

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Osnove risanja z vizualnimi principi 2D in 3D percepcije
Course title:	Fundamentals of Drawing with Visual Principles of 2D and 3D Perception

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	-	Prvi	Prvi
Game and Extended Reality Development, first cycle Professional Study Programme	-	First	First

Vrsta predmeta / Course type

Obvezni / Obligatory

Univerzitetna koda predmeta / University course code:

4-RVRR-VS-ORVP2D3DP-2025-09-19

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

Nosilec predmeta / Lecturer:

Doc. Roberta Pavlovič

Jeziki / Languages:**Predavanja / Lectures:**

Slovenski / Slovenian, Angleški / English

Vaje / Tutorial:

Slovenski / Slovenian, Angleški / English

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

Študent/študentka mora imeti pozitivno ocenjene projektne naloge in seminarje.

Prerequisites:

Students are due to have positively evaluated project assignments and seminars.

Vsebina:

Predmet zagotavlja poglobljeno raziskovanje teoretičnih temeljev in praktičnih izrazov vizualnega zaznavanja. Ta cilj se uresničuje skozi strukturirano serijo diskurzivnih in praktičnih obravnav, ki se osredotočajo na dvodimenzionalne (2D) in tridimenzionalne (3D) elemente,

Content (Syllabus outline):

The course provides a comprehensive exploration of the theoretical foundations and practical manifestations of visual perception. This objective is achieved through a structured series of discursive and practical engagements, focusing on two-dimensional (2D) and three-dimensional (3D) elements, which are systematically evaluated and applied through drawing exercises.

sistematično evalvirane in aplicirane v okviru risarskih vaj.

Predmet sistematično raziskuje oblikovno-funkcionalno preobrazbo elementov v skladu z njihovimi inherentnimi strukturnimi principi. Preučuje, kako se oblika in funkcija elementov spreminjata v odvisnosti od temeljnih strukturnih načel, ter študentom omogoča celostno razumevanje vizualnih principov, tako v teoretičnem kot praktičnem kontekstu. S tem spodbuja dialoški pristop k razumevanju razmerja med osnovnimi vizualnimi elementi (2D in 3D) in njihovim prenosom v sodobna tehnološka, programska in prostorska okolja.

Predmet se osredotoča na ključne dvodimenzionalne (2D) elemente, kot so linija, ploskev, barva in tekstura, ter tridimenzionalne (3D) elemente, vključno s perspektivo, svetlobo, volumnom in maso, obenem pa celovito obravnava vse vizualne prvine, ki so vključene v prostorske dialoge fizičnega in virtualnega 2D ter 3D zaznavanja.

Zasnovan je tako, da usmerja študente k poglobljenemu raziskovanju in integraciji klasičnih načel zaznavanja v kontekst informacijskih medijev in sodobnih tehnologij, pri čemer združuje teoretično razumevanje s praktično aplicirano risarsko prakso.

Teme:

TEORETIČNA IZHODIŠČA IN ŠTUDIJE PRIMEROV

Opomba:

Predmet celovito obravnava teoretične temelje in praktične aplikacije vizualnega zaznavanja skozi strukturirano raziskovanje dvodimenzionalnih (2D) in tridimenzionalnih (3D) vizualnih principov. Z interdisciplinarnim pristopom, ki združuje analitično preučevanje, kategorizacijo in študije

The course systematically investigates the formal-functional transformation of elements in accordance with their inherent structural principles. It examines how the form and function of elements evolve in relation to foundational structural principles, enabling students to develop a comprehensive understanding of visual principles in both theoretical and practical contexts. This approach fosters a dialogic exploration of the relationship between fundamental visual elements (2D and 3D) and their application within contemporary technological, software, and spatial environments.

The course focuses on key two-dimensional (2D) elements, such as line, plane, color, and texture, as well as three-dimensional (3D) elements, including perspective, light, volume, and mass, while holistically addressing all visual components involved in the spatial dialogues of physical and virtual 2D and 3D perception.

Designed to guide students toward in-depth exploration and integration of classical principles of perception within the context of informational media and modern technologies, the course seamlessly combines theoretical insight with applied drawing practice.

Themes:

THEORETICAL FOUNDATIONS AND CASE STUDIES

Note:

The course comprehensively examines the theoretical underpinnings and practical applications of visual perception through a structured exploration of two-dimensional (2D) and three-dimensional (3D) visual principles. Adopting an interdisciplinary approach that integrates analytical study, categorization, and case studies, it guides

primerov, študente usmerja k poglobljenemu razumevanju vizualnih elementov ter njihove vloge v sodobnih tehnoloških in kreativnih vizualnih kontekstih:

- Formalna in slogovna analiza vizualnih elementov: Sistematično preučevanje estetskih in funkcionalnih lastnosti vizualnih prvin.
- Identifikacija, kategorizacija in terminološka opredelitev: Vzpostavitev jasne terminologije za razumevanje in razvrščanje vizualnih elementov.
- Formalizacija izzivov 2D in 3D zaznavanja: Kombinacija teoretičnih izhodišč za obravnavo specifičnih problemov, povezanih z zaznavanjem v dvodimenzionalnih in tridimenzionalnih okoljih.
- Pregled vizualnih načel (2D): Analiza elementov, kot so linija, ploskev, tekstura, vzorec in drugi, ki tvorijo osnovo dvodimenzionalnih kompozicij.
- Študije primerov: Praktična analiza izbranih del, ki ponazarjajo uporabo 2D vizualnih načel;
- Kompozicija I: Oblike pozornosti: Raziskovanje pozornosti, ki temelji na značilnostih, in pozornosti, ki temelji na predmetih, z uporabo teoretičnih in praktičnih primerov.
- Pregled vizualnih načel (3D): Preučevanje volumna, mase in njihovega vpliva na zaznavanje v tridimenzionalnih okoljih.
- Teorija in zaznavanje svetlobe ter barv: Obravnava vpliva svetlobe in barvnih sistemov na percepcijo.
- Barvni sistemi in sheme: Analiza strukturiranih pristopov k uporabi barv v vizualnih kompozicijah.
- Študije primerov: Ilustracija uporabe svetlobe in barv v praktičnih kontekstih.
- Kompozicija II: Odnosi med svetlobo, volumnom in maso: Teoretična

students toward a profound understanding of visual elements and their significance within contemporary technological and creative, visual contexts:

- Formal and Stylistic Analysis of Visual Elements: A systematic investigation of the aesthetic and functional properties of visual components.
- Identification, Categorization, and Terminological Definition: Establishment of a clear terminology to facilitate the understanding and classification of visual elements.
- Formalization of Challenges in 2D and 3D Perception: Integration of theoretical frameworks to address specific issues related to perception in two-dimensional and three-dimensional environments.
- Overview of 2D Visual Principles: Analysis of elements such as line, plane, texture, pattern, and others that form the foundation of two-dimensional compositions.
- Case Studies: Practical analysis of selected works illustrating the application of 2D visual principles;
- Composition I: Forms of Attention: Exploration of attention based on features and object-based attention, employing both theoretical and practical examples.
- Overview of 3D Visual Principles: Examination of volume, mass, and their impact on perception within three-dimensional environments.
- Theory and Perception of Light and Color: Analysis of the influence of light and color systems on visual perception.
- Color Systems and Schemes: Investigation of structured approaches to the use of color in visual compositions.
- Case Studies: Illustration of the application of light and color in practical contexts.

raziskava interakcij med temi elementi in njihova vloga v oblikovanju prostora.

- Perspektiva in osi perspektive (1-2-3): Analiza tehnik perspektive in njihova uporaba v vizualnem oblikovanju.
- Študije primerov: Analiza primerov, ki ponazarjajo odnose med svetlobo, volumnom in maso ter raziskujejo fenomen perspektive.
- Načela zaznavanja: Gestaltni principi: Preučevanje principov, kot so kontinuiteta, smer, vzorec, enotnost, razmerje figura vs. ozadje in načelo zaključka, ki vplivajo na zaznavanje.
- Študije primerov: Praktični primeri za razumevanje gestaltnih principov v vizualnih medijih.
- Kompozicija III: Integracija vizualnih elementov (2D in 3D): Sinteza 2D in 3D elementov v celovita oblikovna načela zaznavanja, prilagojena sodobnim tehnološkimi okoljem.
- Študije primerov: Analiza integracije vizualnih elementov v interaktivnih in kreativnih kontekstih.

Opomba:

Cilj študij primerov je spodbuditi timske analize, poglobljeno razumevanje in celovit vpogled v evolucijski proces vizualnega zaznavanja, ki zajema 2D in 3D načela, od zgodnjih človeških ustvarjalnih praks do sodobnih tehnoloških paradig, s poudarkom na vplivu tehnološkega napredka na razvoj ustvarjalnega izražanja in percepcije.

VAJE RISANJA

Vaje so skrbno usklajene z obravnavanimi teoretičnimi izhodišči: od teme Pregled 2D vizualnih načel do zaključno teme: Kompozicije III: Integracija vizualnih elementov, in so zasnovane za praktično apliciranje znanja.

- Composition II: Relationships Between Light, Volume, and Mass: Theoretical exploration of the interactions among these elements and their role in shaping spatial perception.
- Perspective and Perspective Axes (1-2-3): Analysis of perspective techniques and their application in visual design.
- Case Studies: Analysis of examples that illustrate relationships between light, volume, mass, and explore the phenomenon of perspective.
- Principles of Perception: Gestalt Principles: Study of principles such as continuity, direction, pattern, unity, figure-ground relationships, and the principle of closure, which influence perception.
- Case Studies: Practical examples to deepen understanding of Gestalt principles in visual media.
- Composition III: Integration of Visual Elements (2D and 3D): Synthesis of 2D and 3D elements into cohesive perceptual design principles, tailored to contemporary technological environments.
- Case Studies: Analysis of the integration of visual elements in interactive and creative contexts.

Note:

The objective of the case studies is to foster collaborative analytical inquiry, cultivate a profound understanding, and provide a comprehensive insight into the evolutionary trajectory of visual perception, encompassing both 2D and 3D principles, from early human creative practices to contemporary technological paradigms. Particular emphasis is placed on the transformative impact of technological advancements on the development of creative expression and perceptual frameworks.

DRAWING EXERCISES

Risanje poteka z uporabo analognih pripomočkov (npr. svinčnik, kreda, oglje) in digitalnih orodij v primernih programskih okoljih, kar študentom omogoča razvoj tehničnih veščin in ustvarjalne izraznosti v različnih medijih.

Risarske naloge so zasnovane za izvajanje v individualni in skupinski obliki, kar spodbuja razvoj samostojnih ustvarjalnih veščin ter sodelovalnih pristopov k reševanju problemskih izzivov.

The drawing exercises are meticulously aligned with the theoretical foundations, spanning from the Overview of 2D Visual Principles to the concluding theme of Composition III: Integration of Visual Elements, and are designed to facilitate the practical application of acquired knowledge.

Drawing is conducted using analog tools (e.g., pencil, chalk, charcoal) and digital tools within appropriate software environments, enabling students to develop technical proficiency and creative expressiveness across diverse media.

The exercises are structured for both individual and collaborative execution, promoting the development of independent creative skills as well as cooperative approaches to addressing complex challenges.

Temeljni literatura in viri / Readings:

- Gottwald, D. (editor), Turner-Rahman, G. (editor), Vahdat, V. (editor). (2022) Virtual Interiorities: Senses of Place and Space. Lulu.com.
- Arnheim, R. (2004). Art and Visual Perception: A Psychology of the Creative Eye. University of California Press.
- Kandinsky, W. (2012). Point and Line to Plane. Dover Publication.
- Albers, J. (2013) Interaction of Color, Yale University Press.
- Grau, O- (2004). Virtual Art: From Illusion to Immersion. The MIT Press.
- Fichner – Rathus, L. (2014). Foundation of Art and Design. Cengage Learning.
- Clark, A., Mitchell, G. (2007). Videogames and Art. Intellect Ltd.

Dodatni e-vir:

<https://www.proko.com/course/drawing-basics>

<https://www.proko.com/course/the-perspective-course>

Cilji in kompetence:

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

Splošne kompetence:

- Raziskovanje, dokumentiranje, analiza in interpretacija razvojnih in oblikovnih

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

konceptov v kontekstih videoiger in razširjenih resničnosti;

- Sposobnost interdisciplinarnega povezovanja in nadgradnje znanj iz drugih sorodnih kreativnih področij.
- Sposobnost samostojnega sledenja najnovejšim tehnološkim dosežkom in pridobivanja novih znanj, ki so uporabna v produkciji videoiger in razširjene resničnosti.
- Poznavanje pomena kakovosti in prizadevanje za kakovost strokovnega dela skozi avtonomnost, (samo)iniciativnost, (samo)kritičnost (samo)refleksivnost in (samo)evalviranje

Predmetno-specifične kompetence:

- Prepoznavanje in evalvacija univerzalnih vizualnih principov in elementov ter njihova evalvacija;
- Sposobnost prepoznavanja geštalskih načel ter njihove vizualne, vsebinske in funkcionalne transformacije v kontekstu digitalnih medijev in sodobnih tehnologij;
- Sposobnost prostorske zaznave vizualnih elementov ter njihovega vsebinskega, funkcionalnega in metodološkega »dekodiranja« pogojenega s specifičnostmi fizičnega oz. virtualnega prostora v katerem se nahajajo;
- Sposobnost zaznave podobnosti in razlik med 2D in 3D elementi;
- Sposobnost interdisciplinarnega povezovanja metod in postopkov iz sorodnih vizualnih področij, s pridobljenim temeljnim znanjem v okviru predmeta v skupno celoto.
- Praktična aplikacija risarskih tehnik: Sposobnost uporabe analognih orodij (npr. svinčnik, oglje, kreda) in digitalnih risarskih orodij za ustvarjanje 2D in 3D vizualnih kompozicij, ki odražajo razumevanje teoretičnih principov

design concepts in the contexts of video games and extended reality.

- Ability to interdisciplinarily integrate and build on knowledge from other related creative fields.
- Ability to independently keep up to date with the latest technological developments and gain new skills useful in video game and extended reality production.
- An understanding of the concept of quality and a commitment to achieving it in professional work through the application of autonomy, self-initiative, critical self-reflection, reflexivity and self-evaluation.

Subject-specific competences:

- Identification and evaluation of universal visual principles and elements and their evaluation;
- Ability to recognize gestalt principles and their visual, content and functional transformations in the context of digital media and modern technologies;
- Ability of spatial perception of visual elements and their content, functional and methodological "decoding" conditioned by the specificities of physical/virtual space in which they are located;
- Ability to detect the similarity and diversity of 2D and 3D elements;
- Ability of interdisciplinary integration of methods and procedures of related visual fields, using acquired basic knowledge within the complexity of the subject.
- Practical Application of Drawing Techniques: The proficiency to employ analog tools (e.g., pencil, charcoal, chalk) and digital drawing platforms to create two-dimensional (2D) and three-dimensional (3D) visual compositions that reflect a thorough understanding of

za dokazovanje tehničnega znanja in ustvarjalne natančnosti.

- Razvoj ustvarjalne izraznosti skozi risarske prakse: Zmožnost izvajanja risarskih vaj, ki integrirajo vizualne principe (npr. linija, tekstura, perspektiva) v individualnih in skupinskih projektih, s poudarkom na estetski koherenci in funkcionalni harmoniji za izboljšanje kakovosti vizualnih in interaktivnih rezultatov.

theoretical principles, demonstrating technical expertise and creative precision.

- Development of Creative Expression through Drawing Practices: The ability to execute drawing exercises that effectively integrate visual principles (e.g., line, texture, perspective) within individual and collaborative projects, with a focus on achieving aesthetic coherence and functional harmony to enhance the quality of visual and interactive outcomes.

Predvideni študijski rezultati:

Znanje in razumevanje:

Študent/študentka:

- pridobi poglobljeno znanje o evoluciji vizualnih, funkcionalnih in tehničnih vidikov 2D in 3D elementov, ki sledi njihovem razvoju od zgodovinskih kreativnih praks do sodobnih aplikacij.
- razvije interdisciplinarno usposobljenost za interpretacijo in reinterpretacijo ustvarjalnih konceptov z integracijo 2D in 3D elementov v fizičnih in virtualnih prostorskih kontekstih, kar spodbuja inovativne oblikovalske rešitve.
- pridobi strokovno znanje o raznovrstnih ustvarjalnih postopkih in metodologijah, ki omogočajo integracijo 2D in 3D elementov v virtualnih okoljih, s čimer povečuje prostorsko in estetsko koherenco.
- doseže celovito razumevanje strukture in principov 2D in 3D zaznavanja ter njihovih raznolikih, medsebojno povezanih pojavnih oblik v različnih kreativnih in tehnoloških področjih.
- obvlada uporabo analognih (npr. svinčnik, oglje, kreda) in digitalnih risarskih tehnik za ustvarjanje 2D in 3D vizualnih kompozicij, ki odražajo sposobnost prenašanja teoretičnih vizualnih principov v praktične umetniške rezultate.
- razvije usposobljenost za izvajanje risarskih praks, ki raziskujejo in integrirajo vizualne principe, kot so linija, tekstura,

Intended learning outcomes:

Knowledge and understanding:

The student:

- Acquire in-depth knowledge of the evolution of visual, functional, and technical aspects of 2D and 3D elements, tracing their development from historical creative practices to contemporary applications.
- Develop interdisciplinary proficiency in interpreting and reinterpreting creative concepts through the integration of 2D and 3D elements within physical and virtual spatial contexts, fostering innovative design solutions.
- Gain specialized expertise in a diverse range of creative processes and methodologies that enable the integration of 2D and 3D elements in virtual environments, thereby enhancing spatial and aesthetic coherence.
- Attain a comprehensive understanding of the structure and principles of 2D and 3D perception, as well as their diverse, interconnected manifestations across various creative and technological domains.
- Master the application of analog (e.g., pencil, charcoal, chalk) and digital drawing techniques to create 2D and 3D visual compositions, demonstrating the ability to translate theoretical visual principles into practical artistic outcomes.
- Develop proficiency in executing drawing practices that explore and

perspektiva in volumen, v okviru individualnih in skupinskih projektov, pri čemer zagotavlja estetsko in funkcionalno usklajenost v vizualnem oblikovanju.

integrate visual principles—such as line, texture, perspective, and volume—in individual and collaborative projects, ensuring aesthetic and functional harmony in visual design.

Metode poučevanja in učenja:

Predmet je organiziran kot kombinacija teoretičnih predavanj, katerim bodo sledile analize primerov ter individualne in skupinske vaje.

Študentje individualno delajo na projektni nalogi (v razredu in nato doma) s kreativno uporabo pridobljenega znanja.

Dodatna raziskava je naloga s poudarkom na določenem delu splošne tematike predmeta.

Raziskovanje, medpredmetno povezovanje vsebin, skupinsko in samostojno reševanje problemov, podprto s osebnim in empatičnim pristopom predavatelja, so temeljne metode poučevanja in učenja pri predmetu.

Learning and teaching methods:

The course is organized as a combination of theoretical approach, followed by case studies and individual and group exercises.

Students work individually on project assignment (in-class and followed by work at home) creatively using the acquired knowledge.

Additional research is an assignment that focuses on a specific part of general course topic.

Researching and establishing cross-curricular content references and links, group and independent problem solving supported by personalized and empathetic approach of the lecturer will be taken as the basic methods of teaching and learning in the subject.

Delež (v %) /

Weight (in %)

Assessment:

Načini ocenjevanja:

Način (pisni izpit, ustno izpraševanje, naloge, projekt):	Delež (v %) / Weight (in %)	Type (examination, oral, coursework, project):
<ul style="list-style-type: none"> seminarji (analiza primerov) 	20	<ul style="list-style-type: none"> seminars (case studies)
<ul style="list-style-type: none"> projektne naloge (mape in datoteke z risbami) 	80	<ul style="list-style-type: none"> project assignments (maps and drawing files)

Reference nosilca / Lecturer's references:

PAVLOVIČ Roberta

- Harbour Cities of Rijeka and Dubrovnik – Case Studies of Challenges, Promotion and Re-use of Industrial Heritage // The Sixth International Conference (online) Challenges and Opportunities in the Conservation, Promotion and Adaptive Reuse of the Industrial Heritage, Bukurešt, Rumunjska, 21.09.2023-22.09.2023 (Barišić Marenić, Zrinka; Pavlović, Roberta) <https://www.croris.hr/crosbi/publikacija/prilog-skup/816976>
- Industrial Heritage of Dubrovnik — Unaffirmed Potential of Gruž Bay // Heritage (Basel), 5 (2022), 3; 2332-2369. <https://doi.org/10.3390/heritage5030122>
- Predavanje na simpoziju AA visiting school Mittelmeer Dubrovnik, 5.2.2011. https://www.culturenet.hr/UserDocImages/matea%20att/110125_complete%20information%20-%20arhitektura.pdf
- Članek v zborniku konference SGEM Conferences on Social Sciences and Arts 2014 'Ston Area Matrix in Time Landscape Continuum' (s V. Begović, I. Tutek) str. 971-978. <https://sgemsocial.org/ssgemlib/spip.php?article1074&lang=en>

- „Edukacija: Boje u arhitekturi“, simpozij „Boja u znanosti i umjetnosti“, Tehnički muzej Zagreb, 21.03.2016.
[https://www.mdc.hr/admin/modules/news/ajax/news.aspx?type=item&newsId=85346 &date=21-03-2016&view=list&cbMdc=false&cbMuzeji=false&cbOstaleVijesti=false&cbMrezaMuzeja=false&cbSvi=false&_id=1524268800031](https://www.mdc.hr/admin/modules/news/ajax/news.aspx?type=item&newsId=85346&date=21-03-2016&view=list&cbMdc=false&cbMuzeji=false&cbOstaleVijesti=false&cbMrezaMuzeja=false&cbSvi=false&_id=1524268800031)
- „Edukacija: Boje u arhitekturi – eksterijer“, simpozij „Od bijelog do obojanog“, Tehnički muzej Zagreb, 21.3.2017.
<https://www.grf.unizg.hr/wp-content/uploads/2017/03/Program-DB-2017-1.pdf>
- »Gorenje Split« - adaptacija in nadgradnja, arhitekturna in urbanistična idejna zasnova, glavni in izvedbeni projekt, 2015
- »Metalurški distribucijski center Merkur Kukuljanovo« - arhitekturno-urbanistična idejna zasnova, glavni projektni in izvedbeni projekt, 2013
- 2. »POS Mokošica«, Dubrovnik, arhitekturno-urbanistični javni natečaj, 2002, 2. nagrada
- Kvaternikov trg«, Zagreb (z I. Tutek, I. Vitasović) 1997; arhitekturno-urbanistični javni natečaj; 3. nagrada