. [352] · naslovna asistentica Božić Katarina, dr. med. [1913] · Knežević Danijel, dr. med. [468] · doc. dr. sc. Pavičić Šarić Jadranka, dr. med. [464] · naslovna asistentica Predrijevac Tomljanović Anamarija, dr.med. [1915] · naslovna asistentica Tomas Vera, dr.med. [2305]	
21.06.2024	

L3 – Basic and advanced life support:
• P5-112 (16:00 - 17:30) [259]
  ○ ARAIC
 	
L4 – Approach of the patient with multiple injuries in outpatient emergency medical service and in the hospital emergency medical service:
• P5-112 (16:00 - 17:30) [259]
  ○ ARAIC
	P1 BLS - Basic Life Support:
	• Cabinet of skills, training ground 1 (08:00 - 15:30) [355]
	  ○ ARIC-P6A
	
	P2 ALS - Advanced Life Support:
	• Cabinet of skills, training ground 1 (08:00 - 15:30) [355]
	  ○ ARIC-P6A
	
	P3 Approach of the patient in outpatient emergency medical service:
	• ZZHM PGŽ Rijeka (08:15 - 15:00) [471]
	  ○ ARIC-P5A
	
	P5 Basic of intensive medicine:
	• Clinic for anesthesiology and intensive treatment KBC Rijeka - location Sušak (08:15 - 15:00) [352]
	  ○ ARIC-P4A
	• Clinic for anesthesiology and intensive care KBC Rijeka - Rijeka location (08:15 - 15:00) [468]
	  ○ ARIC-P3A
	
	P4 Basic of anesthesia:
	• Clinic for anesthesiology and intensive treatment KBC Rijeka - location Sušak (08:15 - 15:00) [1913]
	  ○ ARIC-P2A
	• Clinic for anesthesiology and intensive care KBC Rijeka - Rijeka location (08:15 - 15:00) [1915]
	  ○ ARIC-P1A

doc. dr. sc. Bobinac Mirna, dr. med. [352] · naslovna asistentica Božić Katarina, dr. med. [1913] · naslovni asistent Bura Matej, dr. med. [355] · naslovna asistentica Kajčić Senka, dr. med. [471] · Knežević Danijel, dr. med. [468] · naslovna asistentica Predrijevac Tomljanović Anamarija, dr.med. [1915] · prof. dr. sc. Protić Alen, dr. med. [259]	
22.06.2024	
	P3 Approach of the patient in outpatient emergency medical service: • ZZHM PGŽ Rijeka (08:15 - 15:00) [471] ○ ARIC-P6A
naslovna asistentica Kajčić Senka, dr. med. [471]	
24.06.2024	

L1 – Introduction to the course and historical review:
• P5-112 (16:00 - 17:30) [398]
  ○ ARAIC
 	
L2 - Shock:
• P5-112 (16:00 - 17:30) [398]
  ○ ARAIC
	P1 BLS - Basic Life Support:
	• Cabinet of skills, training ground 1 (08:00 - 15:30) [353]
	  ○ ARIC-P5A
	
	P2 ALS - Advanced Life Support:
	• Cabinet of skills, training ground 1 (08:00 - 15:30) [353]
	  ○ ARIC-P5A
	
	P4 Basic of anesthesia:
	• Clinic for anesthesiology and intensive treatment KBC Rijeka - location Sušak (08:15 - 15:00) [354]
	  ○ ARIC-P1A
	• Clinic for anesthesiology and intensive care KBC Rijeka - Rijeka location (08:15 - 15:00) [1911]
	  ○ ARIC-P6A
	
	P5 Basic of intensive medicine:
	• Clinic for anesthesiology and intensive treatment KBC Rijeka - location Sušak (08:15 - 15:00) [467]
	  ○ ARIC-P3A
	• Clinic for anesthesiology and intensive care KBC Rijeka - Rijeka location (08:15 - 15:00) [468]
	  ○ ARIC-P2A
	
	P3 Approach of the patient in outpatient emergency medical service:
	• ZZHM PGŽ Rijeka (08:15 - 15:00) [471]
	  ○ ARIC-P4A

naslovna asistentica Jurinčić Ivana, dr. med. [1911] · naslovna asistentica Kajčić Senka, dr. med. [471] · Knežević Danijel, dr. med. [468] · naslovni asistent Milošević Marko, dr. med. [467] · Piculjan Ana, dr. med. [354] · prof. dr. sc. Sotošek Vlatka, dr. med. [398] · Šuper-Petrinjac Erika, dr. med. [353]	
25.06.2024	

L7 – Regional anesthesia and local anesthetics:
• P5-112 (16:00 - 17:30) [398]
  ◦ ARAIC
 	
L8 – Monitoring in anesthesia and intensive medicine:
• P5-112 (16:00 - 17:30) [398]
  ◦ ARAIC
	P1 BLS - Basic Life Support:
	• Cabinet of skills, training ground 1 (08:00 - 15:30) [467]
	  ◦ ARIC-P4A
	
	P2 ALS - Advanced Life Support:
	• Cabinet of skills, training ground 1 (08:00 - 15:30) [467]
	  ◦ ARIC-P4A
	
	P3 Approach of the patient in outpatient emergency medical service:
	• ZZHM PGŽ Rijeka (08:15 - 15:00) [471]
	  ◦ ARIC-P3A
	
	P4 Basic of anesthesia:
	• Clinic for anesthesiology and intensive care KBC Rijeka - Rijeka location (08:15 - 15:00) [1404]
	  ◦ ARIC-P5A
	• Clinic for anesthesiology and intensive treatment KBC Rijeka - location Sušak (08:15 - 15:00) [2305]
	  ◦ ARIC-P6A
	
	P5 Basic of intensive medicine:
	• Clinic for anesthesiology and intensive care KBC Rijeka - Rijeka location (08:15 - 15:00) [1911]
	  ◦ ARIC-P1A
	• Clinic for anesthesiology and intensive treatment KBC Rijeka - location Sušak (08:15 - 15:00) [355]
	  ◦ ARIC-P2A

naslovni asistent Bura Matej, dr. med. [355] · naslovna asistentica Jurinčić Ivana, dr. med. [1911] · naslovna asistentica Kajčić Senka, dr. med. [471] · naslovni asistent Maroević Jan, dr. med. [1404] · naslovni asistent Milošević Marko, dr. med. [467] · prof. dr. sc. Sotošek Vlatka, dr. med. [398] · naslovna asistentica Tomas Vera, dr.med. [2305]	
26.06.2024	

L9 - Approach to the circulatory unstable patient. Sepsis:
• P5-112 (16:00 - 17:30) [461]
  ◦ ARAIC
 	
L10 – Mechanical ventilation and ARDS:
• P5-112 (16:00 - 17:30) [461]
  ◦ ARAIC
	P1 BLS - Basic Life Support:
	• Cabinet of skills, training ground 1 (08:00 - 15:30) [355]
	  ◦ ARIC-P3A
	
	P2 ALS - Advanced Life Support:
	• Cabinet of skills, training ground 1 (08:00 - 15:30) [355]
	  ◦ ARIC-P3A
	
	P4 Basic of anesthesia:
	• Clinic for anesthesiology and intensive care KBC Rijeka - Rijeka location (08:15 - 15:00) [1404]
	  ◦ ARIC-P4A
	• Clinic for anesthesiology and intensive treatment KBC Rijeka - location Sušak (08:15 - 15:00) [354]
	  ◦ ARIC-P5A
	
	P5 Basic of intensive medicine:
	• Clinic for anesthesiology and intensive care KBC Rijeka - Rijeka location (08:15 - 15:00) [468]
	  ◦ ARIC-P6A
	• Clinic for anesthesiology and intensive treatment KBC Rijeka - location Sušak (08:15 - 15:00) [2304]
	  ◦ ARIC-P1A
	
	P3 Approach of the patient in outpatient emergency medical service:
	• ZZHM PGŽ Rijeka (08:15 - 15:00) [471]
	  ◦ ARIC-P2A

naslovni asistent Barbalić Berislav, dr. med. [2304] · naslovni asistent Bura Matej, dr. med. [355] · naslovna asistentica Kajčić Senka, dr. med. [471] · Knežević Danijel, dr. med. [468] · naslovni asistent Maroević Jan, dr. med. [1404] · Piculjan Ana, dr. med. [354] · naslovni prof. dr. sc. Župan Željko, dr. med. [461]	

27.06.2024	

L11 – Acute poisoning:
• P5-112 (16:00 - 17:30) [465]
  ◦ ARAIC
 	
L12 - Acute and chronic pain treatment:
• P5-112 (16:00 - 17:30) [465]
  ◦ ARAIC
	P1 BLS - Basic Life Support:
	• Cabinet of skills, training ground 1 (08:00 - 15:30) [1914]
	  ◦ ARIC-P2A
	
	P2 ALS - Advanced Life Support:
	• Cabinet of skills, training ground 1 (08:00 - 15:30) [1914]
	  ◦ ARIC-P2A
	
	P4 Basic of anesthesia:
	• Clinic for anesthesiology and intensive care KBC Rijeka - Rijeka location (08:15 - 15:00) [1915]
	  ◦ ARIC-P3A
	• Clinic for anesthesiology and intensive treatment KBC Rijeka - location Sušak (08:15 - 15:00) [1912]
	  ◦ ARIC-P4A
	
	P5 Basic of intensive medicine:
	• Clinic for anesthesiology and intensive care KBC Rijeka - Rijeka location (08:15 - 15:00) [468]
	  ◦ ARIC-P5A
	• Clinic for anesthesiology and intensive treatment KBC Rijeka - location Sušak (08:15 - 15:00) [352]
	  ◦ ARIC-P6A
	
	P3 Approach of the patient in outpatient emergency medical service:
	• ZZHM PGŽ Rijeka (08:15 - 15:00) [471]
	  ◦ ARIC-P1A

doc. dr. sc. Bobinac Mirna, dr. med. [352] · naslovna asistentica Kajčić Senka, dr. med. [471] · Knežević Danijel, dr. med. [468] · naslovna docentica Orlić Karbić Vlasta, dr. med. [465] · naslovna asistentica Predrijevac Tomljanović Anamarija, dr.med. [1915] · naslovni asistent Vuksan Ivan, dr. med. [1912] · naslovni asistent Ševeljević Ivan, dr. med. [1914]	
28.06.2024	

	Obligatory test:
	• Cabinet of skills, training ground 1 (08:00 - 16:00) [467] [1914]
	  ◦ ARIC-P1A
	  ◦ ARIC-P2A
	  ◦ ARIC-P3A
	  ◦ ARIC-P4A
	  ◦ ARIC-P5A
	  ◦ ARIC-P6A

naslovni asistent Milošević Marko, dr. med. [467] · naslovni asistent Ševeljević Ivan, dr. med. [1914]	

List of lectures, seminars and practicals:

LECTURES (TOPIC)	Number of hours	Location
L1 – Introduction to the course and historical review	1	P5-112
L2 - Shock	1	P5-112
L3 – Basic and advanced life support	1	P5-112
L4 – Approach of the patient with multiple injuries in outpatient emergency medical service and in the hospital emergency medical service	1	P5-112
L5 – Preoperative preparation of patients and operative risk assessment	1	P5-112
L6 - General anesthesia, inhaled anesthetics, intravenous anesthetics and opioids, muscle relaxants	1	P5-112
L7 – Regional anesthesia and local anesthetics	1	P5-112

L8 – Monitoring in anesthesia and intensive medicine	1	P5-112
L9 - Approach to the circulatory unstable patient. Sepsis	1	P5-112
L10 – Mechanical ventilation and ARDS	1	P5-112
L11 – Acute poisoning	1	P5-112
L12 - Acute and chronic pain treatment	1	P5-112

PRACTICALS (TOPIC)	Number of hours	Location
P1 BLS - Basic Life Support	16	Cabinet of skills, training ground 1
P2 ALS - Advanced Life Support	16	Cabinet of skills, training ground 1
P3 Approach of the patient in outpatient emergency medical service	8	ZZHM PGŽ Rijeka
P4 Basic of anesthesia	14	Clinic for anesthesiology and intensive care KBC Rijeka - Rijeka location Clinic for anesthesiology and intensive treatment KBC Rijeka - location Sušak
P5 Basic of intensive medicine	14	Clinic for anesthesiology and intensive care KBC Rijeka - Rijeka location Clinic for anesthesiology and intensive treatment KBC Rijeka - location Sušak
Obligatory test	8	Cabinet of skills, training ground 1

EXAM DATES (final exam):

1.	01.07.2024.
2.	15.07.2024.
3.	05.09.2024.
4.	19.09.2024.