UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	**Načrtovanje stavb**
Course title:	**Building design**

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Pravo in management nepremičnin - 3. stopnja		2.	1.
Law and management of real estate - 3rd degree		2.	1.

Vrsta predmeta / Course type Izbirni / Elective

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Laboratory work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
20	0	0	0	0	230	10

Nosilec predmeta / Lecturer: prof. dr. Živa Kristl

Jeziki / Languages:	
Predavanja / Lectures:	Slovenski jezik/Slovenian/Angleški jezik/English
Vaje / Tutorial:	

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	Prerequisits:
Vpis v 1. letnik študijskega programa. Vsaj 80% prisotnost na predavanjih.	Enrollment in the 1st year of doctoral study program. At least 80% attendance at lectures.

Vsebina:	Content (Syllabus outline):
Gradbeni sektor, s tem pa tudi načrtovanje in upravljanje stavb je trenutno podvržen velikim spremembam. Nove razmere in pravila, kot so podnebne spremembe, staranje prebivalstva, stroge energetske zahteve in informacijska revolucija terjajo hitro in učinkovito prilagoditev. Medtem ko so mednarodni okoljski cilji že določeni, gradbena regulativa in praksa sledita z zamikom. To vrzel je potrebno	The construction sector, and thus the planning and management of buildings, is currently undergoing major changes. New conditions and rules, such as climate change, an aging population, stringent energy requirements and the information revolution, require rapid and effective adaptation. While international environmental targets have already been set (COP 21), building regulations and practices are

čim prej odpraviti. Pomembno je, da vlagatelji, regulatorji, drugi deležniki in uporabniki pričnejo delovati v smeri zmanjšanja porabe virov in posledično emisij toplogrednih plinov ter izboljševati kvaliteto izgrajenega. To pomeni, da je potrebno prilagoditi trenutne prakse.

Področje načrtovanja stavb igra pri tem ključno vlogo, saj predstavlja prvi korak v procesu graditve. Pristop k trajnosti za področje grajenega okolja temelji na treh splošno priznanih stebrih (okolje, gospodarstvo in družba), ki jih je treba obravnavati dolgoročno in na enakovreden način. Poleg tega so v grajenem okolju pomembni še tehnične zahteve, postopki za načrtovanje in izvedbo stavbe ter prilagojenost stavb značilnostim lokacije.

Ključni dejavnik je pospešitev integracije ESG (Environmental, Social and Governance) in podnebnih tveganj v naložbene odločitve, vključno s prenovami. Pomembna vzpodbuda so tudi vedno ostrejše zahteve regulative in standardizacija. Področje trajnostne gradnje je izredno široko, zato so pri predmetu obravnavana le nekatera ključna področja, ki zajamejo bistvo novih pristopov k načrtovanju stavb:

- Bistveni dejavniki, ki vplivajo na načrtovanje stavb (npr. lokacija) in bioklimatski pristop v luči podnebnih sprememb
- Pogoji v notranjem okolju
- Kriteriji vrednotenja uspešnosti načrtovanja in inovativni pristopi ocenjevanja kompleksnosti vplivnih parametrov (topota, svetloba, zrak, hrup) s poudarkom na dvigu kvalitete notranjega okolja
- Inovativne strategije in regulatorni instrumenti za dvig kvalitete okolja in stavb (CPR, EED, RED, EPBD) ter implikacije v praksi
- Napredek na področju standardizacije posameznih področij (poraba energije,

lagging behind. This gap needs to be quickly closed. It is important that investors, regulators, other stakeholders and users start working towards reducing resource consumption and consequently greenhouse gas emissions and improving the quality of construction. This means that current practices need to be adapted.

The field of building design plays a key role in this as it presents the first step in the process of construction. The approach to sustainability for the built environment is based on three generally recognized pillars (environment, economy and society), which need to be addressed in the long term and on an equal footing. In addition, the following are important in the built environment technical requirements, • procedures for the design and construction of the building, and adaptation of buildings to the characteristics of the location.

A key factor is to accelerate the integration of ESG (Environmental, Social and Governance) and climate risks into investment decisions, including renovations. Increasingly stringent regulatory requirements and standardization are also important incentives. The field of sustainable construction is extremely broad, so the course addresses only some key areas that capture the essence of new approaches to building design:

- Essential factors influencing building design (eg location) and bioclimatic approach in the light of climate change
- Conditions in the indoor environment
- Criteria for evaluating the success of planning and innovative approaches to assessing the complexity of influential parameters (heat, light, air, noise) with an emphasis on raising the quality of the internal environment
- Innovative strategies and regulatory instruments for raising the quality of the environment and buildings (CPR, EED, RED, EPBD) and implications in practice
- Progress in the field of standardization of individual areas (energy consumption, daylight,

dnevna svetloba, kvaliteta zraka) in vplivi na postopek načrtovanja stavb - Primeri iz prakse	air quality) and impacts on the building design process - Examples from practice

Temeljna literatura in viri / Readings:

Obvezna literatura:

- Živa Kristl, Trajnostni vidiki stanovanjske gradnje. 1. natis. Nova Gorica: Nova univerza, Evropska pravna fakulteta, 2019. 263 str., ilustr. ISBN 978-961-6731-30-0. [COBISS.SI-ID 301510656]
- Philomena M. Bluyssen, THE INDOOR ENVIRONMENT HANDBOOK, Earthscan and RIBA publishing 2009 (http://file.zums.ac.ir/ebook/461-The%20Indoor%20Environment%20Handbook%20-%20How%20to%20Make%20Buildings%20Healthy%20and%20Comfortable-Philomena%20Blu.pdf)
- Steven Szokolay, Introduction to Architectural Science: The Basis of Sustainable Design, 3rd edition, Routledge, 2014.
- Emina K. Petrovic, Brenda Vale, Maibritt Pedersen Zari, Materials for a Healthy, Ecological and Sustainable Built Environment, Principles for Evaluation, Woodhead Publishing, 2017.

Ostalo (izbrana poglavja):

- CLIMATE CHANGE THE INDOOR ENVIRONMENT AND HEALTH, The national academies, Washington, DC 2011.
- ISIAQ-CIB Task Group TG 42, PERFORMANCE CRITERIA OF BUILDINGS FOR HEALTH AND COMFORT, CIB number 292, 2004.
- Gunnar Grün, Susanne Urlaub, White Paper, Towards an identification of European indoor environments' impact on health and performance - homes and schools, Fraunhofer-Institut für Bauphysik IBP, Holzkirchen, Stuttgart, 2014.
- EE 03, 2014. Energy strategies and solutions for deep renovation of historic buildings. Dostopno na: http//cordis.europa.eu/programme/rcn/664681_en.html.
- Level(s), 2017. A common EU framework of core sustainability indicators for office and residential buildings, Parts 1 and 2: Introduction to Levels. and how it works Draft Beta v1.0. [online] Dostopno na: http://susproc.jrc.ec.europa.eu/Efficient_Buildings/docs/170816_Levels_EU_framework_of_building_indicators_Parts.pdf [20.10.2018].
- BMWBS,2013. Smernica za trajnostno gradnjo, Prevod nemške smernice: Leitfaden Nachhaltiges Bauen, Ljubljana: Inženirska zbornica Slovenije. [online] Dostopno na: http://www.izs.si/fileadmin/dokumenti/publikacije-IZS/Smernice_IZS/Smernica-TG-final-smal.pdf [25. 04. 2018].

Regulatorni in strateški dokumenti s področja okolja, npr.:

- Evropski zeleni dogovor, 2020; https://ec.europa.eu/info/publications/communication-european-green-deal_en
- COM 433, 2012. Strategija za trajnostno konkurenčnost gradbenega sektorja in gradbenih podjetij. Sporočilo Evropske komisije Evropskemu parlamentu in Svetu. [online] Dostopno na: https://eur-lex.europa.eu/legal-content/SL/TXT/PDF/?uri=CELEX:52012DC0433&from=en

[20.10.2018].
- CPR 305, 2011. Uredba o gradbenih proizvodih. Official Journal of the European Union.
- EED 27, 2012. Energy efficiency directive. Official Journal of the European Union.
- EPBD 31, 2010. Directive on the energy performance of buildings recast. Official Journal of the European Union.
- EPBD 844, 2018. Directive amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU. Official Journal of the European Union.
- END 49, 2001. Direktiva o ocenjevanju in upravljanju okoljskega hrupa. Evropska komisija.
- EU 2284, 2016. Direktiva o zmanjšanju nacionalnih emisij za nekatera onesnaževala zraka. Official Journal of the European Union.
- EU 50, 2008. Direktiva o kakovosti zunanjega zraka in čistejšem zraku za Evropo. Official Journal of the European Union.

Uporaba izbora standardov s področja, npr.:
- EN 15251, 2007. Criteria for the Indoor Environment Including Thermal, Indoor Air Quality, Light and Noise. European Committee for Standardization.
- SIST EN 17037, 2019. Dnevna svetloba v stavbah. European Committee for Standardization.
- KRISTL, Živa. Priporočila za načrtovanje dnevne osvetljenosti. 2018. https://velcdn.azureedge.net/~/media/marketing/si/datoteke/priporocila.pdf

Periodična literatura (priporočeni znanstveni članki s področja)

Študijska gradiva (VIS)

Cilji in kompetence:

Cilji predmeta so poglobljeno razumevanje in obvladovanje medsebojnih vplivov stavbe, (spreminjajočega se) okolja, in človeka na načrtovanje stavb, integracija ESG in podnebnih tveganj v načrtovalske odločitve ter navezava na EU regulativo in standarde.

Kompetence zajemajo:
- Globlje poznavanje in razumevanje pojmov, principov in zahtev na področju načrtovanja, gradnje in upravljanja stavb
- Sposobnost učinkovite identifikacije problemov povezanih z načrtovanjem stavb.
- Obvladovanje kompleksnosti medsebojnih vplivov različnih dejavnikov okolja in odločitev povezanih s stavbnim tkivom in delovanjem stavbnih sistemov.
- Poznavanje in uporaba ključnih regulatornih dokumentov in njihovega

Objectives and competences:

The objectives of the course are to profoundly understand and manage the mutual influences of the building, (changing) environment and man on the design of buildings, the integration of ESG and climate risks into planning decisions and the connection to EU regulations and standards.

Competencies include:
- Deeper knowledge and understanding of concepts, principles and requirements in the field of design, construction and management of buildings
- Ability to effectively identify problems related to building design.
- Managing the complexity of the interactions of various environmental factors and decisions related to building tissue and the operation of building systems.
- Knowledge and use of key regulatory

vpliva na načrtovanje stavb - Sposobnost holistične obravnave problemov, sintezno povezovanje komplementarnih področij na osnovi principov multi in transdisciplinarnosti. - Sposobnost uporabe razpoložljivega instrumentarija pri eksperimentalno-metodološkem delu za samostojno razvijanje novega znanja. - Uporaba primerne metodologije pri prepoznavanju in vrednotenju kvalitetnih primerov v praksi - Usposobljenost za prenašanje znanja z uporabo v znanstveno-raziskovalnem delu in v praksi ter predstavitev doma in v tujini.	documents and their impact on building design - Ability to holistically address problems, synthetic integration of complementary areas based on the principles of multi and transdisciplinarity. - Ability to use the available tools in experimental-methodological work for independent development of new knowledge. - Use of appropriate methodology in identifying and evaluating quality cases in practice - Ability to transfer knowledge through use in scientific research and practice, and presentation at home and abroad.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: Študent ima celosten uvid v kompleksnost načrtovalskih odločitev, ki so povezane s kvaliteto načrtovanja stavb. Razume vpliv specifičnih dejavnikov stavb in spreminjajočega se zunanjega okolja na delovanje stavbe in uporabnike. Pri znanstveno-raziskovalnem delu upošteva sodobna znanja in metode za ugotavljanje uspešnosti specifičnih vidikov načrtovanja stavb. Uporablja relevantne in aktualne znanstvene, tehnične in zakonodajne dokumente s področja pri znanstveno-raziskovalnem delu in pripravi publikacij. Razume povezave in medsebojne vplive z drugimi komplementarnimi področji in je sposoben sodelovalnega in holističnega pristopa.	Knowledge and understanding: The student has a comprehensive insight into the complexity of planning decisions related to the quality of building design. Understands the impact of specific building factors and the changing external environment on the operation of the building and users. In scientific research, he /she takes into account modern knowledge and methods for determining the success of specific aspects of building design. Uses relevant and current scientific, technical and legislative documents in the field of scientific research and preparation of publications. Understands connections and interactions with other complementary areas and is capable of a collaborative and holistic approach.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Oblike dela: ☒ Frontalna oblika poučevanja ☒ Delo v manjših skupinah oz. v dvojicah ☒ Samostojno delo študentov ☒ e-učenje ☐ drugo (vpišite) _____	**Types of learning/teaching:** ☒ Frontal teaching ☒ Work in smaller groups or pair work ☒ Independent students work ☒ e-learning ☐ other _____

Metode (načini) dela:	Teaching methods:
☒ Razlaga	☒ Explanation
☒ Razgovor/ diskusija/debata	☒ Conversation/discussion/debate
☒ Delo z besedilom	☒ Work with texts
☒ Proučevanje primera	☒ Case studies
☐ Igra vlog	☐ Role-play
☒ Druge vrste nastopov študentov	☒ Different presentation
☐ Reševanje nalog	☐ Solving exercises
☒ Terensko delo (pregled stavb ipd.)	☒ Field work (e.g. building survey)
☒ Vključevanje gostov iz prakse	☒ Inviting guests from companies
☐ Udeležba na okrogli mizi, na konferenci	☐ Attending round table and conference

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
Seminarska naloga.	100%	Seminar work

Reference nosilca / Lecturer's references:

KRISTL, Živa. Trajnostni vidiki stanovanjske gradnje. 1. natis. Nova Gorica: Nova univerza, Evropska pravna fakulteta, 2019. 263 str. ilustr. ISBN 978-961-6731-30-0. [COBISS.SI-ID 301510656]
Fakulteta za arhitekturo. 2019, str. 166-173, ilustr. [COBISS.SI-ID 2048042212]
KRISTL, Živa. Ranljivost nepremičnin v okviru intenziviranja podnebnih sprememb. V: GRUM, Bojan (ur.). Znanstvene razprave s področja nepremičnin. 1. natis. Nova Gorica: Nova univerza, Evropska pravna fakulteta. 2019, str. 153-177, ilustr. [COBISS.SI-ID 2048047076]
DROBNE, Samo, ZBAŠNIK-SENEGAČNIK, Martina, KRISTL, Živa, KOPRIVEC, Ljudmila, FIKFAK, Alenka. Analysis of the window views of the nearby façades. Sustainability. 2022, vol. 14, iss. 1 (art. 269), 16 str., ilustr. ISSN 2071-1050. https://www.mdpi.com/2071-1050/14/1/269/htm, DOI: 10.3390/su14010269. [COBISS.SI-ID 92344579], [JCR, SNIP, WoS, Scopus]
KRISTL, Živa, TEMELJOTOV SALAJ, Alenka, ROUMBOUTSOS, Athena. Sustainability and universal design aspects in heritage building refurbishment. Facilities, ISSN 0263-2772, 2019, vol. , iss. , str. [1-24], ilustr., doi: 10.1108/F-07-2018-0081. [COBISS.SI-ID 2048069860], [SNIP, WoS do 18. 1. 2020: št.
KOŠIR, Mitja, GOSTIŠA, Tamara, KRISTL, Živa. Influence of architectural building envelope characteristics on energy performance in Central European climatic conditions. Journal of building engineering. [Online ed.]. jan. 2018, letn. 15, str. 278-288, ilustr. ISSN 2352-7102. https://ac.els-cdn.com/S2352710217304941/1-s2.0-S2352710217304941-main.pdf?_tid=f3f8f724-df1f-11e7-8bc0-00000aab0f6c&acdnat=1513071579_3bff529e341779ec28b9f1bafbacf7bc, DOI: 10.1016/j.jobe.2017.11.023. [COBISS.SI-ID 8237409]
PAJEK, Luka, KOŠIR, Mitja, KRISTL, Živa, KACJAN ŽGAJNAR, Katarina, DOVJAK, Mateja. Indoor environmental quality (IEQ) in Slovenian children daycare centres. Part 1, Results of in-situ measurements. Sanitarno inženirstvo. dec. 2017, vol. 11, no. 1, str. 4-18, tabele, graf. prikazi. ISSN 1854-0678. https://journal.institut-isi.si/wp-content/uploads/2018/04/SI-111-2017-Pajek-Kosir-Kristl-Kacjan-Zgajnar-Dovjak.pdf. [COBISS.SI-ID 8389473]
BLECICH, Paolo, FRANKOVIĆ, Marko, KRISTL, Živa. Energy retrofit of the Krsan Castle : from sustainable to responsible design : a case study. Energy and buildings. 15. Jun. 2016, vol. 122, str. 23-33, graf. prikazi. ISSN 0378-

7788. http://www.sciencedirect.com/science/article/pii/S0378778816302456. [COBISS.SI-ID 1024717681]
TOMAŽIČ, Simon, LOGAR, Vito, KRISTL, Živa, KRAINER, Aleš, ŠKRJANC, Igor, KOŠIR, Mitja. Indoor-environment simulator for control design purposes. Building and environment. [Print ed.]. Dec. 2013, vol. 70, str. 60-72, ilustr. ISSN 0360-1323. DOI: 10.1016/j.buildenv.2013.08.026. [COBISS.SI-ID 10062676]
KOŠIR, Mitja, CAPELUTO, Isaac Guedi, KRAINER, Aleš, KRISTL, Živa. Solar potential in existing urban layouts : critical overview of the existing building stock in Slovenian context. Energy policy. [Print ed.]. jun. 2014, letn. 69, št. x, str. 443-456, ilustr. ISSN 0301-4215.
DOI: 10.1016/j.enpol.2014.01.045. [COBISS.SI-ID 6496609]
KOŠIR, Mitja, KRAINER, Aleš, KRISTL, Živa. Analiza osončenosti stavb v skladu z zahtevami PURES 2010 = Building insolation analysis in acordance to PURES 2010. Gradbeni vestnik : glasilo Zveze društev gradbenih inženirjev in tehnikov Slovenije. [Tiskana izd.]. avg. 2012, letn. 61, št. 8, str. 183-193, ilustr. ISSN 0017-2774. [COBISS.SI-ID 5968481]
KRISTL, Živa. Priporočila za načrtovanje dnevne osvetljenosti. [Postojna: Velux, 2019]. [25] str., ilustr. https://velcdn.azureedge.net/~/media/marketing/si/datoteke/priporocila.pdf. [COBISS.SI-ID 2048060132]