	UČNI NAČRT PREDMETA/COURSE SYLLABUS
Predmet	**Klinična farmakologija**
Course title	**Clinical Pharmacology**

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Zdravstvena nega / 2. stopnja	Ni smeri študija	1. / 2. letnik	2. / 3.
Nursing Care / 2nd Cycle	No study field	1st / 2nd year	2nd / 3rd

Vrsta predmeta/Course type	izbirni/elective
Univerzitetna koda predmeta/University course code	2ZN 1_2 IP2

Predavanja Lectures	Sem. vaje Tutorial	Kab. vaje Cabinet tutorial	Lab. vaje Laboratory work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
25	30				125	6

Nosilec predmeta/Lecturer:	doc. dr. Damijana Mojca Jurič

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

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisites:**
Vpis v prvi ali drugi letnik študijskega programa.	The prerequisite for inclusion is enrolment in the first or second year of study.

Vsebina:	**Content (Syllabus outline):**
• *Uvod v farmakologijo:* opredelitev in področja farmakologije. • *Farmakodinamika:* osnovni mehanizmi in mesta delovanja zdravil, odnos med odmerkom in učinkom zdravila, medsebojno delovanje zdravil, receptorji. • *Farmakokinetika:* absorpcija, porazdelitev in metabolizem zdravil, izločanje zdravil iz telesa. • *Interakcije med zdravili.* • *Neželeni učinki zdravil.* • *Zloraba zdravil, doping, problemi samozdravljenja, placebo in homeopatija.*	• *Introduction to Pharmacology:* definitions and fields of pharmacology. • *Pharmacodynamics:* basic mechanisms and points of drug actions, relationship between dosages and effect of medications, interactions of medicines, receptors. • *Pharmacokinetics:* absorption, distribution, metabolism and secretion of medications. • *Medications interactions.* • *Adverse effects of medications.*

• *Farmakogenomika in personalizirana medicina.* • *Farmakologija avtonomnega živčevja:* simpatično in parasimpatično živčevje. • *Farmakologija kardiovaskularnega sistema:* zdravila za zdravljenje visokega krvnega tlaka, angine pektoris, srčnega popuščanja in motenj srčnega ritma ter zdravila, ki posegajo v strjevanje krvi. • *Farmakologija uropoetskega sistema.* • *Farmakologija prebavil:* zdravila za zdravljenje peptične razjede, emetiki in antiemetiki, odvajala, antidiaroiki, spazmolitiki, zdravila, ki učinkujejo na jetra. • *Farmakologija dihal.* • *Farmakologija endokrinega sistema:* hormoni nadledvične žleze, ščitnice, trebušne slinavke, zdravila v motnjah delovanja nadledvične žleze, ščitnice, antidiabetiki. • *Farmakologija gibalnega in mišično-skeletega sistema.* • *Imunofarmakologija:* protivnetne spojine in imunosupresivi. • *Farmakologija osrednjega živčevja:* anksiolitiki in uspavala, antipsihotiki in antidepresivi, antiepileptiki, zdravila za zdravljenje nevrodegenerativnih bolezni, zdravila za zdravljenje bolečine, zdravila in snovi, ki povzročajo zasvojenost. • *Antiseptiki, dezinficiensi in insekticidi:* mehanizem, delovanje, skupine, predstavniki, učinkovitost in uporaba, repelenti in insekticidi. • *Kemoterapevtiki in antibiotiki:* antibakterijska zdravila, ki zavirajo sintezo nukleinskih kislin,celične stene, in proteinov, fungicidi, antivirusne snovi in snovi proti AIDS, citostatiki. antiseptiki za sečila, zdravila proti črevesnim zajedalcem, antimalariki, amebicidi. • *Toksikologija:* osnovni principi, preprečevanje in zdravljenje zastrupitev, pomembne skupine antidotov. • *Osnove predpisovanja zdravil:* vrste in farmacevtske oblike zdravil, shranjevanje zdravil, sestavni deli recepta, odmerjanje zdravil pri odraslih	• *Medications abuse, doping, problems of self-healing, placebo and homeopathy.* • *Pharmacogenomics and personalised medicine.* • *Pharmacology of autonomic nervous system:* sympathetic and parasympathetic nervous system. • *Pharmacology of the cardiovascular system:* medications for treatment of high blood pressure, angina pectoris, heart failure and cardiac arrhythmias, and medications that interfere with blood clotting. • *Pharmacology of the kidneys.* • *Pharmacology of the gastrointestinal tract:* medications for treatment of peptic ulcer, emetics and antiemetics, laxatives, antidiarrhoeal medications, spasmolytics, medications affecting the liver. • *Pharmacology of the respiratory system.* • *Pharmacology of the endocrine system:* hormones of adrenal cortex, thyroid gland, pancreas, drugs in disorders of adrenal and thyroid glands, antidiabetics. • *Pharmacology of the orthopaedic and musculoskeletal system.* • *Immunopharmacology:* anti-inflammatory and immunosuppressant medications. • *Pharmacology of the central nervous system:* anxiolytic and hypnotic medications, antipsychotics and antidepressants, antiepileptics, medicational treatment of neurodegenerative diseases, analgesics, medications and substances that cause addiction. • *Antiseptics, disinfectants and insecticides:* groups, representatives, performance and usage, repellents and insecticides. • *Chemotherapy agents and antibiotics:* antibacterial medications that inhibit nucleic acid, cell wall and protein synthesis, fungicides, antivirus substances and substances against AIDS, cytostatic medication, antiseptics for the urinary system, medications against intestinal parasites, antimalarials, amebicides. • *Toxicology:* basic principles, prevention and treatment of intoxications, important groups of antidotes.

in otrocih, režimi izdajanja zdravil, Centralna baza zdravil R Slovenije. • *Klinični primeri.*	• *The basics of prescribing medications*: types and pharmaceutic forms of medications, storage of different types of medications, the prescription - its main parts, dosages, administering medication to adults and children, regimens of giving out medications in pharmacy, Register of medicinal products R Slovenia. • *Case studies.*

Temeljna literatura in viri/Readings:

Temeljna literatura / Basic literature:

- Karch, A. M. (2017). *Focus on Nursing Pharmacology*. 7th edition. Wolters Kluwer.
- Katzung, B. G. (2018.) *Basic and Clinical Pharmacolog.* 14th edition. McGraw-Hill.
- Rang, H. P., Dale, M. M., Ritter, J. M. in Flower, R .J. (2016). *Rang and Dale's Pharmacology*. 8th edition. Edinburgh: Churchill, Livingstone.

Priporočena literatura/ Recommended literature:

- Brunton, L. L., Chabner, B. A. in Knollmann, B. C. (2011). *Goodman & Gilman's The Pharmacological Basis of Therapeutics.* 12th Edition. New York: McGraw-Hill.
- Kladnik-Januš, B. (2006). *Farmakologija.* Univerza v Mariboru, Visoka zdravstvena šola.
- Lüllmann, H., Mohr, K., Hein, L., Bieger, D. (2005). *Color Atlas of Pharmacology*. G. Thieme Verlag, Stuttgart, New York. (repetitorij, pregledne slike).
- Neal, J. N. (2016). *Medical Pharmacology at a Glance*. 8th edition. Wiley Blackwell.

Cilji in kompetence:	**Objectives and competences:**
Učna enota prispeva k razvoju naslednjih splošnih in specifičnih kompetenc: • poglobiti temeljno znanje s področja farmakologije, • razumeti dognanja farmakodinamike in farmakokinetike, • seznaniti se z osnovnimi oblikami zdravil, ravnanjem z njimi in z osnovami predpisovanja zdravil, • poznati osnovne mehanizme delovanja zdravil, njihove učinke na organizem, poti presnove in izločanja, • spoznati skupine zdravil po farmakodinamskih učinkih, • poznati nevarnosti neželenih učinkov zdravil in posledic, ki lahko nastanejo pri neprimerni uporabi ali zlorabi zdravil in pozna potrebne ukrepe pri tem, • poznati vplive zdravil na plod, problem mutageneze, teratogeneze in kancerogeneze,	*The learning unit mainly contributes to the development of the following general and specific competences:* • deepening fundamental knowledge in the field of pharmacology, • learning fundamental knowledge in the field of pharmacokinetics, pharmacodynamics, • understanding the basic forms of medications, treatments and the basics of prescribing medications, • being familiar with the basic mechanisms of medication effects, their effects on the organism, excretion through metabolic pathways, • being familiar with groups of medications at the pharmacodynamic level – effects, • knowing the risks, side effects of medications and their consequences, by unsuitable use or abuse and knowing the necessary measures in the case,

• seznaniti se z etičnimi in znanstvenimi zahtevami pri preizkušanju in vrednotenju zdravil, • seznaniti se z racionalno in varno uporabo zdravil in z zdravstveno-ekonomskim pomenom potrošnje zdravil, • razvijati sposobnost za povezovanje in uporabo spoznanj z različnih znanstvenih ved in disciplin pri delu s pacientom, • vključevanje profesionalne etike, prepoznavanje in uporaba moralnih in etičnih načel pri delu, • sposobnost vsestranskega in sistematičnega prilagajanja obravnave pacienta glede na relevantne fizikalne, socialne, kulturne, psihološke, spiritualne in družbene dejavnike, • sposobnost prepoznati in interpretirati znake normalnega in spreminjajočega se zdravja (postavljanje diagnoz), • sposobnost spoštovati pacientovo dostojanstvo, zasebnost in zaupnost podatkov, • sposobnost informirati, izobraževati, vzgajati in nadzorovati paciente/oskrbovance in njihove družine, • usposobljenost za vodenje zdravstvene dokumentacije, pisanje poročil in uporabo ustrezne tehnologije, • usposobljenost aktivno promovirati zdravje, oceniti tveganje in skrbeti za varnost vseh ljudi v delovnem okolju.	• knowing the effects of medications on fetus, the problem of teratogenesis, carcinogenesis and mutagenesis, • being acquainted with the ethical and scientific requirements in testing and evaluation of medications, • being acquainted with the rational and safe use of medications and health-economic importance of medication consumption, • inclusion of professional ethics, recognising and using moral and ethical principles at work, • being able to adapt the individual all-round and systematic treatment according to the relevant physical, social, cultural, psychological, spiritual and social factors, • being able to recognize and interpret the signs of a normal or changing health status (nursing diagnosis setup); • being able to respect the patient's dignity, privacy and confidentiality of the data; • being able to inform, educate, raise awareness and monitor the patients and their families, • being able to keep the record of nursing documentation, writing reports and using the modern technology, • being able to actively promote health, to evaluate risk and to take care of safety for all people in the working environment.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Študent/študentka:	***Students****:*
• pozna in razume mehanizme delovanja zdravil, njihove učinke na organizem, poti presnove in izločanja, • pozna skupine zdravil po farmakodinamskih učinkih, • razume nevarnosti neželeni učinkov zdravil in posledic, ki lahko nastanejo pri neprimerni uporabi ali zlorabi zdravil in pozna potrebne ukrepe pri tem,	• know and understand the mechanisms of medication effects, their effects on the organism, and excretion through metabolic pathways, • know the categorising of medicinal products by pharmacodynamic effects, • know the risks, side effects of medications and their consequences, by unsuitable use or abuse and know the necessary measures in the case,

• pozna vplive zdravil na plod, problem mutageneze, teratogeneze in kancerogeneze, • seznani se z etičnimi in znanstvenimi zahtevami pri preizkušanju in vrednotenju zdravil, seznani se z racionalno in varno uporabo zdravil in z zdravstveno-ekonomskim pomenom potrošnje zdravil.	• know the effects of medications on fetus, the problem of teratogenesis, carcinogenesis and mutagenesis, • get acquainted with the ethical and scientific requirements in testing and evaluation of mediations, • get acquainted with the rational and safe use of medications and health-economic importance of medication consumption.

Metode poučevanja in učenja:	**Learning and teaching methods:**
• *predavanja* z aktivno udeležbo študentov (razlaga, diskusija, vprašanja, primeri, reševanje problemov), • *seminarske vaje:* priprava, predstavitev in uspešen zagovor projektne/raziskovalne naloge, portfolio (reševanje problemov, študije primera, kritično presojanje, diskusija, refleksija izkušenj, vrednotenje, projektno delo, timsko delo).	• *lectures* with active student participation (explanation, discussion, questions, examples, problem solving), • *seminar tutorial:* preparation, presentation and a successful defence of a project/research paper, portfolio (problem solving, case studies, methods of critical thinking, discussion, reflection of experience, evaluation, project work, teamwork).

Načini ocenjevanja:	Delež (v %) Weight (in %)	**Assessment:**
Načini: • 100 % udeležba na predavanjih in vajah: priprava, predstavitev in zagovor raziskovalne naloge – 100 % ocene; • če študent ni 100 % udeležen na predavanjih in vajah: - izpit – 70 % ocene, - priprava, predstavitev in zagovor raziskovalne naloge – 30 % ocene. Ocenjevalna lestvica: ECTS.	100 % ali / or 70 % 30 %	Types: • 100% attendance at lectures and tutorials: preparation, presentation and defence of the research paper – 100% of the grade; • if the students' attendance at lectures and tutorials is not 100%: - exam - 70% of the grade, - preparation, presentation and defense of the research paper – 30% of the grade. Grading scheme: ECTS.