

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet: Arhitektura v kontekstu videoiger in razširjene resničnosti
Course title: Architecture 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	Četrta
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-AKVRR-2025-09-19

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
30	-	30	-	-	130	6

Nosilec predmeta / Lecturer: Izr. prof. dr. Ivana Tutek

Jeziki / Languages:
Predavanja / Lectures: slovenski / Slovenian, angleški / English
Vaje / Tutorial: slovenski / Slovenian, angleški / English

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

Študenti predhodno osvojijo vsebine predmeta 3D modeliranje. Študijske obveznosti vključujejo pozitivno ocenjene vaje, skupinske interdisciplinarne analize in predstavitve ter končni projekt.

Prerequisites:

Students first study the content of the course 3D Modeling.

The requirements of the course include positively assessed tutorials, team-based interdisciplinary analyses and presentations, and a final project.

Vsebina:

Arhitektura kot temeljno strukturalno orodje ali ključni izziv pri oblikovanju virtualnih pokrajin ima dolgo zgodovino "sodelovanja" z medijem videoiger. Hiter razvoj digitalnih tehnologij ter posledično razširjenih resničnosti je področje arhitekture in

Content (Syllabus outline):

As a fundamental structural tool or key challenge in the design of virtual landscapes, the architecture has a long history of 'collaboration' with the medium of video games. The rapid development of digital technologies and, consequently, of

videoiger še bolj zbližal ter standardno dojetanje arhitekture spremenil v "izkustveno" arhitekturo virtualnih pokrajin. Cilj predmeta je razširitev in poglobitev znanja o slogovnih, psiholoških in čustvenih lastnostih arhitekturnih interierjev in eksterierjev, ki so prisotni v virtualnem prostoru videoiger kot ravni ali cone. Študenti bodo razvijali lastno in skupinsko ustvarjalno prakso s projekti in primerjalnimi analizami med medijema arhitekture in videoiger z interdisciplinarnim povezovanjem oblikovalskih konceptov z obeh področij.

V zaključnem projektu bodo študenti predstavili svoje raziskovalne metode v obliki ravni ali coni igre iz določenega arhitekturnega sloga ali zgodovinskega obdobja.

Na ta način bo predmet *Arhitektura in videoigre* zagotovil dopolnilno vsebinsko podlago za vizualno in narativno kompleksnejše tridimenzionalne projekte, s katerimi se bodo študenti srečali pri zaključnem predmetu *Razvoj projektov razširjene resničnosti Navidezna in razširjena resničnost* ter pozneje pri *Diplomskem projektu*.

TEME:

- Ključni arhitekturni slogi, zvrsti in tehnike, ki se uporabljajo pri arhitekturnem oblikovanju;
- Vizualni jezik arhitekture;
- Osnovni elementi in načela arhitekturnega oblikovanja ;
- Arhitektura in oblikovanje ravni iger: kako vizualizirati in doživeti arhitekturne zasnove na bolj poglobljen in realističen način;
- Zgodovina arhitekturnih tem pri oblikovanju ravni iger;
- Razumevanje arhitekturnih materialov v fizični in virtualni resničnosti;
- Linearni in nelinearni prostorski modeli;
- Krožni, razvejani in labirintni prostorski modeli;
- Čustveni odziv in motivacija igralcev na različno oblikovane prostore;

extended reality (XR) has brought the fields of architecture and video games even closer together, transforming the standard perception of architecture into an "experiential" architecture of virtual landscapes.

The aim of the course is the expansion and deepening of knowledge about stylistic, psychological and emotional qualities of architectural interiors and exteriors that are present in the virtual space of video games as a level or zone.

Students will develop their own and group creative practice through projects and comparative analyses between the mediums of architecture and video games, with an interdisciplinary integration of design concepts from both fields.

The final project will showcase students' unique research methods in the form of a game level or zone of a specific stylistic period or time.

In this way, the Architecture and Video Games course will provide a complementary substantive basis for the more visually and narratively complex projects that students will encounter in the Extended Reality Project Development course and later in Diploma Project.

TOPICS:

- Key architectural styles, genres and techniques used in architectural design;
- The visual language of architecture;
- The basic elements and principles of architectural design;
- Architecture and game level design: how to visualise and experience architectural designs in a more immersive and realistic way;
- A history of architectural themes in game level design;
- Reality vs. real games: designing games based on real spaces;
- Understanding architectural materials in physical and virtual reality;
- Linear and non-linear spatial models;
- Circular, branching and labyrinthine spatial models;
- Gamer's emotional response and motivation to differently shaped spaces;

- Usklajevanje tehničnih vidikov razširjene resničnosti z ustvarjalnim procesom arhitekturnega oblikovanja;
- Prostorska modularnost v primerjavi z modularnostjo na ravni igre: kako s preprostostjo ustvariti kompleksnost.

- Reconciling the technical aspects of XR with the creative process of architectural design;
- Spatial modularity vs game level modularity: how to create complexity with simplicity.

Temeljni literatura in viri / Readings:

- Aroni,G.(2022). The Semiotics of Architecture in Video Games. Bloomsbury Publishing PLC
- Pearson,L, Sandra Youkhana, S (2022). Videogame Atlas: Mapping Interactive Worlds. Thames & Hudson
- Salmond,M (2021).Video Game Level Design: How to Create Video Games with Emotion, Interaction, and Engagement. Bloomsbury Academic
- Dimopoulos,K. (2020). Virtual Cities: An Atlas & Exploration of Video Game Cities. Countryman Press
- Totten,W.C. (2014) An Architectural Approach to Level Design. A K Peters/CRC Press

Cilji in kompetence:

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

Cilj predmeta *Arhitektura in videoigre* je pripraviti študente na samostojno interdisciplinarno raziskovanje s poudarkom na razvijanju oblikovalskih raziskav s prototipiranjem. S tem ne bodo pridobili le ključnih veščin arhitekturnega raziskovanja z uporabo tehnologij videoiger in razširjenih resničnosti, temveč tudi intelektualno podlago za razvoj lastnih metodologij oblikovalskega raziskovanja v praktičnih predmetih, ki sledijo.

Splošne kompetence:

- Raziskovanje, dokumentiranje, analiza in interpretacija razvojnih in oblikovnih konceptov v kontekstih videoiger in razširjenih resničnosti;
- Sposobnost samostojnega sledenja najnovejšim tehnološkim dosežkom in pridobivanja novih znanj, ki so uporabna v produkciji videoiger in razširjenih resničnosti;

Objectives and competences:

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

The aim of the *Architecture and Video Games* course is to prepare students for independent interdisciplinary research, with a focus on developing design research through prototyping. This will not only provide them with key skills in architectural research using video game and XR technologies, but also the intellectual basis for developing their own design research methodologies in the practical courses that follow.

General competences:

- Researching, documenting, analysing and interpreting the concepts of development and design related to video games and extended reality.
- Ability to independently keep up to date with the latest technological developments and gain new skills useful in video game and extended reality production.

- Usposobljenost za skupinsko delo v vseh fazah razvoja in oblikovanja programske opreme;
- Sposobnost interdisciplinarnega povezovanja in nadgradnje znanj iz drugih sorodnih kreativnih področij.
- Poznavanje pomena kakovosti in prizadevanje za kakovost strokovnega dela skozi avtonomnost, samoiniciativnost, (samo)kritičnost(samo)refleksivnost in (samo) evalviranje.

Predmetno-specifične kompetence:

- Razumevanje temeljnih elementov arhitekturnega izraza v kontekstu razvoja videoiger in razširjenih resničnosti.
- Razumevanje vloge vizualnega stila v arhitekturi pri oblikovanju igralne ravni in njegove interpretacije v virtualnem svetu videoiger in razširjenih okolij.
- Sposobnost vključevanja in nadgradnje izbranega arhitekturnega stila v igralno raven.
- Razumevanje temeljnih počel arhitekture in sposobnost kritične analize različnih videoiger.
- Sposobnost implementacije pridobljenega teoretičnega in praktičnega znanja ~~na lastne in skupinske projekte videoiger~~ v lastnih in skupinskih projektih videoiger
- sposobnost samostojnega in skupinskega dela pri interdisciplinarnih analizah interakcije med arhitekturo, videoigrami in okolij razširjenih resničnosti.

- Ability to work as part of a team in all phases of software development and design.
- Ability to interdisciplinarily integrate and build on knowledge from other related creative fields.
- Understanding of the importance of quality and striving for quality in professional work through autonomy, self-initiative, (self-)criticality, (self-)reflexivity and (self-)evaluation.

Subject-specific competences:

- Understanding the fundamental elements of architectural expression in the context of video game development and extended reality.
- Understanding the role of visual style in architecture in game level design and its interpretation in the virtual world of video games and extended reality.
- Ability to integrate and build upon a chosen architectural style in game levels.
- Understanding of the basic of architecture and the ability to critically analyse different video games.
- Ability to implement ~~the~~ acquired theoretical and practical knowledge in ~~own~~ individual and group videogame projects.
- Ability to work independently and in teams on interdisciplinary analyses of the interaction between architecture, video games and extended reality environments.

Predvideni študijski rezultati:

Znanje in razumevanje:

Študent/študentka:

- pridobi znanje o ključnih značilnostih arhitekturnih gibanj in različnih slogov oblikovanja ter ga uporabi in nadgradi v virtualnem svetu videoiger in razširjene resničnosti;
- zna izraziti pomen arhitekturnih elementov in načel v kontekstu

Intended learning outcomes:

Knowledge and understanding:

The student:

- acquires knowledge of the key features of architectural movements and different design styles and applies and builds on this knowledge in the virtual world of video games and XR;
- can express the importance of architectural elements and principles in

<p>oblikovalske mehanike na ravni videoigre in razširjene resničnosti;</p> <ul style="list-style-type: none"> • razume učinke barv na prostore v videoigrah in čustva igralcev iger; • zna uporabiti načela vizualne harmonije in načela Gestalt pri razvoju virtualnih okolij; • zna izbrati in oblikovati objekte za notranje in zunanje prostore ter jih preoblikovati v rekvizite za videoigre in razširjeno resničnosti; • zna izbrati ustrezne materiale za oblikovanje notranjih in zunanjih prostorov, ob upoštevanju funkcionalnih in estetskih zahtev videoigre; • pozna funkcije arhitekturnega oblikovanja pri načrtovanju oblike, strukture in materialov v procesu oblikovanja ravni videoigre in razširjene resničnosti; • razume tehnične omejitve, ki so značilne za igralno okolje, in izkazuje zmožnost povečanja vizualne verodostojnosti virtualnega okolja s sistematično optimizacijo slogovne konfiguracije predmetov.
--

<p>the context of design mechanics at the game and XR level;</p> <ul style="list-style-type: none"> • understands the effects of colour on spaces in videogames and the emotions of game players; • can apply the principles of visual harmony and Gestalt principles to the development of virtual environments; • can select and design objects for indoor and outdoor spaces and transform them into props for video games; • knows how to select appropriate materials for designing interior and exterior spaces, taking into account the functional and aesthetic requirements of video games; • is familiar with the functions of architectural design in the planning of form, structure and materials in the game level and XR level design process; • understands the technical constraints inherent in the game environment and demonstrates the ability to increase the visual believability of the virtual environment by systematically optimising the stylistic configuration of objects.
--

Metode poučevanja in učenja:

<p>Predmet je organiziran kot kombinacija predavanj, in praktičnih vaj. Poučevanje na skupnih predavanjih in posameznih delovnih / individualnih in timskih nalogah.</p> <p>Študentke/študentje morajo oblikovati zaključni projekt v obliki tridimenzionalnih modelov igralne ravni, modeliranih v treh različnih arhitekturnih obdobjih, s interdisciplinarno analizo vsakega tridimenzionalnega modela posebej.</p>
--

Learning and teaching methods:

<p>The course is structured as a combination of lectures, and practical exercises. Teaching in group sessions and individual work/individual and group assignments.</p> <p>The students are required to produce a final project in the form of three-dimensional models of the game level, modelled in three different architectural periods, with an interdisciplinary analysis of each three-dimensional model separately.</p>
--

Načini ocenjevanja:

<p>Način (pisni izpit, ustno izpraševanje, naloge, projekt): Delo študentov se bo ocenjevalo glede na predstavitev in izdelavo, jasnost namena, iznajdljivost, organizacijo (roki), individualni trud,</p>
--

Delež (v %) /
Weight (in %)

Assessment:

<p>Type (examination, oral, coursework, project): Student work will be evaluated on presentation and craftsmanship, clarity of intention, inventiveness, organization (deadlines), individual</p>

sposobnosti za delo v skupini in sodelovanje v razredu.	30	effort, ability to work in a group, and class participation.
• vaje (sprotne naloge in refleksije)	10	• exercises (seminar assignments and reflections)
• timske interdisciplinarne analize in predstavitve	60	• interdisciplinary team analyses and presentations
• končni projekt		• final assignment

Reference nosilca / Lecturer's references:

UMETNIŠKA IN PROFESIONALNA DELA

- 2018. Koncept, prostorska in likovna postavitve razstave "Ivana Tutek_Prikaz 25 /1992-2017/"; Galerija Modulor, Zagreb, 20.02.-02.03.2018.
- 2016. Exhibition design „Povratak“ – muzeološki vidik kulture spomina, zbirka Baltazara Bogišića, HAZU, Knežev dvor, Cavtat (z P. Šimetin, kustos S. Đivanović
- 2015. HERU Heritage Urbanism: Prostorne i razvojne mogućnosti kulturnog naslijeđa; članek v zborniku: "Kompozicijski dijagrami naslijeđenog urbaniziranog pejzaža Dubrovnika – modeli oblikovanja suvremenog pejzaža" (z V. Begović), str. 84-89
- 2014. Coloured glass painting Assumption / Vitražna slika „Uznesenje“ , rozeta na cerkvi sv. Uznesenja, Koločep
- 2014. SGEM Conference on Arts, Performing Arts, Architecture and Design; članek v zborniku: "Ston Area Matrix in Time Landscape Continuum" (z R. Pavlović, V. Begović), str. 971-978
- 2012. UHA – Udruženje hrvatskih arhitekata : Postavitve razstave "Povratak", zbirka B. Bogišić, HAZU, Cavtat
- 2011. Poljana Square / Trg Poljana, Šibenik (z P. Šimetin, I. Dubovečak, I. Simonović Majcanom; prva nagrada)
- 1994. GIFU International Housing Design Competition, Gifu (z R. Pavlović), arhitekturni natečaj
- 1994. 29. Zagrebački salon arhitekture; Razstavljeni projekti / dve natečajni deli: Shinkenchiku
- Sha 1992. (Muzej za 21. stoletje), Shinkenchiku Sha 1993. (Local memory for living)
- 1992. Shinkenchiku Sha, Museum for 21. Century (z R. Pavlović), arhitekturni natečaj