

**UČNI NAČRT PREDMETA / COURSE SYLLABUS**

<b>Predmet:</b>	Interdisciplinarne raziskave vzorcev v naravi v kontekstu videoiger in razširjene resničnosti
<b>Course title:</b>	Interdisciplinary research of patterns in nature in the context of video games and extended reality

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Razvoj videoiger in razširjenih resničnosti, visokošolski strokovni študijski program prve stopnje	-	Drugi	Četrty
Game and Extended Reality Development, first cycle Professional Study Programme	-	Second	Fourth

**Vrsta predmeta / Course type**

Izbirni / Elective

**Univerzitetna koda predmeta / University course code:**

4-RVRR-VS-IP-IRVNVRR-2025-02-27

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
30	-	40	-	-	110	6

**Nosilec predmeta / Lecturer:** prof. dr. Tea Golob**Jeziki /****Languages:****Predavanja /****Lectures:**

slovenski / Slovenian, angleški / English

**Vaje / Tutorial:**

slovenski / Slovenian, angleški / English

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Brez posebnih pogojev

**Prerequisites:**

No special prerequisites

**Vsebina:**

Predmet razvija in ponuja temeljno znanje na področju zaznavanja in razumevanja vzorcev v naravi, ki se najprej z oblikovanjem prenesejo v fazo konceptualnega razvoja videoigre in razširjene resničnosti in kasneje implementirajo v produkcijski fazi videoigre in razširjene resničnosti.

Študenti bodo pridobili teoretično znanje in praktične veščine kako prepoznati in

**Content (Syllabus outline):**

The course develops and offers fundamental knowledge in the field of perceiving and understanding patterns in nature, which are first transferred through design to the conceptual development phase of a video game and extended reality and later implemented in the production phase of the video game and extended reality.

Students will acquire theoretical knowledge and practical skills on how to recognize and

razumeti raznolike vzorce v naravi - od simetrije do fraktalnih oblik in spodbuditi reflektivno-oseben odnos na podlagi asociacij, občutkov, spominov, zgodb.

Študenti se bodo naučili povezati vzorce v naravi z različnimi simboli in kulturnimi prvinami različnih družbenih okolij in jih znali postaviti v kontekst antropomorfnih in zoomorfnih vzorcev vezanih na kolektivne predstave in zgodbe ter naravne etiološke mite.

Slednje je temeljnega pomena in je izhodišče za kreativno zamišljanje v pred-produktivnem procesu ustvarjalnega "preoblikovanja" vzorcev in krajin v naravi, v teksture za videoigre in razširjeno resničnost. Predmet bo študente spodbujal k razvijanju osebnega odnosa do prostora in narave ter k vzpostavljanju ustvarjalnega dialoga med vzorcem iz narave in njegovim formalnim preoblikovanjem v generiran vzorec v različnih segmentih videoiger in okolij razširjene resničnosti.

Predmet je tematsko razdeljen na štiri tematske sklope:

- Obravnava vzorcev in geometrije v naravi (simetrija, fraktali, spirale, tok in kaos, valovi in sipine, mehurčki in pena, nizi in ploščice, razpoke, proge in pike;
- Obravnava percepcije in odnosa do vzorcev v naravi v navezavi na simbole in arhetipe (образи, postave, živali, velikani, zmaji, drevesa, kače...);
- Spoznavanje in analiza ključnih elementov idejnih pokrajin kot vizualno ozadje zgodbi v videoigrah in razširjeni resničnosti (jama, gozd, reka, jezero, morje, gore, močvirje...);
- Konceptualni razvoj in ustvarjanje arhivov lastnih vzorcev za igralne pokrajine in z njimi povezane objekte na podlagi zaznavanja vzorcev in pokrajin iz narave ter njihovega formalnega prenosa v medij videoigre in razširjene resničnosti.

distinguish diverse patterns in nature - from symmetry to fractal forms and will be encouraged to advance a reflective-personal relationship towards nature based on associations, feelings, memories, and stories.

Students will learn to connect patterns in nature with various symbols and cultural elements of various social environments and be able to place them in the context of anthropomorphic and zoomorphic patterns linked to collective representations and stories and natural etiological myths.

The latter is of fundamental importance and is the starting point for creative imagination in the pre-productive process of creatively "transforming" patterns and landscapes in nature into textures for video games and extended reality environments.

The course will encourage students to develop a personal relationship to space and nature as a starting point for critical thinking and the promotion of creative-artistic creation, in general, and in the contexts of video games and extended reality.

The course is thematically divided into four thematic sections:

- Patterns and geometry in nature (symmetry, fractals, spirals, flow and chaos, waves and dunes, bubbles and foam, arrays and tiles, cracks, streaks and dots
- Perception and attitudes towards patterns in nature in relation to symbols and archetypes (faces, figures, animals, giants, dragons, trees, snakes...)
- Understanding and analyzing the key elements of conceptual landscapes as a visual background to the story in video games and extended reality (cave, forest, river, lake, sea, mountains, swamp...)
- Conceptual development and creation of archives of own patterns for game landscapes and related objects based on the perception of patterns and landscapes from nature and their formal

transfer into the video game and extended reality media.

### Temeljni literatura in viri / Readings:

Izbrani teksti in poglavja v:

- Phillip Ball (2016). Patterns in Nature: Why the Natural World Looks the Way It Does. The University of Chicago Press
- Nature of Form: A book for innovation & design exploration.(2023). FabLab Innovation
- Michael Hann (2019). Symbol, Pattern and Symmetry: The Cultural Significance of Structure. Bloomsbury Publishing
- Tristan Gooley (2023). How to Read a Tree: Clues and Patterns from Bark to Leaves. The Experiment
- Tristan Gooley (2010). Natural Navigator. Virgin Book
- Tristan Gooley (2016) How to Read Water: Clues and Patterns from Puddles to the Sea. The Experiment.
- Miranda Bruce-Mitford (2008). Signs and Symbols: An Illustrated Guide to Their Origins and Meanings. DK; Illustrated edition
- Šmitek, Zmago (2019). Šešest divjine: zeleno dno našega kozmosa. Ljubljana : Beletrina
- Pogačnik, Marko (2010). Skrivno življenje Zemlje: celovita šola geomantije. Mengeš : Bird Publisher

Drugi viri:

- [https://www.hachettebookgroup.com/wp-content/uploads/2023/05/HBGImprints\\_Storey\\_PDF\\_Mystical-Stitches-Downloadable.pdf](https://www.hachettebookgroup.com/wp-content/uploads/2023/05/HBGImprints_Storey_PDF_Mystical-Stitches-Downloadable.pdf)

### Cilji in kompetence:

Učna enota prispeva k razvoju naslednjih splošnih in predmetno-specifičnih kompetenc:

Splošne kompetence:

- Raziskovanje, dokumentiranje, analiza in interpretacija razvojnih in oblikovnih konceptov v kontekstih videoiger in razširjenih resničnosti.
- Sposobnost učinkovitega ustvarjanja projektne dokumentacije, shem, diagramov poteka in oblikovnih rešitev, primernih za razvoj in produkcijo videoiger in razširjenih resničnosti.
- Sposobnost interdisciplinarnega povezovanja in nadgradnje znanj iz drugih sorodnih kreativnih področij.

### Objectives and competences:

The instructional unit contributes to the development of the following general and subject-specific competences:

General competences:

- Research, documentation, analysis and interpretation of development and design concepts in the contexts of video games and extended reality.
- Ability to effectively produce project documentation, flowcharts, diagrams and design solutions suitable for the development and production of video games and extended reality.
- Ability to interdisciplinarily integrate and build on knowledge from other related creative fields.

- Poznavanje pomena kakovosti in prizadevanje za kakovost strokovnega dela skozi avtonomnost, samoiniciativnost, (samo)kritičnost, (samo)refleksivnost in (samo) evalviranje.
- Upoštevanje etičnih načel v produkciji videoiger in razširjene resničnosti.
- Sposobnost fleksibilne uporabe znanja v praksi.

*Predmetno-specifične kompetence:*

- Razumevanje temeljnih elementov vzorcev v naravi.
- Razumevanje odnosa med vzorci v naravi in simboli v družbeno-kulturnem okolju z namenom raziskovanja ustvarjalnih načinov modifikacije teh vzorcev za različne namene pri razvoju videoiger in razširjene resničnosti.
- Sposobnost vključevanja prvin naravnih vzorcev in simbolov v idejne, digitalne in virtualne pokrajine.
- Sposobnost aplikacije pridobljenega teoretičnega in praktičnega znanja na lastno delo.
- Sposobnost samostojnega in skupinskega dela pri ustvarjanju vzorcev, sodelovanje pri diskusiji, kot tudi dajanja in sprejemanja konstruktivne kritike.

- Understanding of the importance of quality and striving for quality in professional work through autonomy, self-initiative, (self-)criticality, (self-)reflexivity and (self-)evaluation.
- Compliance with ethical principles in the production of video games and extended reality.
- Ability of flexible usage of knowledge in practice.

Subject-specific competences:

- Understanding the fundamental elements of patterns in nature.
- Understanding the relationship between patterns in nature and symbols in the socio-cultural environment with the aim of exploring creative ways of modifying these patterns for various purposes in video games and extended reality development.
- Ability to incorporate elements of natural patterns and symbols into conceptual, digital and virtual landscapes.
- Ability to apply acquired theoretical and practical knowledge to one's work.
- Ability to work independently and in a group when creating samples, participating in discussions, as well as giving and receiving constructive criticism.

**Predvideni študijski rezultati:**

Znanje in razumevanje:

*Študent/študentka:*

- pridobi znanje o temeljnih vzorcih v naravi, ki so ključni za konceptualni razvoj videoigre in razširjene resničnosti, in o poznejši implementaciji teh vzorcev v produkcijski fazi videoigre in razširjene resničnosti.
- Zna povezati vzorce v naravi s simboli in jih postaviti v kontekst antropomorfnih in zoomorfnih vzorcev vezanih na

**Intended learning outcomes:**

Knowledge and understanding:

*The student:*

- acquires knowledge about the fundamental patterns in nature that are key to the conceptual development of a video game and extended reality, and about the subsequent implementation of these patterns in the production phase of a video game and extended reality.
- can connect patterns in nature with symbols and place them in the context of

<p>kolektivne predstave in zgodbe ter naravne etiološke mite;</p> <ul style="list-style-type: none"> <li>• zna preoblikovati vzorce iz narave v izvorni digitalni arhiv, ki se uporablja za različne namene in različne projekte na področju videoiger in razširjenih resničnosti. To vključuje konceptualno oblikovanje pokrajin in okolij, oblikovanje tekstur za ozadja in objekte v sceni ter oblikovanje likov.</li> <li>• Razvije odgovoren osebni odnos do prostora in narave kot osnova za kritično razmišljanje in kreativno ustvarjanje;</li> <li>• sposobnost interdisciplinarne vzpostavitve dialoga med vzorcem iz narave in vzorcem v digitalnem in virtualnem mediju.</li> <li>• zmožnost samostojne formalizacije vzorcev iz narave v izvorno knjižnico/arhiv digitalnih vzorcev, ki jo je mogoče uporabiti v različnih projektih in nadaljnjih raziskovalnih prizadevanjih.</li> </ul>	<p>anthropomorphic and zoomorphic causes linked to collective representations and stories and natural etiological myths;</p> <ul style="list-style-type: none"> <li>• can transform patterns from nature into original digital archives that can be used for various purposes and projects in the field of video games and extended reality. This includes conceptual design of landscapes and environments, design of textures for backgrounds and objects in the scene, and character design.</li> <li>• develops a responsible personal attitude towards landscapes and nature as a basis for critical thinking and creative creation;</li> <li>• can establish an interdisciplinary dialogue between a pattern from nature and a pattern in a digital and virtual medium.</li> <li>• can independently formalize patterns from nature into an original library/archive of digital patterns that can be used in various projects and further research efforts.</li> </ul>
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### Metode poučevanja in učenja:

Predmet je organiziran kot kombinacija predavanj, in praktičnih vaj. Poučevanje na skupnih predavanjih in posameznih delovnih / individualnih nalogah.

Študentke/študentje bodo morali pripraviti pisne naloge v obliki refleksij, ki združujejo opis in slikovno gradivo ter jih bodo predstavili in zagovarjali sproti na vajah ali vse skupaj na napovedanem roku.

Končni izdelek bo v obliki predložene naloge, ki vključuje oblikovanje lastnih vzorcev in simbolov za digitalni avtorski arhiv, namenjen različnim projektom in nadaljnjim interdisciplinarnim raziskavam.

### Learning and teaching methods:

The course is structured as a combination of lectures, and practical exercises. Teaching in group sessions and individual work/individual assignments.

The students will have to prepare written assignments in a form of reflections combining written text and visual material, which they will present in front of class during exercises or at the determined date.

The final product will be in the form of a submitted assignment, which includes the creation of your own patterns and symbols for a digital copyright archive, intended for various projects and further interdisciplinary research.

### Načini ocenjevanja:

Delež (v %) /

Weight (in %) **Assessment:**

<p>Način (pisni izpit, ustno izpraševanje, naloge, projekt):</p> <p>Študentska dela bodo ocenjena na podlagi predstavitve in izdelave, jasnosti namere, inventivnosti, organiziranosti, individualnega napora in sodelovanja pri pouku.</p> <ul style="list-style-type: none"> <li>• vaje (sprotne naloge in refleksije)</li> <li>• končna naloga</li> </ul>	<p>50</p> <p>50</p>	<p>Type (examination, oral, coursework, project):</p> <p>Student work will be evaluated on presentation and craftsmanship, clarity of intention, inventiveness, organization (deadlines), individual effort, and class participation.</p> <ul style="list-style-type: none"> <li>• exercises (seminar assignments and reflections)</li> <li>• final assignment</li> </ul>
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### Reference nosilca / Lecturer's references:

#### Znanstveno delo

- GOLOB, Tea, MAKAROVIC, Matej, REK, Mateja. Parents' meta-reflexivity benefits media education of children = La meta-reflexividad de los padres beneficia la educación mediática de los niños. *Comunicar*. Jul. 2023, vol. 31, no. 76, str. 95-103
- GOLOB, Tea. Notranji dialog, refleksivnost in odgovorno delovanje mladih. *Phainomena* : [glasilo Fenomenološkega društva v Ljubljani. 2020, [letn.] 29, [št.] 114/115, str. 193-222.
- GOLOB, Tea. Evropska študijska mobilnost kot sodobni obred prehoda. *Glasnik Slovenskega etnološkega društva*. 2017, 57, št. 3/4, str. 75-84.
- GOLOB, Tea. Konstrukcije identitet v luči emergentnosti družbene strukture in posameznikovega zamišljanja družbenosti. *Annales : anali za istrske in mediteranske študije. Series historia et sociologia*. 2015, letn. 25, št. 2, str. 295-304
- GOLOB, Tea. Predstave doma v pripovedih slovenskih in irskih povratnih - transnacionalnih migrantov. *Glasnik Slovenskega etnološkega društva*. [2010, letn. 50, št. 1/2, str. 5-12.
- JOVIC, Milan, ŠUBELJ, Lovro, GOLOB, Tea, MAKAROVIC, Matej, YASSERI, Taha, BOBERIC KRSTICEV, Danijela, ŠKRBIĆ, Srdjan, LEVNAJIC, Zoran. Terrorist attacks sharpen the binary perception of "Us" vs. "Them". *Scientific reports*. 2023, iss. 1, art. no. 12451, str. 1-14,

#### Umetniško delo

- GOLOB, Tea. *Polet večnosti. Zv. 2, Spajanje v enost stvarstva*. Ljubljana: Chiara: Društvo za sožitje človeka, 2022. 108 str., ilustr. ISBN 978-961-7060-78-2.
- GOLOB, Tea. *Dih neskončnosti. Zv. 1, Metamorfoze v Gajinem vesolju*. Ljubljana: Društvo za sožitje človeka, 2021. 80 str., ilustr. ISBN 978-961-93433-9-5.

#### Poljudno delo

- GOLOB, Tea. Spremenjena podoba moškega in ženske v popularni kulturi. *Večer*. [Spletna izd.]. 5. avg. 2017,