



UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	Izbrane vsebine in novosti v urgentni medicini
Course title:	Selected topics and novelties in emergency medicine

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Splošna medicina, enovit magistrski študijski program		Peti	10.
General medicine, Uniform master's degree study program		Fifth	10th

Vrsta predmeta (obvezni ali izbirni) /
Course type (compulsory or elective)

izbirni

elective

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Laboratory work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
5	40				45	3

Nosilec predmeta / Lecturer:

Izr. prof. dr. Dušan Mekiš

Jeziki /

Languages:

Predavanja / Lectures:

Vaje / Tutorial:

Slovensko

Slovensko

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Prerequisites:

Vsebina:

1. Temeljni in nadaljevalni postopki oživljanja pri odrasli osebi
2. Postopki oživljanja v posebnih pogojih
3. Hipotenzija in šok
4. Oskrba dihalne poti
5. Poškodba glave
6. Usmerjeni ultrazvok (UZ) v urgentni medicini (osnove, tehnične podrobnosti)
7. UZ dihalne poti
8. UZ pljuč
9. UZ srca
10. UZ pregled poškodovanca (E-FAST)
11. UZ pregled abdominalne aorte
12. UZ globokih ven spodnjih okončin
13. UZ sečil
14. UZ pregled pri šokiranem bolniku (RUSH pregled)
15. EKG preiskava (osnove, tehnične podrobnosti)
16. EKG zapis – analiza
17. EKG : motnje ritma
18. EKG : ishemične bolezni srca (AKS in ekvivalenti)
19. EKG : druge bolezni srca

Content (Syllabus outline):

1. Basic and advanced life support in adults
2. Resuscitation guidelines in special circumstances
3. Hypotension and shock
4. Airway management
5. Head Injury
6. Point of care ultrasound (POCUS) in emergency medicine (basics, knobology and other technical details)
7. Ultrasound (US) of airway
8. Lung US
9. Focus cardiac ultrasound (FOCUS)
10. US examination in trauma patients (E-FAST)
11. US examination of abdominal aorta
12. US examination of deep venous system in lower limb
13. US examination of urinary tract
14. US examination in shock (RUSH examination)
15. ECG (basics, technical details)
16. ECG analysis
17. ECG : arrhythmia
18. ECG : ischemic cardiac disease (ACS and equivalents)

20. EKG : druga nujna stanja

19. ECG : other cardiac diseases

20. ECG : other emergency conditions

Temeljni literatura in viri / Readings:**BASIC TEXTBOOKS (temeljna literatura):**

1. Monsieurs KG, Nolan JP, Bossaert LL et al. European resuscitation council guidelines for resuscitation 2015. Section 1. Executive summary. Resuscitation 2015 (95):1-80.
2. Perkins GD, Handley AJ, Koster RW et al. European resuscitation council guidelines for resuscitation 2015. Section 2. Adult basic life support and automated external defibrillation. Resuscitation 2015 (95): 81-99.
3. Soar J, Nolan JP, Böttiger BW et al. European resuscitation council guidelines for resuscitation 2015. Section 3. Adult advanced life support. Resuscitation 2015 (95): 100-47.
4. Monsieurs, K. G., Gradišek, P., Grošelj-Grenc, M., Strdin Košir, A., Baznik, Š., Vlahović, D., et al. Smernice za oživljanje 2015 Evropskega reanimacijskega sveta: slovenska izdaja. 1. izd. Ljubljana: Slovensko združenje za urgentno medicino, 2015. Dostopno na: http://www.szum.si/media/uploads/files/ERC_2015_slo-1.pdf.
5. Grmec Š, Čretnik A, Kupnik D. Oskrba poškodovancev v predbolnišničnem okolju. Univerza v Mariboru; Maribor, 2006.
6. Marx JA, Hockberger RS, Walls RM. Rosen's Emergency Medicine: concepts and clinical practice, 8th ed., Philadelphia, Mosby-Elsevier, 2014.
7. Noble VE, Nelson B. Manual of emergency and critical care ultrasound. 2nd ed. Cambridge: Cambridge University Press 2011.
8. Štajer D, Cvijić M, Fister M, Radšel P, Knafelj R. EKG pri akutnih stanjih. Medicinska fakulteta v Ljubljani 2017.

ADVANCED TEXTBOOKS (nadaljevalna, dopolnilna literatura):

9. Grmec Š, Kupnik D (urednika). Nujna stanja, Katedra za prvo pomoč in Katedra za družinsko medicino MF Maribor, Zbirka Acuta, 2008.
- 10.
11. Ma JO, Mateer JR, Reardon RF, Joing SA. Ma and Mateer's Emergency Ultrasound. 3th ed. McGraw Hill 2014.
12. De Backer D, Cholley BP, Slama M, Vieillard Baron A, Vignon P. Hemodynamic monitoring using echocardiography in the critically ill. Springer Verlag 2011.
13. Lichtenstein DA. General ultrasound in the critically ill. Springer Verlag 2007.
14. John R Hampton. ECG made easy. Churchill Livingstone 1998.
15. John R Hampton. ECG in practice. Churchill Livingstone 1997.
16. Life in the Fast Lane [Internetni dostop]; <https://litfl.com/ecg-library/>
17. STRNAD, Matej, MACUH, Bojan. Prva pomoč : skripta za program Fizioterapija, (Zbirka Strokovni priročniki). 1. natis. Maribor: AMEU - ECM, Alma Mater Press, 2018
18. BOROVIK LESJAK, Vesna, STRNAD, Matej. Temeljni postopki oživljanja odraslih z uporabo avtomatskega zunanega defibrilatorja : priročnik za učence, dijake in študente. Slovenska Bistrica: Razvojno informacijski center, 2019.
19. STRNAD, Matej, BOROVIK LESJAK, Vesna, MOHOR, Mitja, VENCELJ, Barbara, PELCL, Tine, RUKAVINA, Taja, PRESTOR, Jože. Priročnik za prve posredovalce. Nova izd. Ljubljana: Slovensko združenje za urgentno medicino, 2016.
- 20.

Cilji in kompetence:**Objectives and competences:**

• študent pridobi specialna znanja s področja urgentne medicine • prepozna življenjsko ogrožajoča stanja in zna pravilno ukrepati; • • študent pridobi specialna znanja iz osnov usmerjenega ultrazvoka v urgentni medicini • s pomočjo ultrazvočnega pregleda prepozna življenje ogrožajoča stanja pri nenadno obolem ali poškodovanem bolniku • študent pridobi osnovna znanja iz EKG pregleda • s pomočjo EKG zapisa je študent sposoben prepoznati ishemične bolezni srca, aritmije in druge spremembe v EKG zapisu pri ostalih nujnih stanjih	The objectives of the study »Selective topics and novelties in emergency medicine« are: • to acquire knowledge in emergency medicine to recognize critical condition of patients and appropriate care and intervention fully acquainted with resuscitative problems and techniques • to acquire point-of-care ultrasound basics • to recognize life threatening conditions in undifferentiated critically ill or injured patients • to acquire basics in ECG • with ECG investigation to diagnose ischemic cardiac conditions, arrhythmias and additional ECG changes in other emergency medical conditions
--	--

Predvideni študijski rezultati:**Intended learning outcomes:**

Znanje in razumevanje: • osnovnih patofizioloških dogajanj pri nujnih stanjih s pravilnim ukrepanjem ter obvladanje in znanje na področju ACLS.. • osvojitve novih znanj s področja ultrazvoka v urgentni medicini ter njihovo razumevanje • ključne veščine ultrazvoka v urgentni medicini • osvojitve novih znanj s področja EKG preiskave v urgentni medicini. Prenesljive/ključne spretnosti in drugi atributi: stiski prsnega koša, intravenozna pot in alternative, defibrilacija, endotrachealna intubacija in alternativna oskrba dihalne poti, sedacija, analgezija in RSI, UZ preiskava in njena interpretacija, interpretacija EKG v urgentni medicini.	Knowledge and Understanding: • basics of patho physiological processes in emergency conditions with appropriate medical care and interventions and appropriate preparing in ACLS. • acquired new knowledge in the field of point of care ultrasound in emergency medicine • key skills in emergency medicine ultrasound • acquired new knowledge in the field of ECG investigation in emergency medicine, Transferable/Key Skills and other attributes: Chest compressions, iv access and alternative methods, defibrillation, endotracheal intubation and alternative methods of airway management, mechanical ventilation, sedation and analgesia and RSI, US examination and interpretation of its findings, interpretation of ECG in emergency medicine.
---	---

Metode poučevanja in učenja:**Learning and teaching methods:**

Predavanja in priprava seminarjev	Lectures, seminars
-----------------------------------	--------------------

Načini ocenjevanja:Delež (v %) /
Weight (in %)**Assessment:**

Način (pisni izpit, ustno izpraševanje, naloge, projekt) Pisni test Seminarji Pisni izpit je sestavljen iz 50 MCQ vprašanj v računalniški obliki, za katere je na voljo 45 minut. Ocena iz pisnega izpita se določi po naslednjem kriteriju: 45-50 točk: ocena 10; 40-44 točk: ocena 9; 35-39 točk: ocena 8; 30-34 točk: ocena 7; 26-29 točk: ocena 6; 25 točk ali manj: izpita ni opravil.	50 50	Type (examination, oral, coursework, project): Written exam Seminars Written exam consists of 50 MCQ in computerized format and is 45 minutes long. Written exam is graded as following: 45-50 points: grade 10; 40-44 points: grade 9; 35-39 points: grade 8; 30-34 points: grade 7; 26-29 points: grade 6; 25 points or less: failed.
---	--------------------------------	--

Končna ocena se izračuna po formuli: $(0,5 \times \text{MCQ}) + (0,5 \times \text{seminarji})$, rezultat se zaokroži na eno decimalno mesto. V primeru, da ima končni rezultat decimalno končnico 0,5 ali več se ocena zaokroži navzgor, sicer pa navzdol. V primeru, da študent na pisnem izpitu doseže manj ali enako kot 25 točk, izpita iz predmeta ni opravil. V primeru, da je na seminarju ocenjen z manj kot 6, se študent ne more udeležiti pisnega izpita. ŠTUDIJSKE OBVEZNOSTI ŠTUDENTOV: Obvezna prisotnost na seminarjih. Pred vsakim seminarjem študent samostojno predela snov iz seminarja na Moodle ter opravi pre-test in post-test na Moodle. Pre-test in post-test sta sestavljena vsak iz petih MCQ vprašanj. Iz opravljenih testov na Moodle prejme študent oceno za posamezen seminar (npr. 9 pravilno rešenih vprašanj 9, za 8 pravilno rešenih vprašanj 8, itn.). Skupna ocena iz seminarja je povprečje ocen iz posameznih seminarjev in predstavlja polovico (50 %) skupne ocene predmeta. POGOJI ZA PRISTOP K POSAMEZNEMU PREVERJANJU ZNANJA: Opravljeni seminarji in ocena iz seminarjev		Final grade is calculated as follows: $(0.5 \times \text{MCQ}) + (0.5 \times \text{seminars})$. The result is rounded to one decimal place. Decimal results of the calculation will be rounded to the nearest whole number (0.5 or more is rounded up, less than 0.5 is rounded down). If a student gets 25 or less points at the written exam, he/she has failed the course. If a student does not get at least a grade 6 at the seminars, he/she cannot take the written exam. ACADEMIC OBLIGATIONS OF STUDENTS: Obligatory attendance at coursework. The student is obligated to study the materials uploaded on the Moodle before he enters the coursework and to fulfill the pre-test and post-test on Moodle. Both the pre-test and post-test are composed from 5 MCQ. The success of the MCQ pre- and post-test are transformed into the grade for each coursework (for example: 9 right answered MCQ are transformed into grade 9, 8 right answered MCQ are transformed into grade 8, and so on.). The grade from the seminars is an average of grades from each seminar and represents half of the final grade. REQUIREMENTS FOR ACCESS TO INDIVIDUAL KNOWLEDGE CHECKING: Completed coursework assignments and a mark of seminars.
--	--	--

Reference nosilca / Lecturer's references:

1. WAGNER-KOVAČEC, Jožica, POVALEJ BRŽAN, Petra, **MEKIŠ, Dušan**. Efficacy of continuous in-wound infusion of levobupivacaine and ketorolac for post-caesarean section analgesia : a prospective, randomised, double-blind, placebo-controlled trial. BMC anesthesiology. 2018, [vol.] 18, str. [1]-9. ISSN 1471-2253. <https://bmcanesthesiol.biomedcentral.com/track/pdf/10.1186/s12871-018-0609-2>, DOI: 10.1186/s12871-018-0609-2. [COBISS.SI-ID 6501695]
2. KARNJUŠ, Igor, **MEKIŠ, Dušan**, KRIŽMARIĆ, Miljenko. Uncontrolled delivery of liquid volatile anaesthetic when using the anaesthetic conserving device. Journal of clinical monitoring and computing. 2018, vol. 32, iss. 4, str. 629-638, ilustr. ISSN 1573-2614. <https://link.springer.com/article/10.1007/s10877-017-0022-2>, DOI: 10.1007/s10877-017-0022-2. [COBISS.SI-ID 1539365828]
3. PROSEN, Gregor, STRNAD, Matej, DONIGER, Stephanie J., MARKOTA, Andrej, STOŽER, Andraž, BOROVIK LESJAK, Vesna, **MEKIŠ, Dušan**. Cerebral tissue oximetry levels during prehospital management of cardiac arrest : a prospective observational study. Resuscitation. [Online ed.]. Aug. 2018, vol. 129, str. 141-145, ilustr. ISSN 1873-1570. <https://www.sciencedirect.com/science/article/pii/S0300957218302259?via%3Dihub>, DOI: 10.1016/j.resuscitation.2018.05.014. [COBISS.SI-ID 6385727]
4. KAMENIK, Mirt, KOS, Darjan, MOLLER PETRUN, Andreja, GREEN, David W, ZORKO, Nuška, **MEKIŠ, Dušan**. Haemodynamic stability during anaesthesia induction with propofol : impact of phenylephrine : a double blind, randomised clinical trial. Signa vitae. 2018, vol. 20, št. 1, str. 20-26, ilustr. ISSN 1845-206X. <http://www.signavitae.com/wp-content/uploads/2018/05/SIGNA-VITAE-2018-141-20-26.pdf>, DOI: 10.22514/SV141.052018.3. [COBISS.SI-ID 6385471]
5. BLAJIČ, Iva, HODZOVIC, Iljaz, LUČOVNIK, Miha, **MEKIŠ, Dušan**, NOVAK-JANKOVIČ, Vesna, STOPAR PINTARIČ, Tatjana. A randomised comparison of C-MAC(TM) and King Vision videolaryngoscopes with direct laryngoscopy in 180 obstetric patients. International journal of obstetric anaesthesia. Aug. 2019, vol. 39, str. 35-41, ilustr. ISSN 0959-289X. <https://www.sciencedirect.com/science/article/pii/S0959289X1830373X?via%3Dihub>, DOI: 10.1016/j.ijoa.2018.12.008. [COBISS.SI-ID 34119641]

6. PERŠA, Lidija, KAMENIK, Mirt, KRČEVSKI-ŠKVARČ, Nevenka, **MEKIŠ, Dušan**. Rocuronium versus succinylcholine for rapid sequence intubation in patients with bowel obstruction. *Signa vitae*. 2019, vol .15, no. 2, str. 52-58. ISSN 1845-206X. <http://www.signavitae.com/?s=per%C5%A1a>, DOI: 10.22514/SV152.102019.8. [COBISS.SI-ID 512934456]
7. MEKIŠ, Dušan, SOK, Vesna. Effects of intravenous and inhalation induction of anesthesia on oxygen delivery in elderly patients undergoing colorectal surgery = Vpliv intravenskega ali inhalacijskega uvoda v anestezijo na prenos kisika pri starostnikih, operiranih zaradi kolorektalnega raka. *Acta medico-biotechnica : AMB*. [Tiskana izd.]. 2021, vol. 14, [no]. 1, str. 11-19, ilustr. ISSN 1855-5640. http://actamedbio.mf.um.si/revija/2020/04_amb26_clanek_196-18.pdf. [COBISS.SI-ID 68099843]
8. KRIŽMARIĆ, Miljenko, MAVER, Uroš, ZDRAVKOVIĆ, Marko, **MEKIŠ, Dušan**. Effects of the reservoir bag disconnection on inspired gases during general anesthesia : a simulator-based study. *BMC anesthesiology*. 2021, vol. 21, str. 1-9, ilustr. ISSN 1471-2253. <https://bmcanesthesiol.biomedcentral.com/track/pdf/10.1186/s12871-021-01256-2.pdf>, DOI: 10.1186/s12871-021-01256-2. [COBISS.SI-ID 50343171]
9. MEKIŠ, Jana, STROJAN, Primož, **MEKIŠ, Dušan**, HOČEVAR-BOLTEŽAR, Irena. Change in voice quality after radiotherapy for early glottic cancer. *Cancers*. 2022, vol. 14, iss. 12, str. 1-12. ISSN 2072-6694. <https://www.mdpi.com/2072-6694/14/12/2993>, DOI: 10.3390/cancers14122993. [COBISS.SI-ID 115488259]
10. ZADRAVEC, Tanja, **MEKIŠ, Dušan**, KMETEC, Sergej, VRBNJAK, Dominika. Uporaba in učinkovitost glasbene terapije v enoti intenzivne terapije : sistematični pregled literature = The use and effectiveness of music therapy in an intensive care unit : a systematic literature review. *Obzornik zdravstvene nege : strokovno glasilo Zveze društev medicinskih sester in zdravstvenih tehnikov Slovenije*. 2020, letn. 54, št. 4, str. 315-325, tabele, ilustr. ISSN 1318-2951. <https://obzornik.zbornica-zveza.si/index.php/ObzorZdravNeg/article/view/3027>, <https://doi.org/10.14528/snr.2020.54.4.3027>, DOI: 10.14528/snr.2020.54.4.3027. [COBISS.SI-ID 42855683]
11. ZDRAVKOVIĆ, Marko, BERGER-ESTILITA, Joana, WAGNER-KOVAČEC, Jožica, SORBELLO, Massimiliano, **MEKIŠ, Dušan**. A way forward in pulmonary aspiration incidence reduction: ultrasound, mathematics, and worldwide data collection. *Brazilian journal of anesthesiology*. 2021, [v tisku][9 str.]. ISSN 0104-0014. <https://www.sciencedirect.com/science/article/pii/S0104001421002232>, DOI: 10.1016/j.bjane.2021.05.004. [COBISS.SI-ID 66123011]