UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Ime predmeta:	Infekcijske bolezni
Course title:	Infectious diseases

Študijski program in stopnja Study programme and cycle	Študijska smer Study option	Letnik Year of study	Semester Semester
Splošna medicina, enovit magistrski študijski program		Peti	9.
General medicine, Uniform master's degree study program		Fifth	9th

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
		AV	LV	RV				
15	30				15		60	4

Nosilec predmeta / Course coordinator:	doc.dr. Nina Gorišek Miksić, dr. med.
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):	Content (syllabus outline):
Uvod v infekcijske bolezni, klinični in laboratorijski znaki vnetja. Bakterijske okužbe: stafilokokne, streptokokne, pertusis, tetanus, botulizem, davica, leptospiroze, lymska borelioza. Virusne okužbe, ki jih povzročajo: enterični virusi, respiratorni sincicijski virusi, adenovirusi, herpes virusi, varicela-zoster virus, citomegalovirus, Epstein-Barr virus, virus influence in parainfluence, virusi hepatitisa, ošpice, rdečke, exanthema subitum, exanthema infectiosum, AIDS, klamidijske okužbe, rikecioze.Parazitarne bolezni: trihineloza, malarija, tripanosomiaza. Zoonoze: antraks, bruceloza, lišmanioza, tularemija. Bolezenski sindromi: bakterijski meningitisi, serozni meningitisi, encefalitisi, bakterijske in atipične pljučnice, črevesne okužbe,	Introduction to infectious diseases, clinical and laboratory signs of inflammation. Bacterial infections: staphylococcal, streptococcal, pertusis, tetanus, botulism, diphtheria, leptospirosis, Lyme boreliosis. Viral infections cause by enteroviruses, sintitial respiratory viruses, adenoviruses, herpes viruses, varicella-zoster virus, cytomegalovirus, Epstein-Barr virus, influenza and parainfluenza virus, hepatitis, rubeola, rubella, exanthema subitum, exanthema infectiosum, AIDS; chlamidia, rickettsia infections. Parasitic infestations: trihinelosis, malaria, trypanosomiasis. Zoonoses: anthrax, bruceloses, leishmanosis, tularemia. Disease syndroms: bacterial meningitis, serous meningitis, encephalitis, bacterial and

hemoragične mrzlice, nejasna vročinska stanja, sepsa, izpuščajne bolezni, sindrom utrujenosti. Tematsko posodabljanje predavanj zahteva dodatek ali razširitev poglavij s spoznanji o vse bolj aktualnih infektih (okužbe pri imunsko oslabljenih osebah, transplantirancih, nosilcih umetnih materialov, bolnišnične okužbe, okužbe v tropskih razmerah oz. na potovanjih, bioterorizem). Novo poglavje: pandemija covida-19, narava bolezni, klinični potek, zdravljenje, zapleti. Preprečevanje in ukrepi za zamejevanje covida-19. Spoznavanje novih cepiv na področju preprečevanja covida-19. Infektologija za odrasle bolnike Študent mora spoznati in obvladati diagnostični in terapevtski pristop pri bolniku s sumom na infekcijsko bolezen oziroma pri vročičnem bolniku, spoznati mora značilnosti okužb glede na prizadeti organski sistem (npr. okužb osrednjega živčevja, dihal, prebavil, sečil, spolovil, mišic, kosti in sklepov, kože in podkožja), značilnosti nekaterih bolezni oziroma bolezenskih stanj (npr. virusni hepatitis, AIDS, lymska borelioza, infekcijski endokarditis, sepsa, septični šok, pogostejše tropske bolezni), značilnosti okužb pri bolnikih z ohranjeno ali okvarjeno imunostjo in/ali vgrajenimi umetnimi materiali, ukrepe za preprečevanje nalezljivih bolezni, doktrino racionalne uporabe antibiotikov, protivirusnih, protiglivičnih in protiparazitnih zdravil, kakor tudi pristope za odkrivanje, dokazovanje, zdravljenje in preprečevanje bolnišničnih okužb. Študent mora poznati problematiko pandemije covida-19, obravnavo bolnika s covid-19, uporabo zaščitne opreme in poznavanje ukrepov za preprečevanje širjenja. Pediatrična infektologija Študent spozna značilnosti in osvoji znanje o etiologiji, epidemiologiji, kliničnih simptomih in znakih, zdravljenju in preprečevanju okužb pri otrocih v različnih starostnih obdobjih. Usposobi se tudi za interpretacijo rezultatov laboratorijskih testov, še posebno tistih, ki se razlikujejo od ugotovitev pri odraslih bolnikih. Intenzivna in urgentna infektologija Študent se seznani s prepoznavanjem, diagnostiko in zdravljenjem akutnih infekcijskih bolezni, ki ogrožajo življenje in ki potrebujejo intenzivno zdravljenje, kakor tudi s preprečevanjem okužb in pravili bolnišnične higiene na oddelku za intenzivno terapijo. Sklopi naslovnih tem predavanj:	atypical pneumoniae, intestinal infections, hemorrhagic fever, unexplained fever conditions, sepsis, cutaneous rash, fatigue syndrome. {0>Tematsko posodabljanje predavanj zahteva dodatek ali razširitev poglavij s spoznanji o vse bolj aktualnih infektih (okužbe pri imunsko oslabljenih osebah, transplantirancih, nosilcih umetnih materialov, bolnišnične okužbe, okužbe v tropskih razmerah oz. na potovanjih, bioterorizem).<}0{>Updating of lecture themes requires an addition or extension of chapters with new findings on nowadays topical infections (in immune-deficient persons, transplant recipients, recipients of artificial materials, hospital infections, tropic areas- or travel-related infections, bioterrorism). New topic: covid-19 pandemic, etiology of covid-19 disease, clinical course, treatment and complications of the covid-19. Covid-19 preventive measures and mitigation measures. New covid-19 vaccine production technologies. Infectology in adult patients Students shall learn and become proficient in the diagnostic and therapeutic approach to patients with suspected infectious disease or febrile condition, learn about infection characteristics with respect to organ system affected (e.g. infections of the central nervous-, respiratory-, gastrointestinal-, urinary system, reproductive organs, muscles, bones and joints, skin and subcutaneous tissues), the characteristics of certain diseases or pathologic conditions (e.g. viral hepatitis, AIDS, Lyme boreliosis, infectious endocarditis, sepsis, septic shock, more frequent tropic diseases), characteristics of infections in patients with preserved or damaged immunity and/or inserted artificial materials, measures for prevention of infectious diseases, doctrine of rational use of antibiotics, antiviral, antifungal and anti-parasitic medications, as well as approaches for the detection, verification, treatment and prevention of hospital infections. Students shall learn about covid-19 disease, diagnostics and new treatments, usage of personal protective equipment and about prevetive measures in covid-19 mitigation. Paediatric infectology Students learn and acquire knowledge of etiology, epidemiology, clinical symptoms and signs, treatment and prevention of infection in children in different age periods. They become proficient in the interpretation of the findings of laboratory tests, particularly the ones that differ from those in adult patients.

STREPTOKOKNE OKUŽBE:

- streptokokno vnetje žrela (tonsillopharyngitis)
- škrlatinka (scarlatina)
- šen (erysipelas)
- impetigo – pyoderma
- pnevmokokne okužbe
- druge

STAFILOKOKNE OKUŽBE

- stafilokokne okužbe kože
- stafilokokna pljučnica
- stafilokokni meningitis
- stafilokokna sepsa
- stafilokokni endokarditis
- stafilokokni perikarditis
- stafilokokni osteomielitis
- stafilokokkni artritis
- sindrom toksičnega šoka

OKUŽBE Z ANAEROBI

- tetanus
- botulizem
- druge klostridijske bolezni
- davica

OKUŽBE S HERPES VIRUSI

- s herpes simplex virusom tip 1, 2, 6
- s citomegalovirusom
- z varicela – zoster virusom (varicella, herpes zostere)
- z Epstein Barrovim virusom (mononucleosis infectiosa)

ČREVESNE OKUŽBE:

Salmoneloze

- trebušni tifus
- paratifus A, B
- akutni enterokolitis

Griža (dysenteria)

Kampilobakterioza

Zastrupitev s hrano – stafilokokna

- Clostridium perfringens
- Bacillus cereus

Jersinioza

Kolera

Intensive and emergency infectology

Students become acquainted with the identification, diagnosis and treatment of acute life-threatening infectious diseases, which require intensive therapy, as well as with the prevention of infections and rules of hospital hygiene in the unit of intensive therapy.

Sets of lecture title themes:

STREPTOCOCCAL INFECTIONS:

- streptococcal inflammation of the pharynx (tonsillopharyngitis);
- Scarlet fever (scarletina)
- Erysipelas
- Impetigo – pyoderma
- Pneumococcal infections
- Others

STAPHYLOCOCCAL INFECTIONS

- staphylococcal infections of the skin
- staphylococcal pneumonia
- staphylococcal meningitis
- staphylococcal sepsis
- staphylococcal endocarditis
- staphylococcal pericarditis
- staphylococcal osteomyelitis
- staphylococcal arthritis
- toxic shock syndrome

ANAEROBIC INFECTIONS

- tetanus
- botulism
- other clostridial diseases
- diphtheria

HERPES VIRUS INFECTIONS

- with herpes simplex virus types 1, 2 and 6
- with cytomegalovirus
- with varicella, herpes zoster virus
- with Epstein-Barr virus (mononucleosis infectiosa)

INTESTINAL INFECTIONS:

Salmonelloses

- typhoid fever
- paratyphoid fever A, B
- acute enterocollitis

Bloody diarrhea (dysenteria)

Campylobacteriosis

Virusni enterokolitisi

- rotavirusni
- norwalk virusni
- adenovirusni
- astrovirusni

Driske na potovanjih

Driske pri imunsko motenih bolnikih

Driske povzročene z E. coli

Driske povzročene z aeromonas sp.

Driske povzročene s Clostridium difficile

OKUŽBE OSREDNJEGA ŽIVČEVJA

Gnojni (bakterijski) meningitisi

- meningokokni meningitis
- Pneumokokni meningitis
- Hemofilusni meningitis
- Listerijski meningitis
- Stafilokokni meningitis
- Gramnegativni bacilarni meningitis

Serozni meningitisi, meningoencefalitisi

- tuberkulozni meningitis
- leptospirozni meningitis
- borelijski meningitis
- brucelozni meningitis
- mikoplazmatski meningitis
- klopni meningoencefalitis
- herpetični (HSV tip 1, 2) meningoencefalitis
- enterovirusni meningoencefalitisi
- glivični meningoencefalitis
- parazitni meningoenceflaitis

OKUŽBE DIHAL

Tonsilofaringitis

Bakterijske pljučnice

Atipične pljučnice:

- klamidijske okužbe
- mikoplazemske okužbe
- legioneloze
- Q mrzlica

Oslovski kašelj (pertussis)

Influenca

Parainfluenca

Virusna prehladna obolenja

Adenoviroze

Food poisoning - staphylococcal

- Clostridium perfringens
- Bacillus cereus

Yersinosis

Cholera

Viral enterocholitis infections

- rotaviral infections
- Norwalk virus infections
- adenoviral
- astroviral

Travel-related diarrheas

Diarrheas in immune-deficient patients

E. coli-caused diarrheas

Aeromonas sp.-caused diarrheas

Clostridium difficile -caused diarrheas

CENTRAL NERVOUS SYSTEM INFECTIONS

Purulent (bacterial) meningitis

- meningococcal meningitis
- pneumococcal meningitis
- Haemophylus influenze-caused meningitis
- listerial meningitis
- staphylococcal meningitis
- gram-negative bacterial meningitis

Serous meningitis, meningoencephalitis

- tuberculous meningitis
- leptospirosis-caused meningitis
- Borellia-caused meningitis
- brucelous meningitis
- mycoplasma meningitis
- tick-borne meningoencephalitis
- herpetic (HSV type 1, 2) meningoencephalitis
- enteroviral meningoencephalitis
- fungal meningoencephalitis
- parasitic meningoencephalitis

RESPIRATORY INFECTIONS

Tonsilopharyngitis

Bacterial pneumonias

Atypical pneumonias

Covid-19 IZPUŠČAJNE BOLEZNI Ošpice (morbilli) Rdečke (rubella) Erythema infectiosum Exanthema subitum Norice (varicella) – herpes zoster Rikecioze VIRUSNI HEPATITISI – A, B, C, D,E, G, H PARAZITNE BOLEZNI Toksoplazmoza Lamblioza Tenioza – cisticerkoza Ehinokokoza Trihineloza Filarioza Okužbe s pnevmocistis carinii ZOONOZE Listerioza Bruceloza Tularemija Lymska borelioza Erlihioza Vranični prisad (antraks) Bolezni mačje opraskanine Steklina (rabies) TROPSKE BOLEZNI Malarija Amebiaza Lišmanioza Tripanosomoza Shistosomoza Hemoragične mrzlice:	- chlamidial infections - mycoplasmic infections - legionelloses - Q fever Whooping cough (pertussis) Influenza Parainfluenza Viral cold-related diseses Adenoviroses Covid-19 RASH DISEASES Measles (morbilli) German measles (rubella) Infectious erythema Exanthema subitum Varicella - herpes zoster Ricketsioses VIRAL HEPATITISES – A, B, C, D,E, G, H PARASITIC DISEASES Toxoplasmosis Lambliosis Teniosis – cysticerkosis Echinococcosis Trichinosis Filarosis Pneumocystic carinii infections ZOONOSES Listeriosis Brucellosis Tularaemia Lyme boreliosis Ehrlichiosis Anthrax Cat-scratch diseases Rabies

- rumena mrzlica - Denga - Hantan mrzlica - Lassa mrzlica - Marburg mrzlica - Ebola Leptospiroze Kuga GLIVIČNE OKUŽBE NOZOKOMIALNE (BOLNIŠNIČNE) OKUŽBE HIV okužba – AIDS OKUŽBE PRI IMUNSKO OSLABELIH BOLNIKIH OKUŽBE PRI NOSILCIH UMETNIH MATERIALOV OKUŽBE PRI TRANSPLANTIRANCIH VROČINA NEZNANEGA IZVORA (STATUS FEBRILIS) NAJPOMEMBNEJŠI SIMPTOMI IN ZNAKI PRI OPISOVANJU IN DIAGNOSTICIRANJU INFEKCIJSKIH BOLEZNI: Razen opisov klasičnih infekcijskih bolezni in okužb posameznih organov bomo od študentov zahtevali tudi poznavanje patofiziološkega razumevanja in diferencialno diagnostiko komatoznih stanj, septičnega šoka, ARDS, dehidracije in akutne ledvične odpovedi ter razumevanje pojmov medsebojnih odnosov med makro in mikro organizmom (saprofit – komerzal – parazit – patogen; infekt – infekcijska bolezen; virulenca; rezistenca; imunost).	TROPICAL DISEASES Malaria Amebiasis Leishmaniasis Trypanosomasis Schistosomosis Haemorrhagic fevers: - yellow fever - Dengue fever - Hantan fever - Lassa fever - Marburg fever - Ebola Leptospiroses Plague FUNGAL INFECTIONS NOSOCOMIAL (HOSPITAL) INFECTIONS HIV infection – AIDS INFECTIONS IN IMMUNE-DEFICIENT PATIENTS INFECTIONS IN ARTIFICIAL MATERIAL RECIPIENTS INFECTIONS IN TRANSPLANT RECIPIENTS FEBRILE CONDITION OF UNKNOWN ORIGIN (STATUS FEBRILIS) MOST IMPORTANT SIGNS AND SYMPTOMS IN DESCRIBING AND DIAGNOSING INFECTIOUS DISEASES: Besides being able to describe classical infectious diseses and individual organ infections, the students will be expected to understand patho-physiology and differential diagnosis of comatous conditions, septic shock, ARDS, dehydration and acute renal failure; they should also be able to explain the terms associated with relationship between macro- and microorganism (saprophyte – commersal – parasite –pathogen; infectiant – infectious disease; virulence; resistance; immunity).

Temeljni literatura in viri / Reading materials:

Temeljna

- Tomažič J, Strle.F. Infekcijske bolezni,Ljubljana,Združenje za infektologijo.Slovensko zdravniško društvo.2014/2015

Dopolnilna

- Mayhall CG. Hospital epidemiology and Infection Control. Lippincott Williams and Wilkins. 4. izdaja. Philadelphia,2012

- Beović, Strle, Čižman, Tomažič, Infektološki simpoziji, Medicinski razgledi. Ljubljana, v l. 1995-2016
- Gorišek-Reberšek J. in sod. Bedjaničevi simpoziji, SB Maribor, Maribor, v l. 1997-2016
- Lešničar G., Infektološki Lešničarjev simpozij, Laško 2012
- E-gradivo: Gorišek Miksić Nina: Covid-19
- E-gradivo: Gorišek Miksić Nina: Preprečevanje okužbe z virusom SARS-CoV-2: aktivna in pasivna zaščita

Cilji in kompetence:

Študent pri pouku spoznava epidemiološke, patofiziološke, etiopatogenetske in klinične značilnosti infekcijskih bolezni, lastnosti povročiteljev (patogenost, virulenca, itd.) in gostiteljev (dovzetnost, nagnjenost, itd.) ter njihove medsebojne odnose. Spozna in zna razlikovati bolezenska dogajanja pri različnih patogenetskih oblikah infekcijskih bolezni, (tako lokalnih, kot sistemskih). Seznani se s posebnostmi anamneze in klinične preiskave pri infekcijskih boleznih, mikrobiološkim in serološkim dokazovanjem povzročiteljev, osnovami racionalne uporabe antibiotikov, kemo- in imunoprofilakse ter z aktualnim epidemiološkim stanjem infekcijskih bolezni pri nas in v svetu. Tako razume bolezenska dogajanja in je sposoben samostojno ocenjevati načine preprečevanja in zdravljenja teh bolezni.
Študent razume in opazuje pandemijo covida-19.

Objectives and competences:

Students learn about epidemiological, patho-physiological, etio-pathogenetic and clinical characteristics of infectious diseases, causative agent (pathogenic potential, virulence, etc.) and host (susceptibility, inclination, etc.) properties and their interrelations. They learn to distinguish between different pathogenetic forms of infectious diseses (local as well as systemic). They get acquainted with specificity of anamnesis and clinical examination in infectious diseases, microbiological and serological verification of causative agents, basics of rational use of antibiotics, chemo- and immunoprophylaxis, and with current epidemiological situation in the area of infectious diseases in the country and abroad. Thus, they understand pathological occurrences and are able to independently consider possible preventive measures and treatment of these diseases.
Students learn about covid-19 pandemic and is actively observing the course of the pandemy.

Predvideni študijski rezultati:

Znanje in razumevanje:

- prepoznavanje klinične slike
- uvajanje diagnostičnih preiskav
- diferencialno-diagnostična presoja
- zdravljenje bolezni

Prenesljive/ključne spretnosti in drugi atributi:

- poznavanje osnovnih higienskih principov
- obvladovanje antibiotične profilakse in zdravljenja

Intended learning outcomes:

Knowledge and Understanding:

- recognition of clinical picture
- implementation of diagnostic investigations
- differential-diagnostic evaluation
- treatment of diseases

Transferable/Key Skills and other attributes:

- knowledge of the basic principles of hygiene
- knowledge of antibiotic prophylaxis and treatment

Metode poučevanja in učenja:

- predavanja z avdio-vizuelno podporo
- seminarji
- klinične vaje

Learning and teaching methods:

- lectures with audio-visual support
- seminars
- clinical work

Načini ocenjevanja:	Delež (v %) / Share (in %)	**Assessment methods:**
- opravljen kolokvij je pogoj za pristop na izpit	**100 %**	Passing the colloquium is a prerequisite for taking the exam
- pisni izpit		- written examination
ŠTUDIJSKE OBVEZNOSTI ŠTUDENTOV: predavanja in seminarji	**50% prisotnost na predavanjih**	ACADEMIC OBLIGATIONS OF STUDENTS: lectures and coursework

POGOJI ZA PRISTOP K POSAMEZNEMU PREVERJANJU ZNANJA: opravljeni seminarji in prisotnost na predavanjih	**80% prisotnost na seminarjih in vajah**	REQUIREMENTS FOR ACCESS TO INDIVIDUAL KNOWLEDGE CHECKING: completed coursework assignments and attendance at lectures

Reference nosilca / Course coordinator's references:

1. HORVAT, Matjaž, ROBNIK, Barbara, BIZJAK, Katarina, VUZEM, Sanja, GORIŠEK MIKSIĆ, Nina. Audit of post-splenectomy prophylaxis in a single tertiary center in Slovenia : where are we and what should be done?. *Surgical infections*, ISSN 1557-8674, 2021, vol. 22, no. 3, str. 292-298. https://doi.org/10.1089/sur.2020.038, https://www.liebertpub.com/doi/10.1089/sur.2020.038, doi: 10.1089/sur.2020.038. [COBISS.SI-ID 37859843]
2. PERC, Matjaž, GORIŠEK MIKSIĆ, Nina, SLAVINEC, Mitja, STOŽER, Andraž. Forecasting COVID-19. *Frontiers in physics*, ISSN 2296-424X, Apr. 2020, vol. 8, art. no. 127, str. 1-5. https://dk.um.si/IzpisGradiva.php?id=78160, doi: 10.3389/fphy.2020.00127. [COBISS.SI-ID 25194760]
3. LORA-TAMAYO, Jaime, GORIŠEK MIKSIĆ, Nina, TREBŠE, Rihard, et al. The not-so-good prognosis of Streptococcal periprosthetic joint Infection managed by implant retention : the results of a large multicenter study. *Clinical infectious diseases*, ISSN 1058-4838. [Print ed.], Jun. 2017, vol. 64, iss. 12, str. 1742-1752, ilustr. https://academic.oup.com/cid/article-lookup/doi/10.1093/cid/cix227, doi: 10.1093/cid/cix227. [COBISS.SI-ID 1539442628]
4. GORIŠEK MIKSIĆ, Nina, KLJAIĆ-DUJIĆ, Milka, REJC-MARKO, Jana, VORŠIČ, Matjaž, BUT, Igor. Bacteroides fragilis sacral spondylodiscitis and epidural abscess after sacrocolpopexy : a case report and literature review. *JIMR on-line*, ISSN 1473-2300, 2019, vol. 47, iss. 9, str. 4568-4574, ilustr. https://journals.sagepub.com/doi/pdf/10.1177/0300060519866270, doi: 10.1177/0300060519866270. [COBISS.SI-ID 6761023]
5. ANTONIČ, Miha, DJORDJEVIĆ, Anže, JURIČ, Peter, PIRNAT, Maja, GORIŠEK MIKSIĆ, Nina. Mycoplasma hominis ascending aortic graft infection successfully treated with graft preservation using negative pressure wound therapy with instillation and dwell time. *Wounds*, ISSN 1943-2704, Dec. 2020, vol. 32, no. 12, str. E67-E70, ilustr. https://www.woundsresearch.com/article/mycoplasma-hominis-ascending-aortic-graft-infection-successfully-treated-graft-preservation. [COBISS.SI-ID 44335363]