Univerza v Mariboru
Medicinska fakulteta

UČNI NAČRT PREDMETA / COURSE SYLLABUS			
Ime predmeta:	**Klinična patofiziologija nujnih stanj**		
Course title:	**Clinical Pathophysiology of Emergencies**		
Študijski program in stopnja **Study programme and cycle**	**Študijska smer** **Study option**	**Letnik** **Year of study**	**Semester** **Semester**
Biomedicinska tehnologija/3. stopnja		**2**	**3 ali 4**
Biomedical Technology/3rd Degree			

Vrsta predmeta (obvezni ali izbirni) / **Course type (compulsory or elective)**	Izbirni Elective
Univerzitetna koda predmeta / University course code:	

Predavanja **Lectures**	**Seminar** **Seminar**	**Vaje** **Tutorial**			**Klinične vaje** **Clinical training**	**Druge oblike študija** **Other forms of study**	**Samost. delo** **Individual work**	**ECTS**
		10						
15	**20**	**AV**	**LV**	**RV**			**135**	**6**

Nosilec predmeta / Course coordinator:	doc. dr. Marko ZDRAVKOVIĆ

Jeziki /Languages:	**Predavanja / Lectures:**	Slovenski/Slovenian
	Vaje / Tutorial:	Slovenski/Slovenian

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisites for enrolling in the course or for performing study obligations:**
Vsebina (kratek pregled učnega načrta):	**Content (syllabus outline):**
Predmet obravnava fiziologijo in pojasnjuje patofiziologijo nekaterih nujnih stanj, znakov in simptomov s prikazom primernih kliničnih testov in oskrbo. Pričakovani simptomi in znaki so predstavljeni s specifičnim patofiziološkim procesom. Predmet je razdeljen v štiri dela: 1. osnovna načela patofizioloških procesov 2. patofiziologija srčno-žilnega sistema s patofiziologijo in oskrbo poškodbe miokarda pri oživljanju in patofiziologija šoka 3. klinična patofiziologija akutnega respiratornega popuščanja in kapnografije 4. patofiziologija hude poškodbe možganov	The subject reviews normal physiology and explains the pathophysiology underlying emergency conditions, signs and symptoms, and selection of tests and treatments. Expected signs and symptoms are related to the underlying specific pathophysiologic processes. The subject is divided in four parts: 1. basic principles of pathophysiology 2. cardiovascular pathophysiology with pathophysiology and management of myocardial injury during cardiopulmonary resuscitation and pathophysiology of shock 3. clinical pathophysiology of acute respiratory insufficiency and capnography 4. pathophysiology of severe brain injury

Temeljni literatura in viri / Reading materials:

- Najnovejši prispevki iz Circulation, Resuscitation, Shock, Chest, Intensive Medicine Care, Critical Care, Critical Care Medicine dostopni preko iskalnika PUBMED in podatkovnih zbirk UKC Marbor in MF UM.
- Vincent JL et al. Textbook of Critical Care. 8th ed., Elsevier 2023
- Koeppen BM et al. Berne & Levy Physiology. 8th ed., Elsevier 2023
- Flood P et al. Stoelting's Pharmacology & Physiology in Anesthetic Practice 6th ed., LWW 2021
- ZDRAVKOVIĆ, Marko, BERGER-ESTILITA, Joana, SORBELLO, Massimiliano, HAGBERG, Carin A. An international survey about rapid sequence intubation of 10,003 anaesthetists and 16 airway experts. **Anaesthesia**. 2020
- DEPTA, Filip, CHIOFOLO, Caitlyn M., CHBAT, Nicolas W., EULIANO, Neil R., GENTILE, Michael A., RYBÁR, Dušan, DONIČ, Viliam, ZDRAVKOVIĆ, Marko. Six methods to determine expiratory time constants in mechanically ventilated patients : a prospective observational physiology study. **Intensive care medicine experimental**. 2024
- ZDRAVKOVIĆ, Marko, PODBREGAR, Matej, KAMENIK, Mirt. Near-infrared spectroscopy for assessing microcirculation during laparoscopic gynaecological surgery under combined spinal-general anaesthesia or general anaesthesia alone : a randomised controlled trial. **Journal of clinical monitoring and computing**. 2020

Cilji in kompetence:	**Objectives and competences:**
Znanje osnovnih patofizioloških načel nujnih stanj in sodobnih informacij o novih možnostih oskrbe takšnih stanj. Klinična aplikacija algoritmov (načelo opazovanja in odločanja).	Knowledge of basic principal of patophysiology of some emergencies and up-to-date information about new options for management of emergencies. Application of the philosophy of the algorithms (alternating observation and decision steps).
Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: Razumevanje in aplikacija algoritmov kardiopulmonalnega oživljanja. Razumevanje strategije minimaliziranja poškodbi po oživljanju povezanih z uporabo trenutno veljavnih tehnik in seznanjanje z novimi terapevtskimi pristopi za preprečevanje omenjenih poškodb. Znanje monitoringa kritično bolnega, posebej kapnografije in EKG-ja.	**Knowledge and understanding:** Understanding and application the algorithms in CPR. Understanding the strategies for minimizing post resuscitation injury associated with current resuscitation techniques and examine novel therapies aimed at minimizing ischemia and reperfusion injury. Knowledge of monitoring critically ill patients, especially capnography and ECG.
Prenosljive/ključne spretnosti in drugi atributi: Monitoring, venske poti, endotrahealna intubacija, kapnografija, odčitavanje EKG-a, uporaba medikamentov v urgentnih situacijah (volumna resuscitacija, inotropi, vazoaktivna terapija) hitrosekvenčna intubacija, sinhronizirana kardioverzija in zunanja elektrostimulacija). Reševanje scenarijev po načelu PBL (problem basic learning).	**Transferable/key competences and other abilities:** Monitoring, intravenous access, endotracheal intubation, capnography, electrocardiography and cardiac monitoring, drugs in emergencies (volume resuscitation, inotropes, vasopressors), rapid sequence intubation, synchronised cardioversion, cardiac pacing. PBL scenarios.
Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja Seminarji vaje (Simulacijski center, samostojno projektno seminarsko delo izbranih poglavji, PBL, ogled in delo na instrumentih)	Lectures Seminars Tutorial (laboratory work in Centre of simulation, project seminar, PBL, observation and work with instruments)

Samostojno delo	Individual work

Načini ocenjevanja:	Delež (v %) / Share (in %)	Assessment methods:
Način (pisni izpit, ustno izpraševanje, naloge, projekt) Seminarska naloga	**100 %**	Method (written or oral exam, coursework, project): Seminar paper

Reference nosilca / Course coordinator's references:

1. ZDRAVKOVIĆ, Marko, BERGER-ESTILITA, Joana, SORBELLO, Massimiliano, HAGBERG, Carin A. An international survey about rapid sequence intubation of 10,003 anaesthetists and 16 airway experts. **Anaesthesia**. 2020, vol. 75, iss. 3, str. 313-322, ilustr. ISSN 1365-2044. https://onlinelibrary.wiley.com/doi/10.1111/anae.14867, https://doi.org/10.1111/anae.14867, DOI: 10.1111/anae.14867. [COBISS.SI-ID 6819647], [JCR, SNIP, WoS do 18. 8. 2024: št. citatov (TC): 38, čistih citatov (CI): 32, čistih citatov na avtorja (CIAu): 8.00, Scopus do 29. 9. 2024: št. citatov (TC): 39, čistih citatov (CI): 33, čistih citatov na avtorja (CIAu): 8.25]

2. ZDRAVKOVIĆ, Marko, KAMENIK, Mirt. A prospective randomized controlled study of combined spinal-general anesthesia vs. general anesthesia for laparoscopic gynecological surgery : opioid sparing properties. **Journal of clinical anesthesia**. Sep. 2020, vol. 64, str. 1-8, ilustr. ISSN 1873-4529. https://www.sciencedirect.com/science/article/pii/S0952818020300908#, https://doi.org/10.1016/j.jclinane.2020.109808, DOI: 10.1016/j.jclinane.2020.109808. [COBISS.SI-ID 6985023], [JCR, SNIP, WoS do 14. 4. 2023: št. citatov (TC): 8, čistih citatov (CI): 8, čistih citatov na avtorja (CIAu): 4.00, Scopus do 8. 4. 2023: št. citatov (TC): 8, čistih citatov (CI): 8, čistih citatov na avtorja (CIAu): 4.00]

3. ZDRAVKOVIĆ, Marko, PODBREGAR, Matej, KAMENIK, Mirt. Near-infrared spectroscopy for assessing microcirculation during laparoscopic gynaecological surgery under combined spinal-general anaesthesia or general anaesthesia alone : a randomised controlled trial. **Journal of clinical monitoring and computing**. Oct. 2020, vol. 34, issue 5, str. 943-953, ilustr. ISSN 1573-2614. https://link.springer.com/article/10.1007%2Fs10877-019-00406-9, DOI: 10.1007/s10877-019-00406-9. [COBISS.SI-ID 6814015], [JCR, SNIP, WoS do 13. 6. 2024: št. citatov (TC): 8, čistih citatov (CI): 7, čistih citatov na avtorja (CIAu): 2.33, Scopus do 22. 6. 2024: št. citatov (TC): 9, čistih citatov (CI): 8, čistih citatov na avtorja (CIAu): 2.67]

4. ZDRAVKOVIĆ, Marko, BERGER-ESTILITA, Joana, ZDRAVKOVIĆ, Bogdan, BERGER, David. Scientific quality of COVID-19 and SARS CoV-2 publications in the highest impact medical journals during the early phase of the pandemic : a case control study. **PloS one**. 2020, [vol.] 15, [no.] 11, str. 1-16, ilustr. ISSN 1932-6203. https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0241826&type=printable, https://doi.org/10.1371/journal.pone.0241826, DOI: 10.1371/journal.pone.0241826. [COBISS.SI-ID 36320003], [JCR, SNIP, WoS do 25. 8. 2024: št. citatov (TC): 59, čistih citatov (CI): 59, čistih citatov na avtorja (CIAu): 14.75, Scopus do 12. 9. 2024: št. citatov (TC): 62, čistih citatov (CI): 61, čistih citatov na avtorja (CIAu): 15.25]

5. ZDRAVKOVIĆ, Marko, RICE, Mark J., BRULL, Sorin J. The clinical use of cricoid pressure : first, do not harm. **Anesthesia & analgesia**. [Online ed.]. Jan. 2021, vol. 132, no. 1, str. 261-267, ilustr. ISSN 1526-7598. https://journals.lww.com/pages/results.aspx?txtKeywords=10.1213%2fANE.0000000000004360, DOI: 10.1213/ANE.0000000000004360. [COBISS.SI-ID 6755135], [JCR, SNIP, WoS do 20. 4. 2024: št. citatov (TC): 18, čistih citatov (CI): 15, čistih citatov na avtorja (CIAu): 5.00, Scopus do 7. 6. 2024: št. citatov (TC): 20, čistih citatov (CI): 17, čistih citatov na avtorja (CIAu): 5.67]

6. ZDRAVKOVIĆ, Marko, BERGER-ESTILITA, Joana, HAGBERG, Carin A. New horizons: further optimisation of the peri-operative cardiac arrest care preparedness. **Anaesthesia**. Jan. 2024, vol. 79, issue 1, str. 11-14. ISSN 1365-2044.

https://associationofanaesthetists-publications.onlinelibrary.wiley.com/doi/10.1111/anae.16183, https://doi.org/10.1111/anae.16183, DOI: 10.1111/anae.16183. [COBISS.SI-ID 172885763], [JCR, SNIP, WoS, Scopus]

7. DEPTA, Filip, TÖRÖK, Pavol, MILLER, Andrew G., FIRMENT, Peter, LEŠKANIČ, Jozef, PORUBÄN, Adam, HALAŠ, Pavol, MANDINEC, Stanislav, FILKA, Vladimir, ZAJAC, Henryk, GENTILE, Michael A., ZDRAVKOVIĆ, Marko. Programmed multi-level ventilation in COVID-19-related acute respiratory distress syndrome : a multi-center retrospective observational study. **JIMR** on-line. May 2022, vol. 50, issue 5, str. 1-13, ilustr. ISSN 1473-2300. https://doi.org/10.1177/03000605221101970, https://journals.sagepub.com/doi/full/10.1177/03000605221101970, DOI: 10.1177/03000605221101970. [COBISS.SI-ID 109666307], [JCR, SNIP, WoS, Scopus]

8. DEPTA, Filip, GENTILE, Michael A., KALLET, Richard H., FIRMENT, Peter, LEŠKANIČ, Jozef, RYBÁR, Dušan, TÖRÖK, Pavol, ZDRAVKOVIĆ, Marko. Determining respiratory rate using measured expiratory time constant: a prospective observational study. **Journal of critical care**. Feb. 2023, vol. 73, str. [1]-6, ilustr. ISSN 1557-8615. https://doi.org/10.1016/j.jcrc.2022.154174, https://www.sciencedirect.com/science/article/pii/S0883944122002039, DOI: 10.1016/j.jcrc.2022.154174. [COBISS.SI-ID 126886915], [JCR, SNIP, WoS do 28. 3. 2024: št. citatov (TC): 2, čistih citatov (CI): 0, čistih citatov na avtorja (CIAu): 0.00, Scopus do 27. 3. 2024: št. citatov (TC): 2, čistih citatov (CI): 0, čistih citatov na avtorja (CIAu): 0.00]

9. DEPTA, Filip, CHIOFOLO, Caitlyn M., CHBAT, Nicolas W., EULIANO, Neil R., GENTILE, Michael A., RYBÁR, Dušan, DONIČ, Viliam, ZDRAVKOVIĆ, Marko. Six methods to determine expiratory time constants in mechanically ventilated patients : a prospective observational physiology study. **Intensive care medicine experimental**. 2024, vol. 12, [article no.] 25, str. [1]-11, ilustr. ISSN 2197-425X. https://doi.org/10.1186/s40635-024-00612-z, https://icm-experimental.springeropen.com/articles/10.1186/s40635-024-00612-z#Fun, DOI: 10.1186/s40635-024-00612-z. [COBISS.SI-ID 188304387], [SNIP, WoS, Scopus]