



MEDICINE AND SOCIETY

SIXTH YEAR OF STUDIES

Academic year 2023/2024

RESUSCITATION 2

Subject:

RESUSCITATION 2

The course is evaluated with 3 ECTS. There are 3 hours of active teaching per week (2 hours of lectures and 1 hour of work in a small group).

TEACHERS AND ASSOCIATES:

	Name and surname	Occupation
1.	Saška Dimitrijević	full time professor
2.	Dragče Radovanović	full time professor
3.	Branislav Belić	associate professor
4.	Prodanovic Nikola	assistant professor
5.	Slobodan Milisavljević	full time professor
6.	Dejan Vulović	associate professor
7.	Vojin Kovačević	assistant professor
8.	Aleksandar Cvetković	associate professor
9.	Nenad Zornić	associate professor

COURSE STRUCTURE

Modul	Name of the module	Week	Lectures	Work in a small group	Teacher - head of the module
1	Primary approach and examination of the severely injured patient, airway in trauma, chest injuries, shock, trauma to the abdomen and pelvis	5	2	1	Professor Nenad Zornic
2	Head injuries, spinal cord injuries, maxillofacial injuries, limb and soft tissue injuries, injuries in children	5	2	1	Professor Nenad Zornic
3	Injuries in women, thermal injuries, hypothermia, analgesia in trauma, scoring systems in trauma	5	2	1	Professor Nenad Zornic
					$\Sigma 30+15=45$

Work in small groups is held in 2 blocks, according to a marked schedule. The first block of work in a small group has 15 school hours, it is held in the Institute for Emergency Medical Assistance

Assessment :

The student masters the subject in modules. The grade is equivalent to the number of points earned (see tables). Points are earned in three ways:

ACTIVITY DURING THE LESSON: In this way, the student can earn up to 10 points, with a maximum of 6 points gained after the first block of exercises, and a maximum of 4 points after the second block. Knowledge of the material, preparedness for working in a small group and team work are evaluated.

PRACTICAL SKILLS TEST: in the primary approach, assessment and resuscitation of a seriously injured patient. The skills acquired in the first block of exercises, during the duration of the first semester, are evaluated according to a defined schedule. A student can earn up to 30 points, where the scoring is done as follows:

SKILLS	Maximum points
Knowledge of algorithms and protocols for accessing and assessing the condition of a severely injured patient	10
Performing maneuvers and procedures for securing the airway, immobilization, establishing a vascular path, monitoring	10
Solving given scenarios of clinical situations in trauma of individual systems	10
Σ	30

FINAL TESTS BY MODULE: In this way, the student can gain up to 60 points, and according to the attached table, each question carries 2 points.

Modul		Maximum points			
		activity during classes	assessment of acquired skills	final test	Σ
	Primary approach and examination of the severely injured patient, airway in trauma, chest injuries, shock, trauma to the abdomen and pelvis				
	Head injuries, spinal cord injuries, maxillofacial injuries, limb and soft tissue injuries, injuries in children				
	Injuries in women, thermal injuries, hypothermia, analgesia in trauma, scoring systems in trauma				
		10	30	60	40
	Σ	10	30	60	100

The final grade is formed as follows:

In order to pass the course, the student must obtain a minimum of 51 points and pass all modules. To pass the module the student must:

1. obtains more than 50% points in that module.
2. acquires more than 50% of the points provided for the activity in teaching in each module.
3. pass the module test, i.e. have more than 50% correct answers.
4. obtain more than 50% points on the practical skills test.

number of points won	grade
0 - 50	5
51 - 60	6
61 - 70	7
71 - 80	8
81 - 90	9
91 - 100	10

MODULE TESTS

FINAL TEST
0-60 POINTS

The test has 30 questions.
Each question is worth 2 points.

LITERATURE:

MODULE	TITLE OF TEXTBOOK	AUTHORS	PUBLISHER	LIBRARY
	Trauma - initial care	edited by Jasna Jevđić	Faculty of Medicine in Kragujevac, 2011	-

All lectures and material for small group work are available on the website of the Faculty of Medical Sciences: www.medf.kg.ac.rs

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THE PROGRAM:

TEACHING UNIT 1 (FIRST WEEK)

PRIMARY APPROACH AND EXAMINATION OF THE SEVERELY INJURED PATIENT

lectures 2 hours	work in a small group 1 hour
<p>Initial assessment and resuscitation of a seriously injured patient:</p> <ul style="list-style-type: none">• Preparation for admission of a severely traumatized patient.• Primary examination of the injured and primary care (ABCDE approach).• Tests that must be performed on an injured patient immediately upon admission.• Method of performing the secondary review.• Procedures that are carried out in the resuscitation room immediately after receiving a seriously injured patient	<p>Initial assessment and resuscitation of a seriously injured patient:</p> <ul style="list-style-type: none">• Initial assessment of the injured, adopting the ABCDE approach.• Practicing maneuvers to open the airway, artificial respiration using the mouth-to-mouth technique <p>mouth, and using means of ventilation (mask, self-expanding balloon)</p> <ul style="list-style-type: none">• External heart massage. <p>Training is done on a CPR mannequin.</p>

TEACHING UNIT 2 (SECOND WEEK)

AIRWAY IN TRAUMA

lectures 2 hours	work in a small group 1 hour
<p>Establishing the airway of a traumatized patient:</p> <ul style="list-style-type: none">• Assessment of airway patency• Signs and symptoms of airway obstruction• Ways to secure the airway• Basic artificial ventilation techniques and indications	<ul style="list-style-type: none">• Application of auxiliary means to secure the airway• Use of supraglottic devices to secure the airway

TEACHING UNIT 3 (THIRD WEEK)

CHEST INJURIES

lectures 2 hours	work in a small group 1 hour
<ul style="list-style-type: none">• Chest injuries:• Basic characteristics of chest wall injuries (thoracic flap), lung injuries (pneumothorax, hemothorax)• Injury to the mediastinum• Assessment and treatment of chest injuries that pose an immediate threat to life• Assessment and treatment of chest injuries that are not immediately life-threatening• Diagnostic and therapeutic procedures in the assessment and treatment of chest injuries	<p>Chest injuries:</p> <ul style="list-style-type: none">• Inspection of the chest and neck, palpation and auscultation, in patients with pneumo- or hemothorax.• Initiation of pulse oximetry and delivery of oxygen therapy (oxygenation equipment)

TEACHING UNIT 4 (FOURTH WEEK)

SHOCK

lectures 2 hours	work in a small group 1 hour
<ul style="list-style-type: none">• Concept, definition and division of shock• Etiology of shock• Pathophysiology and compensatory mechanisms in shock• Initial assessment of patients in shock.• Hemorrhagic shock therapy (resuscitation fluids, blood and blood substitutes)	<ul style="list-style-type: none">• Learn how to perform an emergency cross-examination• Practice the technique of rapid transfusion and heating the blood with special heaters

UNIT 5 (FIFTH WEEK)

TRAUMA OF THE ABDOMEN AND PELVIS

lectures 2 hours	work in a small group 1 hour
<ul style="list-style-type: none">• Abdominal and pelvic injuries: Significance and method of diagnosing intra-abdominal injuries• Significance of the injury mechanism• Methodology for assessment and treatment of abdominal and pelvic injuries	<ul style="list-style-type: none">• Inspection, palpation, percussion, measurement of abdominal circumference• Placement of a nasogastric tube.• Bladder catheterization with a Foley catheter• Interpretation of laboratory analyzes of urine

UNIT 6 (SIXTH WEEK)

HEAD INJURIES

lectures 2 hours	work in a small group 1 hour
<ul style="list-style-type: none">• Head injuries: Ways of proper initial assessment of a patient with a head injury• Glasgow Coma Score• Ways and goals of initial resuscitation of a patient with a head injury• Necessary diagnostic procedures• Communication with the neurosurgeon• Treatment of neurotrauma.	<ul style="list-style-type: none">• Evaluation of pupil size and reactivity in comatose patients• Determination of the Glasgow Coma score

UNIT 7 (SEVENTH WEEK)

SPINAL TRAUMA

lectures 2 hours	work in a small group 1 hour
<ul style="list-style-type: none">• Spinal column and spinal cord injuries• Epidemiology of spine and spinal cord injuries• Basic and advanced life support for spine and spinal cord injuries• Neurogenic shock• Fractures and dislocations of the spinal column• Neurological and radiographic examination• Immobilization	<ul style="list-style-type: none">• Manual stabilization of the cervical spine: Practicing manual immobilization of the cervical spine and immobilization using a solid collar.

UNIT 8 (EIGHTH WEEK)

MAXILLOFACIAL INJURIES

lectures 2 hours	work in a small group 1 hour
<ul style="list-style-type: none"> • Maxillofacial injuries: Basic characteristics of injuries to the airway, blood vessels, nerves, eye and facial bone fractures • The importance of establishing an airway in maxillofacial injuries and getting to know the ways to achieve it • The relationship between facial injuries and cervical spine injuries • Ways to treat profuse bleeding from the head and neck region 	<ul style="list-style-type: none"> • Practicing securing the airway in a scenario of difficult intubation on a mannequin

UNIT 9 (NINTH WEEK)

EXTREMITY AND SOFT TISSUE INJURIES

lectures 2 hours	work in a small group 1 hour
<ul style="list-style-type: none"> • Injuries of the musculoskeletal system - division • Traumatic amputations • Pelvic and femur fractures • Syndrome of closed tissue spaces • Immobilization • Method of determining musculoskeletal injuries • The importance of timely and correct determination of bone and joint trauma • Basic principles of assessment and treatment of soft tissue injuries in the Admissions (Emergency) Department • Basic principles of assessment and management of the most common fractures upon admission or in the field 	<ul style="list-style-type: none"> • Hemostasis techniques • Wound tamponade and placement of a compression bandage • Temporary immobilization using a vacuum splint

UNIT 10 (TENTH WEEK)

INJURIES IN CHILDREN

lectures 2 hours	work in a small group 1 hour
<ul style="list-style-type: none"> • Injuries in children: Understand the anatomical and physiological characteristics of children that are relevant to the care of a traumatized child. • A system used to assess the condition and care for an injured child • Understand the differences in the treatment of an injured child as well as the prognosis of the outcome compared to an adult 	<ul style="list-style-type: none"> • Familiarize yourself with the method and protocol of caring for an injured child • Familiarize yourself with the content of Advanced Pediatric Life Support (APLS)

UNIT 11 (ELEVENTH WEEK)

INJURIES IN WOMEN

lectures 2 hours	work in a small group 1 hour
<ul style="list-style-type: none">• Specificities of injuries in women• Specifics of injuries in pregnant women• Recognition of physical abuse of women	<ul style="list-style-type: none">• Placement of the pregnant woman in the left lateral position• Assessment of injury mechanisms and their possible impact on the pregnant woman and fetus

UNIT 12 (Twelfth Week)

THERMAL INJURIES

lectures 2 hours	work in a small group 1 hour
<ul style="list-style-type: none">• Thermal injuries: Pathophysiology• Importance and method of prehospital treatment of thermal injuries, with the application of the ABCDE approach• Principles of treatment of thermal injuries	<ul style="list-style-type: none">• Assessment of severity and extent of burns• Calculating the volume of fluid to replace the circulatory volume in relation to the surface of the burn• Preparing the burned patient for transport

UNIT 13 (WEEK THIRTEEN)

POSTOPERATIVE PAIN; MULTIMODAL ANALGESIA

lectures 2 hours	work in a small group 1 hour
<ul style="list-style-type: none">• Negative effects of postoperative pain• Risk factors for chronic postoperative pain• Pharmacotherapy and nerve blocks suitable for treating pain after various surgical interventions• Non-pharmacological methods of treating postoperative pain - physiatry methods, acupuncture, relaxation techniques• Preemptive analgesia in perioperative pain therapy.• Principles of multimodal treatment of postoperative pain	<ul style="list-style-type: none">• Determination of adequate analgesia after certain types of operative procedures• Patient controlled analgesia (PCA), infusion pump programming• Practice on phantoms of advanced post-operative pain treatment techniques: spinal and epidural analgesia, nerve plexus blocks

UNIT 14 (FOURTEENTH WEEK)

ANALGESIA IN TRAUMA

lectures 2 hours	work in a small group 1 hour
<ul style="list-style-type: none">• Analgosedation of the injured patient: Pathophysiology of pain and unwanted systemic effects of pain.• Ways of assessing pain intensity• Various procedures and techniques used in pain therapy	<ul style="list-style-type: none">• Observe the procedure of epidural catheter placement; understand the advantages and limitations of this technique in pain therapy• Familiarize yourself with different groups of analgesics, indications for their administration, dosage and side effects• Different techniques and routes of administration of analgesics.

UNIT 15 (FIFTEENTH WEEK)

THE TERM AND EPIDEMIOLOGY OF SERIOUS TRAUMA. SCORE SYSTEMS IN TRAUMA.

lectures 2 hours	work in a small group 1 hour
<ul style="list-style-type: none">• Concept and epidemiology of severe trauma• Scoring systems in trauma.	<ul style="list-style-type: none">• Determination of various trauma scores in injured patients

Work in small group - FIRST BLOCK

Trainig on the CPR mannequin, lasting 7 school hours. They are carried out in the Cabinet for Emergency Medicine (CPR cabinet)

- Initial assessment and resuscitation of a severely injured patient:
- Assessment of the accident site, safe access to the injured
- Initial assessment of the injured person according to the ABCDE approach
- Practicing maneuvers to open the airway (triple grip), use of aids to open the airway (oropharyngeal tube), ventilation using a mask and a self-expanding balloon, placement of a laryngeal mask, administration of oxygen
- Placement of an intravenous cannula, principles of fluid replacement in a traumatized patient
- Placement of means for immobilizing the cervical spine (cervical collar, lateral stabilizers)
- Immobilization of extremities with vacuum splints
- Placing and immobilizing the patient on a spinal board
- Removing the helmet from the head of the injured motorcyclist
- Solving clinical scenarios (injured pedestrian, injured motorcyclist, fall from a height)

Work in small group - SECOND BLOCK

Work in the Resuscitation Clinic, The Emergency Surgical Clinic of the UCC Kragujevac and the Hospital Part of The Emergency center of the UCC Kragujevac (conducted during work duty for the duration of 8 school hours)

- Acquaintance with equipment for treating trauma in hospital conditions (contents of resuscitation carts, devices for securing the respiratory and venous pathways, monitoring, defibrillators, mechanical ventilators, sets for chest drainage, cystofix, urinary catheters, nasogastric probes, immobilization devices)
- Initial procedures in treating an injured patient in hospital conditions
- Cooperation and coordination of doctors of various specialties in the care of polytrauma, organization of the emergency admission service at KC Kragujevac
- Access to the polytraumatized patient
- Urgent procedures in the treatment of trauma to the head and central nervous system
- Urgent procedures in the treatment of chest trauma
- Urgent procedures in the treatment of trauma to the abdomen and small pelvis
- Urgent procedures in the treatment of extremity trauma
- Case report - neurotrauma, chest trauma, abdominal trauma, orthopedic injuries

Work in small group will be organized in 2 blocks:

- 15 hours of practice on a mannequin

The first block of work in small group from the subject Resuscitation 2 will be held in the Institute for Emergency Medical Assistance according to the schedule below:

Group	Date	Time
I		
II		
examination of practical skills, groups I and II		
III		
IV		
examination of practical skills, groups III and IV		
V		
VI		
examination of practical skills, groups V and VI		
VII		
VIII		
examination of practical skills, groups VII and VIII		
IX		
practical skills test, group IX		

The second block work in small group – duty in the Emergency Center

The schedule for student work in small group in the Emergency Center will be published on the faculty's website in a timely manner. The work in small group will take place in The Emergency Surgical Clinic (Reception ambulance) and The Inpatient Unit of The Emergency Center.

WEEKLY COURSE SCHEDULE

COURSE	TUESDAY
RESUSCITATION 2	INSTITUTE FOR EMERGENCY MEDICAL AID LECTURES 13:30 - 14:00

LECTURE SCHEDULE FOR SUBJECT: RESUSCITATION 2

module	week	type	method unit name	Teacher
1	1	L	Primary approach and examination of a seriously injured patient	Professor Nenad Zornić
1	1	W	I group	
1	2	L	Airway managment	Professor Nenad Zornić
1	2	W	II group	
1	3	L	Chest injuries	Professor Slobodan Milisavljević
1	3	W	Testing of practical skills, groups I and II	
1	4	L	Shock	Professor Nenad Zornić
1	4	W	III group	
1	5	L	Abdominal and pelvic trauma	Professor Dragče Radovanović
1	5	W	IV group	
2	6	L	Head injuries	Ass. Profesor Vojin Kovačević
2	6	W	Testing of practical skills, groups III and IV	
2	7	L	Spinal trauma	Ass. Profesor Vojin Kovačević
2	7	W	V group	
2	8	L	Maxillofacial injuries	Professor Branislav Belić
2	8	W	VI group	

LECTURE SCHEDULE FOR SUBJECT: RESUSCITATION 2

module	week	type	method unit name	Teacher
2	9	L	Extremity and soft tissue injuries	Ass. Professor Prodanovic
2	9	W	Testing of practical skills, groups V and VI	
2	10	L	Injuries in children	Professor Dragče Radovanović
2	10	W	VII group	
3	11	L	Injuries in women	Professor Saska Dimitrijevic
3	11	W	VIII group	
3	12	L	Thermal injuries	Professor Dejan Vulović
3	12	W	Testing of practical skills, groups VII and VIII	
3	13	L	Postoperative pain; Multimodal analgesia	Professor Nenad Zornić
3	13	W	IX group	
3	14	L	Analgesia in trauma	Professor Nenad Zornić
3	14	W	Practical skills test, group IX	
3	15	L	The concept and epidemiology of severe trauma. Scoring systems in trauma	Professor Dragče Radovanović