	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 IP1

Predavanja **Lectures**	**Seminar** **Seminar**	**Sem. vaje** **Tutorial**	**Lab. vaje** **Laboratory work**	**Teren. vaje** **Field work**	**Samost. delo** **Individ. work**	**ECTS**
25		30			155	7

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. • Študent mora pred izpitom pripraviti in predstaviti ter zagovarjati projektno/raziskovalno nalogo.	• The prerequisite for inclusion is enrolment in the first or second year of study. • Student has to prepare, present and defend a project/research paper before the exam.

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.*	• *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.*

• *Zloraba zdravil, doping, problemi samozdravljenja, placebo in homeopatija.* • *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	• *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

zastrupitev, pomembne skupine antidotov. • *Osnove predpisovanja zdravil:* vrste in farmacevtske oblike zdravil, shranjevanje zdravil, sestavni deli recepta, odmerjanje zdravil pri odraslih in otrocih, režimi izdajanja zdravil, Centralna baza zdravil R Slovenije. • *Klinični primeri.*	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. • *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,	*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,

• 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, • 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.	• 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, • 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: • 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, • 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.	*Students:* • 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, • 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, • *konzultacije.*	• *lectures* with active student participation (explanation, discussion, questions, examples, problem solving); • *tutorial:* preparation, presentation and a successful defence of a project/research paper, • *consultations.*

Načini ocenjevanja:	Delež (v %) Weight (in %)	Assessment:
Načini: • 100 % udeležba na predavanjih in vajah: priprava, predstavitev in zagovor projektne/raziskovalne naloge – 100 % ocene; • če študent ni 100 % udeležen na predavanjih in vajah: - izpit – 60 % ocene, - priprava, predstavitev in zagovor projektne/raziskovalne naloge – 40 % ocene.	100 % ali / or 60 % 40 %	Types: • 100% attendance at lectures and tutorials: preparation, presentation and defence of project/research paper – 100 % of the grade; • if the students' attendance at lectures and tutorials is not 100%: - exam - 60% of the grade, - preparation, presentation and defense of the

Ocenjevalna lestvica: ECTS.		project/research paper – 40% of the grade. Grading scheme: ECTS.