

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Ime predmeta:	Kirurgija
Course title:	Surgery

Študijski program in stopnja Study programme and cycle	Študijska smer Study option	Letnik Year of study	Semester Semester
Splošna medicina, enovit magistrski študijski program		Tretji	5., 6.
General medicine, Uniform master's degree study program		Third	5th, 6th

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

obvezni

compulsory

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
55	105	AV	LV	RV	75		185	14

Nosilec predmeta / Course
coordinator:

Doc. dr. Miha Antonič
prof. dr. Anton Crnjac (sonosilec)

Jeziki /Languages:

Predavanja / Lectures:

slovenski/slovene

Vaje / Tutorial:

slovenski/slovene

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):

V okviru kirurške propedeutike mora študent obvladati:

- Osnovne postopke klinične preiskave: palpacijo, perkusijo, avskultacijo
- Anamnezo
- Diagnostične postopke
- Klinične veščine: jemanje krvi, dajanje injekcij, katetrizacija sečnega mehurja, venepunkcija, vstavljanje nazogastrične sonde
- Priporočila bolnikom o pooperativnem obdobju
- Komuniciranje

V sklopu kirurgije mora študent obvladati temeljna kirurška znanja iz naslednjih področij:

I. Temeljni kirurški principi

- Etika in kirurgija

Content (syllabus outline):

In connection with surgical propedeutics the student must be fully acquainted with:

- Basic methods of clinical examination: inspection, palpation, percussion, auscultation
- Anamnesis
- Diagnostic methods
- Clinical skills: venous puncture, application of injections, catheterization of urinary bladder
- Recommendations regarding postoperative period
- Communication

In connection with Surgery the student must master the basic surgical knowledge of the following sections:

Section I. Surgical basic principles

- Ethics in surgery

• Molekularna biologija celic • Šok, elektroliti in tekočine • Hematološki principi v kirurgiji • Metabolizem kirurškega bolnika • Celjenje ran • Klinična ocena kirurškega zdravljenja	• Molecular and cell biology • Shock, electrolytes and fluid • Hematologic principles in surgery • Metabolism in surgical patients • Wound healing • Clinical assessment of surgical outcomes
II. Periperativna terapija • Temeljna načela perioperativne in operativne kirurgije • Diagnostični postopki • Kirurške okužbe in izbor antibiotika • Kirurški problemi pri imunološko prizadetem bolniku • Kirurški zapleti • Kirurgija starostnika • Anesteziologija • Minimalna invazivna kirurgija • Nove tehnologije v kirurgiji	Section II. Perioperative management • Principles of perioperative and operative Surgery • Diagnostic procedures • Surgical infections and choice of antibiotics • Surgical problems in immunosuppressed patients • Surgical complications • Surgery in elderly • Anesthesiology • Minimally invasive surgery • Emerging technologies in Surgery
III. Travma in intenzivna kirurška oskrba • Oskrba pri akutnih poškodbah • Nujna oskrba mišično-skeletnih poškodb • Opekline • Ugrizi in vbodi • Kirurgova vloga v katastrofnih razmerah • Kirurška intenzivna nega	Section III. Trauma and critical care • Management of acute trauma • Emergency care of musculoskeletal injuries • Burns • Bites and stings • The surgent role in unconventional civilian disasters • Surgical critical care
IV. Presajanje in imunologija	Section IV. Transplantation and immunology
V. Kirurška onkologija • Biologija tumorjev in tumorski označevalci • Melanom • Tumorji mehkih tkiv in kostni tumorji	Section V. Surgical oncology • Tumor biology and tumor markers • Melanoma • Soft tissue sarcomas and bone tumors
VI. Glava in vrat	Section VI. Head and neck
VII. Dojka	Section VII. Breast • Diseases of the breast Breast reconstruction
VIII. Endokrine motnje	Section VIII. Endocrine
IX. Ezofagus • Hiatalna hernija in gastroezofagealni refluks	Section IX. Esophagus • Hiatal hernia and gastroesophageal reflux disease
X. Abdomen • Akutni abdomen • Krvavitve iz gastrointestinalnega trakta • Abdominalna stena, peritonej, oporek, retroperiotnealni prostor • Kile • Želodec • Ozko črevo • Apendiks • Kolon in rektum • Anus	Section X. Abdomen • Acute abdomen • Acute gastrointestinal hemorrhage • Abdominal wall, umbilicus, peritoneum, mesenteris, omentum, retroperitoneum • Hernias • Stomach • Small intestine • Appendix

• Jetra • Biliarni trakt • Trebušna slinavka • Vranica XI. Prsni koš • Stena prsnega koša in plevra • Mediastinum • Prirojene srčne bolezni • Kirurško zdravljenje koronarne bolezni • Pridobljene bolezni srca: zaklopke XII. Žilna kirurgija • Endovaskularna kirurgija • Torakalno žilje • Cerebrovaskularna bolezen • Aneurizme • Periferna arterijska obliterativna bolezen • Poškodbe žil • Bolezni ven • Dostopi v žilje XIII. Posebna področja kirurgije • Pediatrična kirurgija • Nevrokirurgija • Plastična kirurgija • Urologija	• Colon and rectum • Anus • The liver • Billiary tract • Pancreas • Spleen Section XI. Chest • Chest wall and pleura • The mediastinum • Lung • Congenital heart disease • Surgical treatment of coronary artery disease • Acquired heart disease: valvular Section XII. Vascular • Endovascular surgery • Thoracic vasculature • Cerebrovascular disease • Aneurysmal vascular disease • Peripheral arterial occlusive disease • Vascular trauma • Venous disease • Access and ports Section XIII. Specialties in general surgery • Pediatric surgery • Neurosurgery • Plastic surgery • Urologic surgery
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Temeljna literatura in viri / Reading materials:

1. Smrkolj V. Kirurgija. Celje: Grafika Gracer, 2014. 2. Townsend CM et al. Eds. Sabiston's Textbook of surgery. WB Saunders. 17th ed. Philadelphia 2004. Dodatna literatura: 1. Egradivo: ZUNAJTELESNI KRVNI OBTOK: Antonič Miha 2. Žilne anastomoze in osnove oskrbe poškodb žilne stene; Antonič Miha, Nina Kobilica 3. Egradivo : KIRURŠKO ZDRAVLJENJE INFEKCIJSKEGA ENDOKARDITISA (Antonič Miha
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Cilji in kompetence:

Cilj predmeta je pripraviti študente na samostojno delo s kirurškimi bolniki.

Objectives and competences:

The objective of the course is to prepare students for independent work with surgical patients.

Predvideni študijski rezultati:

Znanje in razumevanje: po zaključku tega predmeta bo študent sposoben samostojno pristopiti k bolniku, obvladal bo odnos z njim in svojci, znal bo vzeti anamnezo, pregledati bolnika, ovrednotiti diagnostične metode.

Intended learning outcomes:

Knowledge and understanding: On completion of this course the student will be able to approach the patient independently, and communicate accordingly with the patient and his family members, he will take the history of illness, examine the patient, and evaluate the diagnostic methods to be applied

Prenesljive/ključne spretnosti in drugi atributi:
Študent se bo naučil praktičnih veščin, potrebnih za delo z bolniki: jemanje krvi, dajanje injekcij, opravljanje punkcij, kateterizacija mehurja, pisanje receptov.

Transferable/Key Skills and other attributes: The student will acquire the necessary practical knowledge, withdrawing of blood, giving injections, performing of punctures and bladder catheterization, making prescriptions.

Metode poučevanja in učenja:

- Predavanja
- Seminarji (obvezno)
- Vaje (obvezno)

Learning and teaching methods:

- Lectures
- Seminars (obligatory)
- Work in the wards (obligatory)

Načini ocenjevanja:

Način (pisni izpit, ustno izpraševanje, naloge, projekt): projektno delo, seminarska naloga:

- Pisni izpit
- Ustno izpraševanje

ŠTUDIJSKE OBVEZNOSTI ŠTUDENTOV:
KOLOKVIIJ/TESTI KOT SPROTNO PREVERJANJE OSVOJENEGA ZNANJA

• za vsako tematsko področje (9 - kirurška propedeutika, abdominalna kirurgija, travmatologija, žilna kirurgija, torakalna kirurgija, kardiokirurgija, urologija, nevrokirurgija, plastična kirurgija) opravljajo študenti kolokvij/test, na katerem bo:

- do 50 vprašanj (razen za ožja tematska področja z manj urami P+S)
- 5 možnih odgovorov, različno število pravih
- štejejo le pravilni odgovori v celoti
- pozitivna ocena je od 56 % naprej
- ocenjevalna lestvica:

- 56 % - 65 %	6
- 66 % - 75 %	7
- 76 % - 85 %	8
- 86 % - 95 %	9
- 96 % - 100 %	10

- negativni kolokvij/test je mogoče ponavljati 4-krat v štud. l.

POGOJI ZA PRISTOP K POSAMEZNEMU PREVERJANJU ZNANJA:

-k izpitu lahko pristopi študent, ki je dosegel 56% točk pri vsakem kolokviju oz. pozitivna ocena je od 56 % naprej in omogoča pristop k ustnemu izpitu

Oblike in način preverjanja in ocenjevanja znanja:

izpit je pisni in ustni

- pisnega izpita je lahko oproščen študent, ki je pisal vse kolokvije prvič pozitivno nad 70 % (71

Delež (v %) /
Share (in %)

Assessment methods:

Type (examination, oral, coursework, project):
project work, report:

- Written examination
- Oral examination

ACADEMIC OBLIGATIONS OF STUDENTS:
PARTIAL EXAMS/TESTS AS REGULAR CHECKING OF ACQUIRED KNOWLEDGE

-for every thematic area (9 – surgical propedeutics, abdominal surgery, traumatology, vascular surgery, thoracic surgery, cardiosurgery, urology, neurosurgery, plastic surgery) students take a partial exam/test in which there will be:

- up to 50 questions (except for narrower thematic areas with less hours of Lectures + Seminars)
- 5 possible answers, various number of correct ones
- only entirely correct answers are counted
- a positive mark is from 56% onwards
- grading scale:

-56% - 65%	6
-66% - 75%	7
-76% - 85%	8
-86% - 95%	9
-96% - 100%	10

-negative partial exam/test can be repeated 4 times in an academic year

REQUIREMENTS FOR ACCESS TO INDIVIDUAL KNOWLEDGE CHECKING:

-the exam can be taken by a student who has achieved 56% of points in every partial exam or from 56% onwards a mark is positive and facilitates access to the oral exam

Forms and modes of checking and assessing knowledge:

- the exam is written and oral
- a student can be exempt from the written exam in case he/she wrote all partial exams positively

% in več) -skupno povprečje vseh kolokvijev nad 80 % (81 % in več) pisni izpit: -do100 vprašanj iz vseh obravnavanih tematskih sklopov -5 možnih odgovorov, različno število pravih -možna tudi vprašanja esejskega tipa, štejejo po 2 točki -štejejo le pravilni odgovori v celoti -pozitivna ocena je od 56 % naprej in omogoča pristop k ustnemu izpitu ustni izpit: -obvezen za vse študente 3. letnika, tudi tiste, ki so sicer oproščeni opravljanja pisnega izpita		above 70% (71% and more) the first time -overall average of all partial exams 80% (81% and more) written exam: -up to 100 questions from all treated thematic units -5 possible answers, various numbers of correct answers -essay-type questions also possible, valued with 2 points each -only entirely correct answers are counted -from 56% onwards a mark is positive and facilitates access to the oral exam oral exam: -obligatory for all 3rd-year-students and also for those who are otherwise exempt from writing the written exam
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Reference nosilca / Course coordinator's references:

MIHA ANTONIČ:

ANTONIČ, Miha, DJORDJEVIĆ, Anže, KŠELA, Juš. Oxidative stress after on-pump cardiac surgery in patients with preoperative renal dysfunction. *The Heart surgery forum*. 2024, vol. 27, no. 2, str. e119–e125, ilustr. ISSN 1522-6662. <https://journal.hsforum.com/index.php/HSF/article/view/6997>, <https://doi.org/10.59958/hsf.6997>, DOI: [10.59958/hsf.6997](https://doi.org/10.59958/hsf.6997). [COBISS.SI-ID [186499843](https://doi.org/10.59958/hsf.6997)]

2. KŠELA, Juš, RUPERT, Lea, DJORDJEVIĆ, Anže, ANTONIČ, Miha, AVBELJ, Viktor, JUG, Borut. Altered heart rate turbulence and variability parameters predict 1-year mortality in heart failure with preserved ejection fraction. *Journal of cardiovascular development and disease*. Jul. 2022, vol. 9, issue 7, str. [1]-12, ilustr. ISSN 2308-3425. <https://doi.org/10.3390/jcdd9070213>, <https://www.mdpi.com/2308-3425/9/7/213>, DOI: [10.3390/jcdd9070213](https://doi.org/10.3390/jcdd9070213). [COBISS.SI-ID [114003459](https://doi.org/10.3390/jcdd9070213)]

3. DJORDJEVIĆ, Anže, ŠUŠAK, Stamenko, KOTNIK, Petra, GORENJAK, Mario, KNEZ, Željko, ANTONIČ, Miha. Effect of ascorbic acid on cardiac surgery-associated acute kidney injury incidence. *The thoracic and cardiovascular surgeon*. 2022, vol. 70, issue 7, str. 566-574, ilustr. ISSN 1439-1902. <https://www.thieme-connect.com/products/ejournals/abstract/10.1055/s-0042-1744262>, DOI: [10.1055/s-0042-1744262](https://doi.org/10.1055/s-0042-1744262). [COBISS.SI-ID [110108163](https://doi.org/10.1055/s-0042-1744262)]

financer: ARRS, Programi, P2-0046, SI, Separacijski procesi in produktna tehnika; Raziskava sofinancirana iz internih raziskovalnih programov (Univerzitetni klinični center Maribor)

4. ANTONIČ, Miha, PETROVIČ, Rene, GORIŠEK MIKSIĆ, Nina. Thermoactive nitinol clips as primary and secondary sternal closure after cardiac surgery - first experience in Slovenia. *Acta clinica Croatica*. 2021, vol. 60, no. 3, str. 435-440, ilustr. ISSN 1333-9451. http://actaclinica.eu/wordpress/wp-content/uploads/2022/01/14_antonic_2019-168.pdf, DOI: [10.20471/acc.2021.60.03.14](https://doi.org/10.20471/acc.2021.60.03.14). [COBISS.SI-ID [94184963](https://doi.org/10.20471/acc.2021.60.03.14)]

5. ROBIČ, Boris, ANTONIČ, Miha, DJORDJEVIĆ, Anže, INTIHAR, Urška, PETROVIČ, Rene, ŽELEZNIK, Jernej, GREGORIČ, Igor. Current status of short-term mechanical circulatory support. *Surgery and surgical endoscopy : official journal of the Slovenian Society for Endoscopic Surgery*. Dec. 2023, vol. 5, no. 2, str. 10-15, ilustr. ISSN 2591-2275. [COBISS.SI-ID [178404867](https://doi.org/10.20471/acc.2021.60.03.14)]

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ANTON CRNJAC:

1. PRIMOŽIČ, Mateja, KRAVANJA, Gregor, KNEZ, Željko, CRNJAC, Anton, LEITGEB, Maja. Immobilized laccase in the form of (magnetic) cross-linked enzyme aggregates for sustainable diclofenac (bio)degradation. *Journal of cleaner production*. [Print ed.]. 1 Dec. 2020, vol. 275, str. 1-16. ISSN 0959-6526. DOI: [10.1016/j.jclepro.2020.124121](https://doi.org/10.1016/j.jclepro.2020.124121). [COBISS.SI-ID [27965955](#)], [JCR, SNIP, WoS do 8. 11. 2022: št. citatov (TC): 41, čistih citatov (CI): 39, čistih citatov na avtorja (CIAu): 7,80, Scopus do 4. 1. 2023: št. citatov (TC): 46, čistih citatov (CI): 44, čistih citatov na avtorja (CIAu): 8,80]
2. KAMARAJAH, S.K., NEPOGODIEV, Dmitri, BEKELE, A., CECCONELLO, I., EVANS, R.P.T., GUNER, A., GOSSAGE, J.A., HARUSTIAK, T., HODSON, J., ISIK, A., et al., GAČEVSKI, Goran (927), CRNJAC, Anton (927), HORVAT, Samo (927), et al., Oesophago-Gastric Anastomotic Audit (OGAA) Collaborative. Mortality from esophagectomy for esophageal cancer across low, middle, and high income countries: an international cohort study. *European journal of surgical oncology*. 2021, vol. 47, issue 6, str. 1481-1488, ilustr. ISSN 1532-2157. <https://www.sciencedirect.com/science/article/pii/S0748798320312257?via%3Dihub>, <https://doi.org/10.1016/j.ejso.2020.12.006>, DOI: [10.1016/j.ejso.2020.12.006](https://doi.org/10.1016/j.ejso.2020.12.006). [COBISS.SI-ID [59513347](#)], [JCR, SNIP, WoS do 3. 11. 2022: št. citatov (TC): 7, čistih citatov (CI): 7, čistih citatov na avtorja (CIAu): 0,25, Scopus do 9. 12. 2022: št. citatov (TC): 6, čistih citatov (CI): 6, čistih citatov na avtorja (CIAu): 0,22]
3. SKOK, Kristijan, HLADNIK, Gaja, GRM, Anja, CRNJAC, Anton. Malignant pleural effusion and its current management : a review. *Medicina*. 2019, vol. 55, iss. 8, str. [1]-21, ilustr. ISSN 1648-9144. <https://doi.org/10.3390/medicina55080490>, <https://www.mdpi.com/1010-660X/55/8/490>, DOI: [10.3390/medicina55080490](https://doi.org/10.3390/medicina55080490). [COBISS.SI-ID [6754879](#)], [JCR, SNIP, WoS do 24. 11. 2022: št. citatov (TC): 32, čistih citatov (CI): 32, čistih citatov na avtorja (CIAu): 8,00, Scopus do 28. 12. 2022: št. citatov (TC): 34, čistih citatov (CI): 34, čistih citatov na avtorja (CIAu): 8,50]
4. SKOK, Kristijan, VIDOVIČ, Damjan, GAČEVSKI, Goran, VEINGERL, Bojan, AUDA, Jure, CRNJAC, Anton. Surgical treatment in severely immunocompromised patient with invasive fungal infection = Kirurško zdravljenje imunokompromitiranega bolnika z invazivno glivično okužbo. *Acta medico-biotechnica : AMB*. [Tiskana izd.]. 2020, vol. 13, [no.] 1, str. 59-63, ilustr. ISSN 1855-5640. http://actamedbio.mf.um.si/revija/2020/01_amb24_clanek_189-18.pdf. [COBISS.SI-ID [20154115](#)]