University of Arts in Belgrade
Interdisciplinary Studies of the University of Arts

DOCTORAL ARTS (DA) STUDIES

DIGITAL ART

Field	Interdisciplinary, multidisciplinary, transdisciplinary (IMT) studies
Type and level of studies	Art Doctoral Studies, Third Degree studies
Extent of studies	180 ECTS
Duration of studies	3 years / 6 semesters
Academic degree	Doctor of Art - Digital Media
Number of students	10
Language	Serbian
Web address	http://www.arts.bg.ac.rs
Head of the study programme	Rastko Ćirić, Mg, full time professor of the Faculty of Applied Arts in Belgrade
Enrolment requirements	Finished Master academic studies in the field of arts. (II degree studies), i.e. 300 ECTS aquired, or related programmes with equivalent programmes and knowledge, as well as other requirements prescribed by the Law on Higher Education, the Statute of the University of Arts and the Regulations on Interdisciplinary Studies.
Goals of the study programme	Doctoral study programme Digital Art focuses on interdisciplinary art research and art theories. After completed doctoral studies and defended doctoral art work, the student is expected to be capable of independent interdisciplinary research in the field of digital arts, to improve individual art practice and deal with specific areas of theoretical-practical work in arts, education, media and culture.

Description of the study programme

Doctoral study programme Digital Art is interdisciplinary art activity aimed at enabling artistic expression through digital technology.
In the time of digital revolution, technology has changed the world around us and opened a new artistic media to artists.

Studies of Digital art enable creative attendees to achieve their artistic goals through work in digital technology. The use of digital video and audio means opens a path to the creation of works of art blending classical techniques with computer animation and digital compositing.

Through lectures, practical work and individual work with a mentor, students gain the highest level of knowledge, as well as abilities and competencies for individual and group artistic work by means of digital technology.

Structure of the study programme

The study programme is realised during three academic years, i.e. six semesters, and ends with the doctoral art project.
The structure of the programme was conceived as mastering individual expressive media in the first year, as well as theory and synthesis of these media in the second year and connecting the selected media into a coherent whole in the final work, the doctoral art project.
The structure of the programme includes mandatory (M) and elective (E) courses that are grouped in the elective courses (ESG). They are all one-semestre courses and have a precisely defined structure.

Purpose of the Study Progamme

The study programme was developed out of the need for studying contemporary art or theory fields that are outside the framework of the standard art and scientific disciplines. The studies deal with researching new artistic and theory practices, putting together lectures from different faculties. The goal of the programme is to enable students to create art projects which base their contents and structure on connecting different artistic (and scientific) disciplines into a compact artistic and theoretical thought.

Study programme Digital Art focuses on interdisciplinary art work and the studies of art practices and theories which enable students to gain higher knowledge needed for an artistic work, as well as for the specific fields of theoretical-practical work in arts, education, media and culture.

The purpose of the Study programme is:

- to advance and improve present individual art practice
- to research and supersede accomplishments from the fields of digital technologies
- to expand horizons and theoretical knowledge
- to promote art in contemporary polydimensional cultural and artistic environment.

Goals of the study programme

The goal of the study programme Digital Art is improving interdisciplinary art practice and acquiring the highest interdisciplinary and comparatively based artistic-research and theoretical knowledge of contemporary arts and media.

General goals of the study programme are:

- developing abilities to research and articulate an interactive relationship between materials, media and practices, or between the creator and the spectator within interdisciplinary art projects;
- developing abilities for critical and analytical approach aimed at understanding proposals and solutions of interdisciplinary art projects;
- gaining and applying knowledge and technical skills in the knowledge of materials, media and procedures characteristic of particular interdisciplinary art fields;
- developing abilities of stating interdisciplinary art work within a critical discourse and contextual frame;
- developing awareness of the need for continuous education and advancement in interdisciplinary fields of art.

Art works which students create during their studies, especially the work done within the final art project - doctoral work - present the culmination of their interdisciplinary dealing with their profession and solid basis for their future dealing with arts, as for their presentation to the wider audience at exhibitions, festivals and other manifestations from the field of arts.
Accepted theoretical knowledge enables graduated students to competitively participate in the academic educational system on different levels, and also individual research in art projects and institutions.

The final goal of mastering different aspects of interdisciplinary creation is to enable graduated students relevant performing on the individual level - art work, opening the possibilities for different kind of positions at the highest educational and cultural institutions and in creative teams on different projects in the field of interdisciplinary work and creation in digital media.

Acquired competencies

By finishing the study programme the student acquires general and course-specific abilities.

General competencies are:

- self-organisation - plans the workload independently and finishes tasks within the deadline; predicts and adapts to changes and is able to work in conditions of vague, uncertain and new situations;
- critical awareness - analyses information and experiences, independently evaluates and models logical arguments through thinking, analysing and evaluating; offers arguments in response to critical judgement;
- interpersonal and social skills - establishes a succesful interactive relationship with others through collaboration, team work and dialogue;
- comunication and presentation skills - clearly and explicitly presents to others his/her own ideas and work in different professional situations;
- informational skills - independently uses informational skllls to find, collect and deal with information from different sources;
- ethical awareness - independent reasoning based on considerations about social and ethical responsibilities

Course-specific competencies are:

- individual artwork in the fields of digital art;
- collaboration on interdisciplinary projects involving digital animation, digital image, digital video, digital sound and interactive multimedia;
- pedagogical and researching work at university level;
- work in researching institutions and institutions of culture;
- collaboration on scientific reseraches on contemporary art and media.

Completing the Programme the student gains the ability to continue his education in postdoctoral studies.

List of courses

1st semester

Theory of Arts and Media1
Digital Animation 1
Digital Image 1
Digital Technology
Digital Video 1
Digital Sound 1
Interactive Multimedia 1

2nd semester

Digital Animation 2
Digital Image 2
Digital Video 2
Digital Sound 2
Interactive Multimedia 2
Poetics of Digital Arts 1

3rd semester

Methods of Art Research 1
Technique of Writing a Theoretical Work
Poetics of Digital Arts 2
Elective A3
Elective B3

4th semester

Methods of Art Research 2
New Theory of Arts / New Media
Elective A4
Elective B4

5th semester

Research and creating of doctoral art project

6th semester

Defense of doctoral art project

Elective Courses

In the 3rd and 4th semester the student attends 2 out of 5 elective courses, put in two groups

Group **A** (the student selects the course with 10 ETCS)

1. Digital Animation 3A and 4A
2. Digital Image 3A and 4A
3. Digital Video 3A and 4A
4. Digital Sound 3A and 4A
5. Interactive Multimedia 3A

Group B (the student selects the course with 5 ETCS)

6. Digital Animation 3B and 4B
7. Digital Image 3B and 4B
8. Digital Video 3B and 4B
9. Digital Sound 3B and 4B
10. Interactive Multimedia 3B and 4B

Curriculum

Course							Year of the study programme
No.	course	status	ECTS	Workload			
				lectures	seminars	other	
1.	Theory of Arts and Media1	mandatory	5	2		0	1/1
2.	Digital Animation 1	mandatory	5	2		3	1/1
3.	Digital Image 1	mandatory	4	1		2	1/1
4.	Digital Technology	mandatory	4	1		0	1/1
5.	Digital Video 1	mandatory	4	1		2	1/1
6.	Digital Sound 1	mandatory	4	1		2	1/1
7.	Interactive Multimedia 1	mandatory	4	1		2	1/1
8.	Digital Animation 2	mandatory	5	2		3	½
9.	Digital Image 2	mandatory	5	1		2	½
10.	Digital Video 2	mandatory	5	1		2	½
11.	Digital Sound 2	mandatory	5	1		2	½
12.	Interactive Multimedia 2	mandatory	5	1		2	½
13.	Poetics of Digital Arts 1	mandatory	5	1		2	½
14.	Methods of Art Research 1	mandatory	5	2		0	2/1
15.	Technique of Writing a Theoretical Work	mandatory	5	2		0	2/1
16.	Poetics of Digital Arts 2	elective	10	1		8	2/1
17.	Elective A3	elective	5	1		4	2/1
18.	Elective B3	mandatory	5	1		1	2/1
19.	Methods of Art Research 2	mandatory	5	2		0	2/2
20.	New Theory of Arts / New Media	mandatory	5	2		2	2/2
21.	Elective A4	elective	12	1		8	2/2
22.	Elective B4	elective	8	1		4	2/2
1.	Research and creating of doctoral art project	mandatory	30	0		20	3/1
2.	Defense of doctoral art project	mandatory	30	0		20	3/2
TOTAL ECTS			180				

Enrolment

Candidates eligible for enrrolment are those who have completed:

1. master academic art studies or master academic studies in the field of architecture, i.e. gained 300 ECTS credits, with an average grade of at least 8.5 and at least grade 9 from the master work

2. basic art studies or basic studies of architecture according to the regulations that were valid before the Law on Higher Education came into force with an average grade of at least 8.5 and at least grade 9 from the diploma work

3. master art studies according to the regulations that were valid before the Law on Higher Education

Exceptionally, candidates who do not meet the requirements regarding the average grade for enrollment in doctoral art studies will be eligible for entrance exam if they have at least five years of successful art practice confirmed in public.

Entrance exam

The entrance exam represents the general assessment of candidates and is taken orally. Candidates must enclose their works of art in relevant areas showing their preference for multimedia research.

For the overall assessment of candidates, the following elements are evaluated: success in previous education, success in the entrance exam and the evaluation of the enclosed works of art. The final total of grades influences the formation of the candidate ranking list. Based on that list, the top 10 candidates are selected for admission to studies.

Grading and student progress

Grading of students is carried out by continuous monitoring of their work and based on credits gained by fulfilling pre-examination obligations and taking exams. The structure of monitoring and grading students' work is modeled in three basic sets of criteria of awarding ECTS credits:

- Criterion 1: regular attendance –10 ECTS, activity in class – 30 ECTS, written work - 30 ECTS, oral exam – 30 ECTS
- Criterion 2: regular attendance –10 ECTS, activity in class - 30 ECTS, oral exam - 60 ECTS
- Criterion 3: regular attendance -10 ECTS, activity in class - 30 ECTS, art research - 50 ECTS, oral exam - 10 ECTS

The grade from each course is formed according to the table of credit-grade ratio in accordance with the Rules of studies at doctoral art studies at the faculties of the University of Arts in Belgrade

For the report on Research and work on the doctoral art project, which is submitted to the mentor at the end of the fifth semester, and which represents the phase in the preparation of the final work, the criteria for evaluation are:

- A written report of 1000 words should answer the following questions related to the applied literature the student used, the direction of the research, and the further direction of the structure and composition of the work
- Through the oral defense of the report on the research and development of the doctoral art project, the student gains 30 ECTS credits.

Description of courses

Course title: THEORY OF ARTS AND MEDIA 1

Professors: Nevena Daković, PhD, Full Professor, Lidija Delić, PhD, Senior Research Associate; Ivana Perković, PhD, Full Professor and Aleksandar Ignjatović, PhD, Associate Arofessor

Status of the course: Mandatory

ECTS:12

Condition: enrolment to the first year of doctoral studies

Goals of the course

The goal of the course is to present different text theories (from formalist to post-structuralist, narrative) and the method of analyzing the text of universal value, regardless of the nature of the text. The text - artistic and media, visual, performing, literary or digital - is set up as a unifying analytical unit of theory of art and media conceived within cultural studies.

Outcomes of the course: Upon completion of the course, the student is expected: to define the structure and character of the text from different theoretical positions; to master the analysis - iconic, narrative, structural, thematic – of various texts; to master the technique of writing a scientific essay; to be capable of verbal problematization etc. The student should build awareness of intertextuality and transmediality and be capable of impartial objective/subjective analysis and comprehensive theorization of the text.

Content of the course: (1) The concept and theories of the text; (2) Structuralism and poststructuralism; (3) deconstruction; (4) Transtextuality and intertextuality; (5) Basic terms of narratology; (6-7) Literary, visual, spatial, performing narration and narrative; (8) Transmedial narrative; (9) Hypertext; (10) Digitextuality; (11-12) Methods of text analysis: iconic, narrative, structural, thematic, stylistic; (13) Discursive analysis of art and media and (14-15) Language – discourse - text (concepts and their relationships) - art and media..

Recommended literature:

1. Alber, Ian; Fludernik Monika. *Postclassical narratology, approaches and analysis.* Columbus Ohaio State UP, 2010.
2. Bal, *Naratologija*, Narodna knjiga, Beograd, 2000M.
3. *A Mikee Bal Reader*, University of Chicago Press, Chicago, 2006.
4. R. Howells, J. Negreiros, *Visual Culture*, Cambridge, 2012.
5. W. Davis, *A General Theory of Visual Culture*, *Princeton, 2011.*
6. *Dolezel, L. Heterokosmika*:Fikcija i moguci svetovi. Beograd: SG, 2008.
7. Ryan, Marie Laure. *Avatars of Story*, Minnesota UP, 2006.
8. Bužinjska, M. P. Markovski, *Književne teorije XX veka*, Službeni glasnik, Beograd, 2009.
9. Riker, *Vreme i priča*, Sremski Karlovci, Izdavačka Knjižarnica Zorana Stojanovića, 1993.
10. Genette, Gérard, *Palimpsestes: Literature in the second degree;* transl. By Channa Newman and Claude Doubinsky, Lincoln, University of Nebraska Press, 1997.
11. Juvan, Marko. *Intertekstaulnost*. Beograd: AK, 2013.
12. Šefer, Žan Mari, *Zašto fikcija*?, Novi Sad, Svetovi, 2001.
13. Paul Ricoeur, *From text to action,* trans. Kathleen Blamey and John B. Thompson. Evanston: Northwestern University Press, 1991 (1986).
14. Arvidson Jens, Mikael Askander et al (ed.)., *Changing Borders. Contemporary Positions in Intermediality*, Lund, Intermedia Studies Press, 2007.
15. Bolter, Jay and Grusin, Richard. (2000) *Remediation: Understanding New Media*, Cambridge: MIT Press

Number of active teaching classes10	Theoretical teaching: 3	Study-research: 7

Teaching methods: Theory lectures, discussions with students and conducting research with selected case studies. Writing and oral defense of seminar work.

Evaluation of knowledge (maximum number of points 100): In order to take an exam, the student hands over the seminar work (5.000 words. Written work is defended orally. Pre-examination obligations carry 30 points (30%) and exams carry 70 points (70%). The evaluation includes: pre-examination obligations - attendance (10) activity during the lectures (20), final examination – written work (50) and oral defense (20).

Course title: DIGITAL ANIMATION 1

Professors: Rastko Ćirić, Professor

Satus of the course: Mandatory

ECTS: 5

Condition: Entrance exam passed

Goals of the course:
The first segment CINEMATICS has a goal to introduce students to knowledge and skills of thinking and creating in the spirit of animation - to set in motion and give life to still pictures or objects, to put them in a certain relation, to understand the mechanics of movement, to develop a sense of timing (duration of a movement), to learn a process and technology of making an animated whole, to obtain the elements of modelling of three/dimensional forms and their further manipulation in animation and to get familiar with the history of animation.
The second course DIGITAL MODELLING has a goal to introduce students to different ways of creating simple virtual forms.

Outcomes of the course:
Finishing the segment of Cinematics, students are enabled to understand and apply different basic sorts of movements from the nature.
After completing the segment of Digital Modelling, students can create 3D models of simple structure.

Content of the course:
CINEMATICS:
1. Introduction (basic notions and terms), 2. Bouncing ball and pendulum, 3. Deformation and anticipation, 4. Flight of a bird, 5. Cycle of two-legged walk 1, 6. Cycle of two-legged walk 2, 7. Cycle of two-legged walk 3, 8. Two'legged run, 9. Cycle of four-legged walk, 10. Cycle of four-legged run, 11. Other different principles of animal locomotion, 12. Cycles in nature, Effects, 13. Vocalisation 1, 14. Vocalisation 2, 15. Edition of all exercises in one piece.
DIGITAL MODELLING
1. Intro into 3D softwares, 2. Hierarchies in 3D software, 3. Keyframe animation - rotations and measures (squash and stretch), 4. Nurbs modelling of lines, 5. Nurbs modelling of shapes. 6. Introduction in polygonal modelling. Quad modelling, 7. Polygonal modelling of a simple character, 8. Polygonal modelling of a given character. Torso, 9. Polygonal modelling of a given character. Head: eyes, lips, ear. 10. UV mapping. 11. Digital sculpturing. 12. Elements of 3D materialisation. 13. Rigging, introduction in skeletal systems. Notion of Set Driven Key. Making and sellecting atributes. 14. Rigging. Making of a simple skeletal system. Making of controls, Character set. 15. Skinning. Skin Bind.

Bibliography
Borivoj Dovniković: ŠKOLA CRTANOG FILMA (FCS-FAA, Belgrade 2007)
Richard Williams: THE ANIMATOR'S SURVIVAL KIT, Faber&Faber, 2001
Preston Blaire: ANIMATION (Walter Foster)
Preston Blaire: ANIMATE FILM CARTOONS (Walter Foster)
Muybridge: HUMAN FIGURE IN MOTION (Dover 0-486-20204-6)
Muybridge: ANIMAL FIGURE IN MOTION (Dover 0-486-20203-8)
Harold Whitaker, John Hallas: TIMING FOR ANIMATION, Focal Press, 1981
Frank Thomas, Ollie Johnston: ILLUSION OF LIFE, Hyperion, 1981
Ranko Munitić: POLA VEKA FILMSKE ANIMACIJE U SRBIJI, Institut za film/Aurora, 1999

Number of active teaching classes				Other classes
Lectures:2	Workshops:	Other forms of teaching:	Study Research: 3	

Teaching methods
Lectures, debates, workshops

Evaluation (optimal number of points 100)

Pre-exam obligations	Points	Final exam	points
Activity during the course and attendance	20	Projection of 12 practical exercizes edited in one film. Technical and artistic aspect.	80

Course title: DIGITAL IMAGE 1

Professors: Ivan Šijak, Associate Professor

Satus of the course: Mandatory

ECTS: 4

Condition: Entrance exam passed

Goals of the course:
The goal of the course is to combine practical and aesthetic approach to creating moving or still Digital images. By combining two or more layers of different origins (digital capture, digital video, scanned samples, computer generated images etc.) the student is introduced to ways of creating Digital images. Getting more elements to construct single image students get basic knowledge in image manipulation techniques.
These techniques include basic manipulation in the sense of perspective, colour and light.
Study of methodology, creative approach, problems and various aspects of creation and capturing moving and still Digital images.

Outcomes of the course:
The outcome of the course - after the lectures and practical work, the student is able to record and compose simple Digital images and a short video form (clips) based on the fundamental principles of perspective, colours and lighting. During the semester students are introduced to the history and contemporary production in the field of Digital images in contemporary digital Art and moving pictures industry.

Content of the course:
1 Conceiving a Digital image, what are pixels, CCD, CMOS and FOVEON technology.
2 Colour theory and colour models in the digital environment.
3 Colour profiles, why do we need them?
4 Devices used to capture Digital images.
5 Applications and ways to manipulate a Digital image.
6 Parameters of Digital images in the software environment. Manipulating colour.
7 Geometric deformation.
8 Perspective and movement.
9 Selective intervention in a Digital image.
10 Leyering.
11 The definition of visual effects.
12 Subcategories of visual effects.
13 Perception.
14 The rhythm and pace in visual effects.
15 Animatic.

Bibliography
The Vision Machine – Paul Virilio
The Complete Guide to Digital Imaging - Everything you need to know to create perfect digital images. By Joël Lacey.
Special Effects: An Oral History - Interviews with 37 Masters Spanning
100 Years by Pascal Pinteau.
Visual Effects in A Digital World: A Comprehensive Glossary of over
7,000 Visual Effects Terms (The Morgan Kaufmann Series in Computer Graphics) by Karen Goulekas.
Digital Domain: The Leading Edge of Visual Effects by Piers Bizony
The Art and Science of Digital Compositing, by Ron Brinkmann
Digital Compositing in Depth by Doug Kelly
"http://www.highend3d.com/" www.highend3d.com forums
Prepared riders in PDF format

Number of active teaching classes				Other classes
Lectures:1	Workshops:	Other forms of teaching:	Study Research: 2	

Teaching methods
Lectures, debates, workshops

Evaluation (optimal number of points 100)

Pre-exam obligations	points	Final exam	points
Activity during the course and attendance	50	Presentation of the storyboard and theory	50

Course title: DIGITAL TECHNOLOGY

Professors: Đorđe Petrović, Associate Professor

Status of the course: Mandatory

ECTS: 4

Condition: Enrolment to the adequate semester of this study programme or similar study programme for students in the exchange programme.

Goals of the course: to introduce students to digital technologies. Owing to the expansion of creative opportunities offered by digital technologies they became the underlying principle of an important extension of visual arts – the digital arts. Therefore, the course should offer an explanation of the basic principles of digital technologies in order to make students aware of the possibilities and limitations of their new artistic tools and equip them with knowledge and skills to use in the most efficient way.

Outcomes of the course: Students develop an understanding of the basics of these new and complex technologies, awareness of the necessity to continue following its latest developments and an ability to understand its characteristics and specificities. They know how to evaluate the appropriatness of some IT tools and contraptions for the realisation of future projects.

Content of the course:
1. Introduction - the concepts of analogue and digital; 2. Light and human sight 3. Generating analogue b/w signals, scanning, resolution, distorsions; 4. Analogue colour signals, primaries, components; 5. Video displays, history and present day achivements; 6. Digital video signals; 7. A/D and D/A conversion and international standardisation; 8. Video compression basics and compression standards; 9. Digital audio signals, conversion standards; 10. Compression of digital audio signals; 11. New video formats – HDTV, 4K, 8K, 3D; 12. Picture sources; 13. Recording and storage; 14. Computer graphics; 15. File based audio and video production.

Bibliography
1. G. Millerson: The Technique of television production, Focal Press, 1999,
2. A. Todorovic, Television Technology Demystified, Elsevier, 2006
3. C. Sandbank ed. Digital Television, J. Wiley and Sons, London
4. John Watkinson, The Art of Digital Video, Focal Press, 2008
5. John Watkinson, The Art of Digital Audio, Elsevier, 2001

Number of active teaching classes				Other classes
Lectures:30	Workshops:	Other forms of teaching:	Study Research: 30	

Teaching methods
Lectures, debates,

Evaluation (optimal number of points 100)

Pre-exam obligations	points	Final exam	points
Activity during the course and attendance	10	Written exam	70
Test	20		-

Course title: DIGITAL VIDEO 1

Professors: Professor Aleksandar Davić, PhD in Arts

Satus of the course: Mandatory

ECTS: 4

Condition: Entrance exam passed

Goals of the course:
Goal of the course Digital Video 1 is to get students acquinted with conventions and creative possibilities of motion pictures and with terminology used in the field. Students should also get acquinted with the role of director, cinematographer and editor in construction of filmic space.

Outcomes of the course:
Students are enabled to understand and use professional terminology, understand conventions and techniques of motion pictures. Students can recognize these techniques in films and videos of other artists and learned to apply that knowledge while preparing storyboards for their projects.

Content of the course:

1. Shot, Frame, Camera angles
2. Depth of field, Lenses
3. Camera movements
4. Motion pictures and movement
5. Construction of film space
6. Line of interest, Axis, 180-degree rule, The Triangle Principle
7. Impersonal Point of View and Subjective Point of View
8. Construction of Space, Opposed Glances
9. Five Basic Variations of the Triangle Principle
10. Continuity
11. Matching the Movement, Overlapping
12. Scene, Sequence, Punctuation
13. Technology of editing
14. Practice of editing
15. Storyboard analysis

Students create storyboards of their projects.

Bibliography

Жак Омон, Ален Бергала, Мишел Мари, Марк Верне, Естетика филма, Београд, Клио, 2006. (стране 15-45)

Michael Rabiger, Directing – Film Techniques and Aesthetics, Focal Press, 2003. (pages 55-66)

Марко Бабац, Језик монтаже покретних слика, Београд, Клио, 2000. (стране 63-86, 57-63, 115-127, 139-167, 185-215,277-301, 239-243)

Денијел Ерицон,Граматика филмског језика, Београд, Универзитет уметности, 1988. (стране 53-74, 522-557)

Number of active teaching classes				Other classes
Lectures:1	Workshops:	Other forms of teaching:	Study Research: 2	

Teaching methods
Lectures, debates, workshops

Evaluation (optimal number of points 100)

Pre-exam obligations	Points	Final exam	points
Activity during the course and attendance	50	Presentation of the storyboard and theory	50

Course title: DIGITAL SOUND 1				
Professors: Đorđe Petrović, Associate Professor				
Satus of the course: Mandatory				
ECTS: 4				
Condition: Enrolment to the adequate semester of this study programme or similar study programme for students in the the exchange programme.				
Goals of the course: to introduce students to aspects of use of sinthesized sound in audio projects. By getting aqainted with various methods of sound synthesis they are encoureged to use sound as an independent medium. Asociating parameters of sound image to parameters of visual image helps in transferring creative ideas from visual to apstract domain of synthesized sound.				
Outcomes of the course: Understanding and mastering the techniques of basic sound synthesis in software synthesizers. The students will be able to create and use synthesized sound in simple multilayer audio projects in MIDI software environment.				
Content of the course: 1.Digital vs. analog sound, 2.MIDI system – events,messages,controllers, 3. Functional model of synthesizer, 4. Subtractive sound synthesis, 5. Additive and FM sound synthesis, 6. “Musical” and “Non-musical” sound synthesis- pitch and noise, 7. Tone envelopes of musical instruments, 8. MIDI sequencer – software CUBASE, 9. Soft synth a1 – oscillator waveforms, 10. sound tembre – VCF, 11. Tone duration and envelope – VCA, 12. Sound animation – pitch, colour and intensity modulation, 13. Sound structures – multiplying and variation, 14. Sound image – layers, contrasts, time, 15. Analysis of students’ works				
Bibliography Introduction to MIDI, 2009 MIDI Manufacturers Association Stenley Alten: Audio in Media, 2008 Wadsworth, Cengage Learning http://www.soundonsound.com/sos/allsynthsecrets.htm , series of articles				
Number of active teaching classes				Other classes
Lectures:15	Workshops:	Other forms of teaching:	Study Research: 30	
Teaching methods Lectures, sound analysis,				
Evaluation (optimal number of points 100)				
Pre-exam obligations	Points	Final exam	points	
Activity during the course and attendance	30	Synthesized sound multitrack project, 2-3 min duration, Technical and artistic aspects	70	
			-	

Course title: INTERACTIVE MULTIMEDIA 1

Professors: Assistant Professor Aleksandra Jovanić, PhD in Arts

Status of the course: Mandatory

ECTS: 4

Condition: Entrance exam passed

Goals of the course:
Acquiring basic knowledge in interactive multimedia, basic knowledge necessary for web coding (HTML and SS) and creating simple (static and interactive) online animations.

Outcomes of the course:
Gained knowledge about creating web content, working knowledge of basic languages for creating web content, overview of Flash tool for creating basic interactive animations. Functional knowledge of HTML and CSS.

Content of the course:

1. Introduction to interactive multimedia.
2. Web coding. Internet as a medium. Overview and anatomy of HTML.
3. Text, images and multimedia.
4. Links, lists, tables.
5. Content and design separation. CSS syntax. Selectors. Element positioning.
6. Text properties. Values, relative and pixel. Positions. Colours. Box model.
7. Project – web site setup. Workshop.
8. Flash overview.
9. Tools for drawing. Symbols and library.
10. Simple and advanced animation creation.
11. Object types. Graphics. Buttons.
12. Movie clips. Instances.
13. Adding actions to buttons.
14. Interactive gallery project. Analysis and workshop.
15. Concepts for exam project.

Bibliography

1. Addison, D. (2006) Web Site Cookbook. O'Reilly, Cambridge, USA.
2. Musciano, C. / Kennedy, B (2004) HTML & XHTML: The Definitive Guide. O'Reilly. Cambridge, USA.
3. Нилсен, Ј (2001) Дизајн функционалних web страна. ЦЕТ. Београд.
4. Gerantabee, F (2010) Flash CS4 Professional Digital Classroom. Wiley.
5. Donnelly, D (2002) In Your Face Too!. Rockport Publishers.
6. Vaughan, T (2010) Multimedia - Making It Work. McGraw-Hill Osborne Media.
7. N. Chapman (2009) Digital Multimedia. Wiley.
8. Cotton, B. Oliver, R. (1997) Understanding Hypermedia 2.000: Multimedia Origins, Internet Futures. Phaidon.

Number of active teaching classes				Other classes
Lectures: 1	Workshops: 3	Other forms of teaching:	Study Research: 2	

Teaching methods
Lectures, debates, workshops

Evaluation (optimal number of points 100)

Pre-exam obligations	Points	Final exam	points
Activity during the course and attendance	10	Final project.	70
Projects executed during semester	20		

Course title: DIGITAL ANIMATION 2

Professors: Rastko Ćirić, Professor

Status of the course: Mandatory

ECTS: 5

Condition: Digital Animation 1

Goals of the course:
Segment 1 - ANIMATION DIRECTING: 1. During the process of creation of a short animated film in duration of 1 minute, students are introduced to the process of making a short animation whole, with the techniques of animation, design of character and background, and learn the elements of animation directing within the treatment of articulation of the animated whole.
Segment 2 - DIGITAL ANIMATING: Students learn how to control moving of dynamic objects which were modelled during the Digital Animation 1 course, applying the principles of living creatures cynematics.

Outcomes of the course:
Segment 1 - Animation Directing: The student is enabled to articulate and realize a short animated whole.
Segment 2 - Digital Animating: After finishing the course and creating exercizes, students learn to move simple modelled fors made within the course of Digital Animation 1, the dynamic digital objects created on the basis of study of cinematics of living creatures, and move them, or make them alive.

Content of the course:
ANIMATION DIRECTING
1. Phases of creation of an animated film - idea for 1 minute film. 2. Dramaturgy for animation 3. Analysis of classical and modern animated film concept. 4. PRACTICAL EXAM 1 - screenplay for 1 minute film. 5. Techniques of the traditional animation 6. Storyboard, Animatic. 7. PRACTICAL EXAM 2 - Storyboard. 8. Design of characters and background. 9- Exposure sheet and fast movements timing. 10. PRACTICAL EXAM 3 - Animatic. 11. Work on film: Key Drawings, Background layout. 12. Work on film: In-betweens, timing. 13. Work on film: Sound, credits. 14. Editing of picture and sound 1. 15. Editing of picture and sound 2.

DIGITAL ANIMATING: 1. Introduction to character animation. 2. Animation of walk cycles. 3. Vocalisation. 4. Facial Rigging - Animation of facial expression. 5. Non-linear animation, character sets, Trax Editor. 6. Camera layout and 3D softwares camera composition. 7. 3D Layout - scenes in 3D software. 8. Elements of rendering. 9. Mental Ray - Antialiasing, GL, Final Gather, Mental ray Shaders, Mia X Pass, SSS, Illumination Shaders, Displacement, Ambient Oclussion. 10. Mental Ray - Render Layers, Render Passes, Contribution Maps- 11. Hardware render. 12. Lighting. 13. Optimisation of rendering. 14. Planninf and organisation of a project. 15. Technical working out of a project

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Maraffi, C. - "Maya Character Creation - Modeling and Animation Controls", New Riders Publishing 2003.
Beckmann, Patricia. & Young, Phil - "Exploring 3D Animation with Maya 6", Thomson Delmar 2004.
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Couch , John S. – »The Artist of the Future Is a Technologist«, Wired Digital, Inc. 1994-99.

Number of active teaching classes				Other classes
Lectures:2	Workshops:	Other forms of teaching:	Study Research: 3	

Teaching methods
Lectures, debates, workshops

Evaluation (optimal number of points 100)

Pre-exam obligations	points	Final exam	points
Activity during the course and attendance	10	Projection of 1 minute film. Technical and artistic aspect.	60
Practical exams	30		

Course title: DIGITAL IMAGE 2

Professors: Ivan Šijak, Associate Professor

Satus of the course: Mandatory

ECTS: 4

Condition: DIGITAL IMAGE 1

Goals of the course:
The goal of the course - analysis and detailed explication of procedures used to record and composite actual digital image from contemporary digital Art imagery or contemporary moving picture industry.
During the preparation of practical work, students gain knowledge about making digital images in which they combine different source materials to create unique complex final image.

Outcomes of the course:
The outcome of the course - after the lectures and practical work performed, the student is able to record and composite more complex Digital images and short video form (clips) based on the fundamental principles of perspective, colours and lighting.

Content of the course:
The terms of size and volume in Digital image.
Relativity size.
Effects and light.
Lighting in the real environment (the still digital camera or a digital movie camera).
Lighting in 2D and 3D environments.
The inclination of the device to capture the image.
Digital compositing, layering of different images.
Generic filters.
Vector mask, alpha channel. Definition and use of masks.
Chroma key, luma key and difference key.
Transforming the speed and time in digital envirovment.
Camera movement and digital tracking of the movement. Aligning two different camera movements.
Interpolation.
Morphing two images.
Time slice.

Bibliography
The Vision Machine – Paul Virilio
Joël Lacey, The Complete Guide to Digital Imaging - Everything you need to know to create perfect digital images
Special Effects: An Oral History - Interviews with 37 Masters Spanning
100 Years by Pascal Pinteau.
Karen Goulekas 7,000 Visual Effects Terms (The Morgan Kaufmann Series in Computer Graphics)
Piers Bizony, Digital Domain: The Leading Edge of Visual Effects
Ron Brinkmann, The Art and Science of Digital Compositing,
Doug Kelly, Digital Compositing in Depth
"http://www.highend3d.com/" www.highend3d.com forums
Prepared riders in PDF format

Number of active teaching classes				Other classes
Lectures:1	Workshops:	Other forms of teaching:	Study Research: 2	

Teaching methods
Lectures, debates, workshops

Evaluation (optimal number of points 100)

Pre-exam obligations	points	Final exam	points
Activity during the course and attendance	50	Presentation of the storyboard and theory	50

Course title: DIGITAL VIDEO 2

Professors: Professor Aleksandar Davić, PhD in Arts

Satus of the course: Mandatory

ECTS: 4

Condition: DIGITAL VIDEO 1

Goals of the course:
The goal of Digital Video 2 is to introduce students to: construction of time in motion pictures, sound segment of motion pictures, basics of dramaturgy in narrative film and practice of editing.

Outcomes of the course:
Students are enabled: to understand specifics of motion pictures, to manipulate time in motion pictures, to creatively use sound, to edit sound and picture for their projects.

Content of the course:

1. Technology of editing
2. Practice of editing
3. Continuity Editing, Parallel Editing, Non-traditional Editing
4. Pace and Rhythm
5. Narration and Editing Process
6. Time and Motion Pictures
7. Ellipsis, Metonymy, Synecdoche
8. Editing Procedures
9. Counterpoint of Image and Sound
10. Diegetic (Source) Music and Non-diegetic Music
11. Sound Effects and Silence
12. Reproduction of Consciousness, Point of View
13. Twenty Basic Rules for Camera Movement
14. Narrative film and Paradigm of a Screenplay
15. Analysis of projects in postproduction

Students complete their short projects.

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Жак Омон, Ален Бергала, Мишел Мари, Марк Верне, Естетика филма, Београд, Клио, 2006. (стране 47-81)

Michael Rabiger, Directing – Film Techniques and Aesthetics, Focal Press, 2003. (стране 47-55)

Марко Бабац, Језик монтаже покретних слика, Београд, Клио, 2000. (стране 243-271, 301-311, 327-384)

Денијел Ерицон, Граматика филмског језика, Београд, Универзитет уметности, 1988. (стране 127-149, 325-436)

Number of active teaching classes				Other classes
Lectures:1	Workshops:	Other forms of teaching:	Study Research: 2	

Teaching methods
Lectures, debates

Evaluation (optimal number of points 100)

Pre-exam obligations	points	Final exam	points
Activity during the course and attendance	50	Projection of completed projects and theory	50

Course title: DIGITAL SOUND 2				
Professors: Đorđe Petrović, Associate Professor				
Satus of the course: Mandatory				
ECTS: 4				
Condition: Digital Sound 1				
Goals of the course: Use of sound as an independent medium as well as part of a digital art project.. Students are introduced to sound sampling and sample manipulation. Basic microphone techniques are explained. Artistic and technical aspects of preparing samples and creating sampler instruments are explained and used in practice.				
Outcomes of the course: Students will master the process of creating digital sound project using real, sampled sound combined with synthesized sound. Also, adopted and applied sound production techniques will make the project complete.				
Content of the course: 1.Tones and noise – periodical and non-periodical sound, 2.Sound spectrum 3. Recording microphone techniques 4.Sourced and transformed sound in an art project 5. Introduction to samplers 6. Recording samples 7. Sample transposition, original pitch 8. Multitimbral sampler instruments 9. Vertical structure of complex sound 10. Horizontal structure of complex sound, 11. Dynamics of sound project, 12. Reverberation – image depth, 13. Combination of real and synthesized sound 14. Mixing a project, 15. Sound for picture				
Bibliography Скрипта: Снимање и продукција звука, мр Ђорђе Петровић Stenley Alten: Audio in Media, 2008 Wadsworth, Cengage Learning Alec Nisbett: Sound studio ,Focal Press; 7 edition (July 7, 2003) http://www.ubu.com/sound/index.html Sound Art works				
Number of active teaching classes				Other classes
Lectures:15	Workshops:	Other forms of teaching:	Study Research: 30	
Teaching methods Lectures, sound analysis,				
Evaluation (optimal number of points 100)				
Pre-exam obligations	points	Final exam	points	
Activity during the course and attendance	30	Sampled sound multitrack project, 2-3 min duration, Technical and artistic aspects	70	
			-	

Course title: INTERACTIVE MULTIMEDIA 2

Professors: Aleksandra Jovanić, PhD in Arts, Assistant Professor

Status of the course: Mandatory

ECTS: 5

Condition: Interactive Multimedia 1

Goals of the course:
Gaining basic knowledge based on concepts, principles and practical interactive multimedia usage. Basic programing knowledge and its creative application.

Outcomes of the course:
Gained knowledge about creating advanced and creative interactive content, with appropriate application of programing skills, creative thinking, interactive projects conception and understanding of up-to-date multimedia techniques.

Content of the course:

16. Introduction to creative programing in interactive multimedia
17. Basic commands.
18. Event and input handling.
19. Data types and flow control (if, else, while).
20. Functions. Random. Math.
21. Media import, images, fonts. Trigonometry.
22. Project – interactive quiz. Workshop.
23. Sprites. Advanced movement. Matrix.
24. XML
25. Collision detection.
26. Interface design. Sound.
27. Exporting project.
28. Libraries – extending basic options.
29. Computer game – project analysis and research in the field.
30. Concepts for exam project.

Bibliography

1. Crawford, C (1984) The Art of Computer Game Design. Mcgraw-Hill Osborne Media.
2. Paul, C. (2003) Digital Art. Thames & Hudson. London. UK.
3. Picot, E. (2009) Play on Meaning? – Computer games as art. The Hyperliterature Exchange and Furtherfield.
4. Salen, K., Zimmerman, E. (2004) Rules of Play: Game Design Fundamentals. The MIT Press.
5. Gary Rosenzweig. “Flash MX Actionscript for Fun&Games“
6. Reas, C., Fry, B. (2010) Getting Started with Processing. O'Reilly Media
7. Reas, C., Fry, B. (2007) Processing: A Programming Handbook for Visual Designers and Artists, MIT Press.

Number of active teaching classes				Other classes
Lectures:1	Workshops: 3	Other forms of teaching:	Study Research: 2	

Teaching methods
Lectures, debates, workshops

Evaluation (optimal number of points 100)

Pre-exam obligations	Points	Final exam	points
Activity during the course and attendance	10	Final project.	70
Projects executed during semester	20		

Course title: POETICS OF DIGITAL ART 1

Professors: Dejan Grba, PhD in Arts, Associate Professor

Status of the course: Mandatory

ECTS: 5

Condition: Enrolment to the 2nd semester of this study programme or an adequate semester at the similar study programme for students in the exchange programme.

Goals of the course: Formal-procedural, conceptual and theoretical understanding of contemporary poetics in digital art.

Outcomes of the course: Students establish a creative and critical approach in the research of the poetic elements of digital art. They acquire skills for creation, contextualization and evaluation of digital art, and develop a platform for critical evaluation and discourse of their own work and the work of others.

Contents of the course:
This course provides a multidisciplinary platform for critical examination of the creative factors in digital art. The term *poetics* denotes the ideational, cognitive, emotional, intuitive, ethical, narrative and contextual qualities that determine the production, presentation and reception of an artwork. Poetics is established through the complex correlation of the artist's experiences, notions, intentions, skills and imagination with the concepts, structures, techniques, procedures, discourses and politics that he/she employs. It is a fundamental, generative and relational property of the artistic process and creativity in general.
The programme in this semester begins with an overview of the conditions and circumstances in the origins of digital culture and digital paradigm, and continues with the historically and methodologically primary areas of digital art.
Lectures: Introductory lecture, Informatic Society and Digital Culture, Digital Imaging and Infographics, Consultations, Digital Animation, Digital Film, Digital Video 1, Digital Video 2, Consultations, Generative Art 1, Generative Art 2, Digital Interactivity 1, Digital Interactivity 2, Consultations.

Bibliography
A detailed bibliography by area: http://dejangrba.dyndns.org/teaching/sr/pda/platform/bibliography-en.pdf.
Ana Botella Diez del Corral (ed.), Feedback: Art Responsive to Instructions, Input or its Environment, Laboral Centro de Arte y Creación Industrial, 2007.
Catherine Elwes, Video Art: A Guided Tour, I.B. Tauris, 2005.
Charlie Gere, Digital Culture, 2nd ed, Reaktion Books, 2008.
Christiane Paul, Digital Art, 2nd ed, Thames & Hudson, 2008.
Doug Hall & Sally Jo Fifer (eds.), Illuminating Video: An Essential Guide to Video Art, Aperture, 1990.
Henry Lowood & Michael Nitsche (eds.), The Machinima Reader, MIT Press, 2011.
Iain Robert Smith (ed.), Cultural Borrowings: Appropriation, Reworking, Transformation, Scope, 2009.
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Jeffrey Shaw & Peter Weibel (eds.), Future Cinema: The Cinematic Imaginary after Film, MIT Press, 2003.
John Maeda, Creative Code: Aesthetics + Computation, Thames & Hudson, 2004.
Jon Ippotito & Joline Blais, At the Edge of Art, Thames & Hudson, 2006.
Lev Manovich, What is Digital Film? in Metamedia, CSU, 2001.
Martin Fuchs & Peter Bichsel, Written Images, Gray Area Foundation for the Arts, Druckerei Dietrich, 2011.
Matthew Fuller (ed.), Software Studies: A Lexicon, MIT Press, 2008.
Michael Rush, New Media in Art, Thames & Hudson, 2005.
Mitchell Whitelaw, Metacreation: Art and Artificial Life, MIT Press, 2004.
Oliver Grau, Virtual Art, MIT Press, 2003. / Oliver Grau, Virtuelna umetnost, Clio, 2008.
Richard Colson, The Fundamentals of Digital Art, Ava Publishing, 2007.
Sean Cubitt, The Cinema Effect, MIT Press, 2004.
Stephen Wilson, Information Arts: Intersections of Art, Science and Technology, MIT Press, 2002.
Stephen Wilson, Art + Science Now, Thames & Hudson, 2010.
Timothy Murray, Digital Baroque: New Media Art and Cinematic Folds, Minnesota U.P., 2008.
V.A., Video Vortex Reader 1 / Video Vortex Reader 2, Institute of Network Cultures, 2008 / 2011.
Wolf Lieser, Digital Art (Art Pocket), hf Ullmann, 2010.

Number of active teaching classes				Other classes
Lectures: 15	Workshops:	Other forms of teaching:	Study Research: 30	

Teaching methods: Lectures and Consultations.

Evaluation (optimal number of points 100)

Pre-exam obligations	points	Final exam	points
Attendance	10	Quality of the Poetic Analysis	40
Class Activity	30	Quality of the Presentation	20

Course title	METHODS OF ART RESEARCH 1			
Professors: Svetozar Rapajić, Professor Emeritus; Čedomir Vasić, Professor Emeritus; Zoran Todorović, PhD, Associate Professor; Srđan Hofman, Professor Emeritus; Berberović Milanka Professor Emeritus				
Status of the course	Mandatory			
ECTS	5			
Condition	/			
Goal of the course Goal of the course is to clarify the concept of artistic research through the analysis of the applied research methods used and the achieved artistic results, and in the context of contemporary art, point out different aspects of the research dimension in creative work and performing disciplines. An interdisciplinary approach - primarily based on phenomena in fine, dramatic, film and applied arts, design and music art – is aimed at broadening students' education and contributing to their better understanding of the discovering aspect of art.				
Outcomes of the course Knowing the methodology of artistic research starting with the idea, through the concept and planning of the process of realization, to the creation of the work. Skills needed for verbal and written analysis and interpretation of applied methods and processes during the creation of the work of art.				
Content of the course The methodology of the artistic research is a one-semester course that includes a cycle of 12 lectures (2 classes per week) and three double classes dedicated to case studies and discussion. The topics of the course are parallelly observed from the perspective of different arts and by artists of different profiles, professors from all four faculties of the University of Arts.				
Literature 1. Веселиновић-Хофман, Мирјана: *Пред музичким делом*, Београд, Завод за издавање уџбеника, 2007 2. Драгићевић-Шешић, Милена: *Уметност и алтернатива*, Београд, ФДУ, 1992. 3. Драгићевић-Шешић, Милена: *Уметност перформанса — сапостојање или прожимање*, у *Зборник радова ФДУ 4,* Београд, ФДУ, 2002. 4. *Ликовне свеске 1-9,* Београд, Универзитет уметности 5. Јовићевић, Александра: *Позориште на прагу новог миленијума: између сећања на авангарду и могућности нове перцепције,* у *Зборник радова ФДУ 4,* Београд, ФДУ, 1997. 6. Мандић, Тијана: *Креативност као судбина,* у *Зборник радова ФДУ 3,* Београд, ФДУ, 1999. 7. Hannula, Mika: *The Responsabiluty and Freedom of Interpretation,* in *Innovations in Art and Desig – New practices, new pedagogies,* London and New Jork, Routledge, 2005. 8. *Универзитет уметности као експериментални простор за уметничке, педагошке и научне иновације (од институционалне ка пројектној логици),* Београд, Универзитет уметности, 2002. 9. Шуваковић, Мишко: *Теорија уметника,* у *Дискурзивна анализа,* Београд, Универзитет уметности, 2006.				
Number of active teaching classes	lectures:2	Other forms of teaching: 0	study research: 0	
Teaching methods	Lectures, consultations			
Knowledge assessment				
	Pre-exam obligations		Final exam	
	Regular attendance	15	Oral exam	70
	Class activity	15		

Course title	TECHNIQUE OF WRITING A THEORETICAL WORK			
Professor: Sonja Marinković, PhD, Full Professor				
Status of the course	Mandatory			
ECTS	5			
Condition	/			
Goal of the course The overall goal of the course is to introduce the participants to the methodology and technique of scientific work in the context of graduate scientific studies in the field of arts science. The specific objectives of the course are to introduce students to the concept and theories on the methodology and technique of scientific work, the basics of scientific research methodology and to learn how apply appropriate methodologies and techniques of scientific work.				
Outcomes of the course Introduction to the basics of the methodology of scientific work and practical mastering of methods and techniques of scientific research. Preparation for seminar work and specialist work.				
Content of the course The technique of writing theoretical and scientific work is a one-semester course that includes a cycle of 15 lectures. It is divided into two basic areas. The first covers theoretical and historical topics, and the second introduces the technique of scientific work. The course is intended for graduates of the Faculty of Art, as well as for other students of humanistic disciplines, most of whom might be interested in postgraduate studies at the University of Art, and who were not introduced to the basics of scientific research, nor had more extensive experience in writing theoretical texts during graduate studies. Lectures and debates on the following topics: The concept of methodology of scientific and theoretical work; The relationship between methods and techniques of scientific research; Theoretical and scientific work at the University of Arts; A review of the history of scientific and theoretical work on art; Scientific research; Types of scientific work and scientific text; Reference apparatus (5); Text structure; The choice of diploma work topic and topic submission. Choice of an exam task.				
Literature Милан Дамњановић, *Проблем експерименталне методе у естетици,* Београд, 1965. Милан Дамњановић, *Место теоријског рада у оквиру Универзитета уметности,* Београд, 1976. Никола Милосављевић, *Основи научноистраживачког* рада, Београд, 1989. Жак Финци, Лео Финци, Руди Финци, *Магистерij и докторска дисертација*, Сарајево, 1992. Мидхат Шамић, Како настаје научно дјело, Сарајево, 1992. Мишко Шуваковић, Статус и функције теорије уметности*, Прологомена за аналитичку естетику*, Нови Сад, 1995. Збирка текстова везана за теме предавања (ред. С. Маринковић)				
Number of active teaching classes	lectures:2	Other forms of teaching: 0	Study research: 0	
Teaching methods	lectures, debates and references			
Knowledge assessment				
	Pre-exam obligations		Final exam	
	Regular attendance	10	Oral exam	30
	colloquium 1	20		
	colloquium 2	20		
	Seminar work	20		

Course title: POETICS OF DIGITAL ART 2

Professors: Dejan Grba, PhD in Arts, Associate Professor

Status of the course: Mandatory

ECTS: 5

Condition: Enrolment to the 3rd semester at this study programme or an adequate semester at the similar study programme for students in the exchange programme.

Goals of the course: Broad and structured insight in the poetics of digital art and its positions within technological, political, cultural and broader social context.

Outcomes of the course: Students create a complex platform of criteria for contemplation, identification, execution and evaluation of their doctoral art projects.

Contents of the course:
This seminar provides a multidisciplinary platform for critical examination of the creative factors in digital art. The term *poetics* denotes the ideational, cognitive, emotional, intuitive, ethical, narrative and contextual qualities that determine the production, presentation and reception of an artwork. Poetics is established through the complex correlation of the artist's experiences, notions, intentions, skills and imagination with the concepts, structures, techniques, procedures, discourses and politics that he/she employs. It is a fundamental, generative and relational property of the artistic process and creativity in general.
In this semester, the programme focuses on the methodologically and technologically more complex and divergent areas of digital art, with broader social and political consequences.
Lectures: Internet Art, Tactical Media 1, Tactical Media 2, Computer Gaming, Consultations, Digital Installation 1, Digital Installation 2, Consultations, Digital Performance 1, Digital Performance 2, BioArt 1, BioArt 2, Digital Architecture, Digital Design, Consultations.

Bibliography
A detailed bibliography by area: http://dejangrba.dyndns.org/teaching/sr/pda/platform/bibliography-en.pdf.
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Alexander Galloway & Eugene Thacker, The Exploit: A Theory of Networks, Minnesota U.P., 2007.
Andy Clarke & Grethe Mitchell, Videogames and Art, Intellect Books, 2007.
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Caroline Jones (ed.), Sensorium: Embodied Experience, Technology, and Contemporary Art, MIT Press, 2006.
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Eduardo Kac (ed.), Signs of Life: Bio Art and Beyond, MIT Press, 2007.
Eugene Thacker, The Global Genome, MIT Press, 2005.
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Johnny Ryan, A History of the Internet and the Digital Future, Reaktion Books, 2010.
Julian Stallabrass, Internet Art: The Online Clash of Culture and Commerce, Tate, 2003.
Lawrence Lessig, Code v2, Basic Books, 2006.
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Matteo Bittanti & Domenico Quaranta (eds.), GameScenes: Art in the Age of Videogames, Johan & Levi Editore (Acc), 2006.
Neil Spiller, Digital Architecture Now: A Global Survey of Emerging Talent, Thames & Hudson, 2009.
Nick Dyer-Witheford & Greig de Peuter, Games of Empire: Global Capitalism and Video Games, Minnesota U.P., 2009.
Peter Manning, Electronic and Computer Music, Oxford U.P., 2004.
Rachel Greene, Internet Art, Thames & Hudson, 2004.

Number of ctive teaching classes				Other classes
Lectures: 15	Workshops:	Other forms of teaching:	Study Research: 30	

Teaching methods: Lectures and Consultations.

Evaluation (optimal number of points 100)

Pre-exam obligations	points	Final exam	points
Attendance	10	Quality of the Poetic Analysis	40
Class Activity	30	Quality of the Presentation	20

Course title: DIGITAL ANIMATION 3A

Professors: Rastko Ćirić, Professor

Status of the course: elective

ECTS: 12

Condition: Digital Animation 2

Goals of the course:
Segment 1 - ANIMATION DIRECTING 2: 1. As this the primary one of the two elected courses in the second year, the student should imagine and perform the preparatory part of his digital animated film, by combining knowledge and experience from this course and other media. It is a complex interdisciplinary work (narration, design, animation, sound)
Segment 2 - DIGITAL ANIMATING 2: Students advance their knowledge of digital animation field within their preparations for the making of more complex animated form, analysing the advanced CGI techniques.
A certain segment of his project will be elaborated in the elected course 3B.

Outcomes of the course:
The student is enabled to learn and experience the preparatory phase of making a complex interdisciplinary project - narrative animated whole in a 3D computer application. The final task is to make a maquette of the film (animatic) in which the film is defined from the directing point of view.

Content of the course:
Segment Animation Directing: The student creates a narrative whole in duration of up to 4 minutes which will be realized with one of the techniques of digital animation. Work on idea, synopsis, screenplay, design of characters and background, making of storyboard, defining the concept of sound and making of animatic (maquette of the film).
1. Idea for a film up to 4 minutes. 2. Synopsis. 3. Dramaturgy. 4. Characters. 5. Background. 6. Practical exam 1: screenplay. 7. Storyboard. 8. Editing. 9. Design of characters and background. 10. Working out the storyboard. 11. Practical exam 2: Storyboard. 12. The sound timeline. 13. The picture timeline. 14. Editing of animatic. 15. Practical exam 3: animatic.
Segment 3D Animation: Advanced techniques of modelling and animating in 3D applications.
1. Introduction into advanced technique od 3D animation 2. Visual effects. 3. 2D visual effects. 4. 3D visual effects. 5. Compositing and the software. 6. Node Based Compositing software. 7. Introduction in dynamic simulations. 8- Particles systems. 9. Particle systems dynamics. 10. Cloth dynamics. 11. Hair dynamics. 12. Fluids and dynamics of fluids. 13. 2D fluids. 14. 3D fluids. 15. Cashing and rendering of dynamic simulations.

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Harold Whitaker, John Hallas: TIMING FOR ANIMATION, Focal Press, 1981
Stan Hayward: SCRIPTWRITING FOR ANIMATION, Focal Press, London & NY, 1977
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Rivlin, Robert - "The Algorithmic Image", Microsoft Press, 1986. ISBN 0-914845-80-2
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Miller, Carolyn Handler - "Digital Storytelling", Focal Press 2004. ISBN 0-240-80510-0
Briere & Hurley - "HDTV for Dummies", Wiley Publishing Inc. 2005. ISBN 0-7645-7586-4
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Bousquet, Michele - "Model, Rig, Animate with 3ds MAX 7", Peachpit Press, 2005. ISBN 0-321-32178-2

Number of active teaching classes				Other classes
Lectures:2	Workshops:	Other forms of teaching:	Study Research: 7	

Teaching methods
Lectures, debates, consultations, practical exams,

Evaluation (optimal number of points 100)

Pre-exam obligations	points	Final exam	points
Activity during the course and attendance	10	Projection of the animatic. Technical and artistic aspect.	60
Practical exams	30		

Course title: DIGITAL ANIMATION 3B

Professors: Rastko Ćirić, Professor

Status of the course: elective

ECTS: 5

Condition: Digital Animation 2

Goals of the course:
Course “B” directly cooperates with the primary “A” course which the student has elected. Depending on the task in the main (A) course (Digital Image, Digital Video, Digital Sound or Interactive Multimedia) the student should conceive and perform the animatic within the segment of the work related to animation.
Students improve their knowledge from the field of digital animation with the focus on advanced CGI techniques.

Outcomes of the course:
The student is enabled to perform a synthesis of animation and the media connected with the primary course with the animatic as a final work. In the phase of animatic the directing aspect of an animated film is completely defined.

Content of the course:
Depending on the contents of the elected segment connected with the course“A”, the student should design a shorter whole which will be a part of the task project of the elected course “A”, and realized in one of the techniques of digital animation.
The work on the project given as a task within the course “A”, with the animatic as a final work.
Examples: animated segments as parts of a video film, animated credits for a video film, animated characters or segments within an interactive presentation, animated visualisation of a digital sound, animated compositing within a digital image etc.

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Delft University of Technology Jaffalaan 9, NL-2628 BX Delft, The Netherlands a.hoeben@io.tudelft.nl, p.j.stappers@io.tudelft.nl

Number of active teaching classes				Other classes
Lectures:1	Workshops:	Other forms of teaching:	Study Research: 4	

Teaching methods
Lectures, debates, consultations

Evaluation (optimal number of points 100)

Pre-exam obligations	points	Final exam	points
Activity during the course and attendance	30	Projection of the project. Technical and artistic aspect.	70

Course title: DIGITAL ANIMATION 4A

Professors: Rastko Ćirić, Professor

Status of the course: elective

ECTS: 12

Condition: Digital Animation 3A

Goals of the course:
Segment 1 - ANIMATION DIRECTING 4: The student should animate, perform the final soundtrack and postproduce personal art animated film which was defined by the animatic (maquette of the film).
Segment 2 - DIGITAL ANIMATING 4: The student keeps improving his knowledge and skills in the field of digital animation and advanced CGI techniques.

Outcomes of the course:
The student is enabled to articulate and realize a complex interdisciplinary project – an animated whole up to 4 minutes in 3D computer applications.

Content of the course:
Segment Animation Directing 4: Realizing the film in one of the 3D animation techniques.
1. Work up of the animatic, 2. Exposure sheet. 3. Final characted modelling. 4. Final characted mapping. 5. Definition of lights. 6. Preparation of sound. 7–10. Animating. 11. Compositing. 12. Editing of picture. 13. Editing of sound. 14. Film credits. 15. Postproduction.
Segment 3D Animation: Final modelling and mapping of the characters and background, preparation of sound, animating the characters, seting up the lights, editing, conpositing and postproduction of picture and sound.
1. Green Screen Compositing. 2. Grading – colour corrections. 3. Filters and design of image. 4. Generating the image and expressions. 5. Compositing of render passes. 6. Introduction into 3D compositing. 7. 3D compositing – 3D layers and 3D objects, lights and renderers in compositing software. 8. 3D compositing – Displacement. 9. 3D compostiting – Particle systems in compositing softwares. 10. 3D compositing – Position pass and volumetric fog, 11. Materialisation and textures in compositing. 12. Camera Projection techniques. 13. Motion Tracking. 14. Match Moving. 15. Elements of stereoscopy and stereoscopic tools

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Number of active teaching classes				Other classes
Lectures:1	Workshops:	Other forms of teaching:	Study Research: 8	

Teaching methods
Lectures, debates, consultations, practical exams,

Evaluation (optimal number of points 100)

Pre-exam obligations	points	Final exam	points
Activity during the course and attendance	30	Projection of up to 4 minute film. Technical and artistic aspect.	70

Course title: DIGITAL ANIMATION 4B

Professors: Rastko Ćirić, Professor

Status of the course: elective

ECTS: 7

Condition: Digital Animation 3B

Goals of the course:
Course “B” directly cooperates with the primary course “A” which the student has elected. Depending on the task in the main (A) course (Digital Image, Digital Video, Digital Sound or Interactive Multimedia) the student should conceive and perform the animatic within the segment of his work related to animation.
Students continue to advance their knowledge from the field of digital animation with an accent on advanced CGI techniques.

Outcomes of the course:
The student is enabled to perform the final and the postproduction phase within the synthesis of animation and and media connected with the primary course.

Content of the course:
Depending on the contents of the elected segment connected with the “A” course, the student should work on animation, sound design, compositing and postproduction of the given sequences within the synthesis of animation and the media connected with the primary course which is being realized with one of the selected digital animation techniques.
The work on the final project given as a task within the “A” course.
Examples: animated segments as parts of a video film, animated credits for a video film, animated characters or segments within an interactive presentation, animated visualisation of a digital sound, animated compositing within a digital image etc.

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Ranko Munitić: AESTETICS OF ANIMATION, FCS-FAA, Belgrade, 2007
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Miller, Carolyn Handler - "Digital Storytelling", Focal Press 2004. ISBN 0-240-80510-0
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Number active teaching classes				Other classes
Lectures:1	Workshops:	Other forms of teaching:	Study Research: 4	

Teaching methods
Lectures, debates, consultations

Evaluation (optimal number of points 100)

Pre-exam obligations	points	Final exam	points
Activity during the course and attendance	30	Projection of the final project. Technical and artistic aspect.	70

Course title	METHODS OF SCIENTIFIC RESEARCH 2			
Professors: Svetozar Rapajić, Professor Emeritus; Čedomir Vasić, Professor Emeritus; Srđan Hofman, Professor Emeritus; Milanka Berberović, Professor Emeritus, Miloš Zatkalik, PhD, Full Professor; Mileta Prodanović, PhD in Arts, Full Professor; Vladimir Perić, Assistant Professor; Milena Dragićević Šešić, Full Professor; Branimir Karanović, Professor Emeritus				
Status of the course	Mandatory			
ECTS	5			
Condition	Passed exam in Methodology of scientific research 1			
Goal of the course Goal of the course is to introduce students who passed the course Methodology of Artistic Research 1 to more detailed aspects of the artistic research through the analysis of the applied research methods and achieved artistic results, and in the context of contemporary art, point out different aspects of the research dimension in creative work and performing disciplines. An interdisciplinary approach - primarily based on phenomena in fine, dramatic, film and applied arts, design and music art – is aimed at broadening students' education and contributing to their better understanding of the discovering aspect of art.				
Outcomes of the course Ability to formulate a proposal for a topic of a doctoral art project and to produce a written explanation that is part of a doctoral art project.				
Content of the course Methodology of scientific research 2 is a one-semester course that includes a cycle of 12 lectures (2 classes a week) and three double classes dedicated to case studies and discussion. The topics of the course are parallelly observed from the perspective of different arts and by artists of different profiles, professors from all four faculties of the University of Arts.				
Literature 1. Veselinović-Hofman, Mirjana: *Pred muzičkim delom*, Beograd, Zavod za izdavanje udžbenika, 2007 2. Dragićević-Šešić, Milena: *Umetnost i alternativa*, Beograd, FDU, 1992. 3. Dragićević-Šešić, Milena: *Umetnost performansa — sapostojanje ili prožimanje*, u *Zbornik Radova FDU 4,* Beograd, FDU, 2002. 4. *Likovne sveske 1-9,* Beograd, Univerzitet umetnosti 5. Jovićević, Aleksandra: *Pozorište na pragu novog milenijuma: između sećanja na avangardu i mogućnoti nove percepcije,* u *Zbornik radova FDU 4,* Beograd, FDU, 1997. 6. Mandić, Tijana: *Kreativnost kao sudbina,* u *Zbornik Radova FDU 3,* Beograd, FDU, 1999. 7. Hannula, Mika: *The Responsabiluty and Freedom of Interpretation,* in *Innovations in Art and Design – New practices, new pedagogies,* London and New Jork, Routledge, 2005. 8. *Univerzitet umetnosti kao eksperimentalni prostor za umetničke, pedagoške i naučne inoviacije (od institucionalne ka projektnoj logici),* Beograd, Univerzitet umetnosti, 2002. 9. Šuvaković, Miško: *Teorija umetnika,* u *Diskurzivna analiza,* Beograd, Univerzitet umetnosti, 2006.				
Number of active teaching classes	lectures:2	Other forms of teaching: 0	Study research: 0	
Teaching methods	Lectures, consultations			
Knowledge assessment				
	Pre-exam obligations		Final exam	
	Regular attendance	15	Written work	
	Activity in class	15	Oral exam	70
	Note: written work has 3000 words and represents an overview of the planned (or applied) research method when creating one's own fictional (or accomplished) artwork			

Course title	NEW THEORY OF ARTS / NEW MEDIA
Professors: Vesna Mikić, PhD, Full Professor	
Status of the course	Mandatory
ECTS	5
Conditions	All passed exams from the 1st year of study

Goal of the course

Goal of the course is that students are introduced to new media theories and the media philosophy, and how to apply new theories and media philosophies to contemporary art practices. The goal is to apply new general media theories to experimental media and technology-oriented artistic practices.

Outcomes of the course

The students are expected to adopt general theoretical-critical assumptions for understanding the functioning of the media today.

Content of the course

Topics of lectures: (1) Context, peculiarities and key concepts of new media and the theory of art - introductory considerations, (2) Postmodernist theories of new media - *Jean-François Lyotard*, (3) Postmodernist theories of new media - Deleuze and *Guattari* -) Postmodern theories of new media - Deleuze and *Guattari* – desiring machine, (5) Theory of *Simulacra* and *Simulation* - *Jean* Baudrillard, (6) The Information Bomb - Paul *Virilio*, (7) Cyborg and metaphoric cyborg transpositions - Donna Haraway, (8) Cyberfeminism, (9) Lev Manovich - metamedia, (10) Mark Hansen - philosophy for new media (11) Virtual reality - Brian Massumi and Marina Gržinić, (12) the theory of new media art - Boris Groys. (13-15) Reading homework and discussions about exam work.

Literature

1. P. Christian, Digital Art, Thames and Hudson, London, 2003.
2. M. Rush, New Media in Late 20th-Century Art, Thames and Hudson, London, 2001.
3. D. Haraway, Simians, Cyborgs, and Women - The Reinvention of Nature, Routledge, New York, London, 1991.
4. Д. Харавеј, "Манифест за киборге – Наука, технологија и социјалистички феминизам осамдесетих година двадесетог века", из Анђелковић, Бранислава (ед.), Увод у феминистичку теорију слике, ЦСУ, Београд, 2002.
5. M. M. N. Hansen, , New Philosophy for New Media, The MIT Press, Cambridge Mass, Cambridge MA, 2004.
6. Л. Манович, Метамедији, избор текстова, ЦСУ, Београд, 2001.
7. A. Bošković (ed), Critical Art Ensemble: Digitalni partizani - Izbor tekstova, CSU, Beograd, 2000.
8. Grands Spectacles – 120 Years of Art and Mass Culture, Museum der Moderne, Salzburg, 2005.
9. B. Massumi, Parables for the Virtual: Movement, Affect, Sensation (Post-Contemporary Interventions), Duke University Press, Durham, 2002.

Number of active teaching classes	lectures:2	Other forms of teaching: 0	Study research: 2	
Teaching methods	Theory lectures, discussions with students and conducting research with selected case studies. Writing and oral defense of seminar work.			
Knowledge assesment	In order to enter an the exam, the student submits the seminar work (2.000 words). Written work is defended orally. The student gets a maximum 100 points based on all obligations. Pre-exam obligations carry 40 points (40%) and the exam carries 60 points (60%). The grade includes:			
	Pre-exam obligations		Final exam	
	Regular attendance	10	written work	50
	Class activity	30	oral exam	10

Course title: DIGITAL IMAGE 3A

Professors: Ivan Šijak, Associate Professor

Satus of the course: elective

ECTS: 10

Condition: Entrance exam passed

Goals of the course:
The goal of course - by combining the knowledge and practice the student is obliged to devise and carry out preparation of his/her own digital artwork, which is a complex multimedia work with Digital images as a primary means of expression. Students improve their knowledge in the field of digital imaging with a focus on the creation of a digital image as an art form.

Outcomes of the course:
The outcome of the course - The process of conceiving and preparing a complex multimedia artwork based on personal concepts, students are trained to start a production of a personal project. Through a series of consultations and presentations of concepts and methods in the realization of the work, students are expected to anticipate the possible outcomes of applied procedures and to fully present the concept and process on the sample. At the end of the semester, the student can fully anticipate all aspects and possible problems in the development of the final work.

Content of the course:
Course content - based on the gained knowledge and practice, in consultation with the professor, the student should conceive Digital art form based on digital image as the primary means of artistic expression.Work on ideas, concepts, shooting, development of the production and postproduction procedures and the concept of the final setting.1 Explication of the concept of the project - discussion.2 Selection of the primary techniques in the project - discussion.3 Implementation of the selected sample and the test procedure of the model.4 The application of the selected techniques and procedures to test the model - discussion.5 Making animatic according to the established concept of work - primarily design.6 Discussion of possible problems in the process of making artwork I.7 Discussion of possible problems in the process of making artwork II.8 Basic Setup " Pipeline " in the framework of a project.9 Testing specific “Pipeline” - discussion.10 Managing tools specific to a particular project.11 Testing tools specific to a particular project I.12 Testing tools specific to a particular project II.13 Testing of artwork in final environment.14 Compression and final presentation of the work - testing - discussions.15 discussions before the final realization of the work.

Bibliography
The Complete Guide to Digital Imaging - Everything you need to know to create perfect digital images. By Joël Lacey. Special Effects: An Oral History - Interviews with 37 Masters Spanning 100 Years by Pascal Pinteau. Visual Effects in A Digital World: A Comprehensive Glossary of over 7,000 Visual Effects Terms (The Morgan Kaufmann Series in Computer Graphics) by Karen Goulekas. Digital Domain: The Leading Edge of Visual Effects by Piers Bizony The Art and Science of Digital Compositing, by Ron Brinkmann Digital Compositing in Depth by Doug Kelly "http://www.highend3d.com/" www.highend3d.com forums Prepared riders in PDF format

Number of active teaching classes				Other classes
Lectures:1	Workshops:	Other forms of teaching:	Study Research: 2	

Teaching methods
Lectures, debates, workshops

Evaluation (optimal number of points 100)			
Pre-exam obligations	points	Final exam	points
Activity during the course and attendance	50	Presentation of the storyboard and theory	50

Course title: DIGITAL IMAGE 3B

Professors: Ivan Šijak, Associate Professor

Satus of the course: elective

ECTS:5

Condition: DIGITAL IMAGE 3A

Goals of the course:
The goal of the course - by combining the knowledge and practice the student is obliged to devise and carry out preparation of his/her own digital artwork, which is a complex multimedia work with Digital images as a primary means of expression. Students improve their knowledge in the field of digital imaging with a focus on the creation of a digital image as an art form.

Outcomes of the course:
The outcome of the course - The process of conceiving and preparing a complex multimedia artwork based on personal concepts, students are trained to start a production of a personal project. Through a series of consultations and presentations of concepts and methods in the realization of the work, students are expected to anticipate the possible outcomes of applied procedures and to fully present the concept and process on the sample. At the end of the semester, the student can fully anticipate all aspects and possible problems in the development of the final work.

Content of the course:
Course content - based on the gained knowledge and practice, in consultation with the professor, the student should conceive Digital art form based on digital image as the primary means of artistic expression.
Work on ideas, concepts, shooting, development of the production and postproduction procedures and the concept of the final setting.
Projects are less demanding than for Digital Image 3A
1 Explication of the concept of the project - discussion.
2 Selection of the primary techniques in the project - discussion.
3 Implementation of the selected sample and the test procedure of the model.
4 The application of the selected techniques and procedures to test the model - discussion.
5 Making animatic according to the established concept of work - primarily design.
6 Discussion of possible problems in the process of making artwork I.
7 Discussion of possible problems in the process of making artwork II.
8 Basic setup "Pipeline" in the framework of a project.
9 Testing specific "Pipeline" - discussion.
10 Managing tools specific to a particular project.
11 Testing tools specific to a particular project I.
12 Testing tools specific to a particular project II.
13 Testing of artwork in final environment.
14 Compression and final presentation of the work - testing - discussions.
15 Discussions before the final realization of the work.

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Prepared riders in PDF format

Number of active teaching classes				Other classes
Lectures:1	Workshops:	Other forms of teaching:	Study Research: 2	

Teaching methods Lectures, debates, workshops

Evaluation (optimal number of points 100)

Pre-exam obligations	points	Final exam	points
Activity during the course and attendance	50	Presentation of the storyboard and theory	50

Course title: **DIGITAL IMAGE 4A**				
Professors: Ivan Šijak, Associate Professor				
Satus of the course: elective				
ECTS:10				
Condition: DIGITAL IMAGE 3A				
Goals of the course: Objectives - The student implements and finalizes his/her work of art with a digital image as the main means of expression.				
Outcomes of the course: The outcome of the course - The student finalizes all phases of creating or shooting the artwork and finalises the post-production and mastering. The student gains the necessary experience in the implementation of complex Digital artwork through the process of creating or shooting and the stage of post-production and final mastering. The final exhibition of artistic work to individual concepts in a particular area, portal or projection of certain characteristics of the final outcome of the work on the course Digital Picture 4.				
Content of the course: Curriculum - The student finalises his/her own arwork in consultation with the professor. Gaining experience in the implementation process, postproduction and presentation of digital artwork.1 - 4 Introduction to the realization of the artwork. 5 - 7 Performing the artwork.8 - 12 Postproduction of the artwork. 12 - 15 Finalization and mastering.				
Bibliography The Complete Guide to Digital Imaging - Everything you need to know to create perfect digital images. By Joël Lacey. Special Effects: An Oral History - Interviews with 37 Masters Spanning 100 Years by Pascal Pinteau. Visual Effects in A Digital World: A Comprehensive Glossary of over 7,000 Visual Effects Terms (The Morgan Kaufmann Series in Computer Graphics) by Karen Goulekas. Digital Domain: The Leading Edge of Visual Effects by Piers Bizony The Art and Science of Digital Compositing, by Ron Brinkmann Digital Compositing in Depth by Doug Kelly "http://www.highend3d.com/" www.highend3d.com forums Prepared riders in PDF format				
Number of classes of active teaching				Other classes
Lectures:1	Workshops:	Other forms of teaching:	Study Research: 2	
Teaching methods Lectures, debates, workshops				
Evaluation (optimal number of points 100)				
Pre-exam obligations	points	Final exam	points	
Activity during the course and attendance	50	Presentation of the storyboard and theory	50	

Course title: DIGITAL IMAGE 4B				
Professors: Ivan Šijak, Associate Professor				
Satus of the course: Elective				
ECTS:5				
Condition: DIGITAL IMAGE 4A				
Goals of the course: Objectives - The student implements and finalizes his/her work of art with a digital image as the main means of expression.				
Outcomes of the course: The outcome of the course - The student finalizes all phases of creating or shooting the artwork and finalises the post-production and mastering. The student gains the necessary experience in the implementation of complex Digital artwork through the process of creating or shooting and the the stage of post-production and final mastering. The final exhibition of artistic work to individual concepts in a particular area, portal or projection of certain characteristics of the final outcome of the work on the course Digital Picture 4.				
Content of the course: Curriculum - The student finalizes his/her own art work in consultation with the professor. Gaining experience in the implementation process, postproduction and presentation of digital artwork. Project is less demanding than for Digital Image 4A 1 - 4 Introduction to the realization of the artwork. 5 - 7 Performing the artwork. 8 - 12 Postproduction of the artwork. 12 - 15 Finalization and mastering.				
Bibliography The Complete Guide to Digital Imaging - Everything you need to know to create perfect digital images. By Joël Lacey. Special Effects: An Oral History - Interviews with 37 Masters Spanning 100 Years by Pascal Pinteau. Visual Effects in A Digital World: A Comprehensive Glossary of over 7,000 Visual Effects Terms (The Morgan Kaufmann Series in Computer Graphics) by Karen Goulekas. Digital Domain: The Leading Edge of Visual Effects by Piers Bizony The Art and Science of Digital Compositing, by Ron Brinkmann Digital Compositing in Depth by Doug Kelly "http://www.highend3d.com/" www.highend3d.com forums Prepared riders in PDF format				
Number of active teaching classes				Other classes
Lectures:1	Workshops:	Other forms of teaching:	Study Research: 2	
Teaching methods Lectures, debates, workshops				
Evaluation (optimal number of points 100)				
Pre-exam obligations		points	Final exam	points
Activity during the course and attendance		50	Presentation of the storyboard and theory	50

Course title: DIGITAL VIDEO 3A

Professors: Professor Aleksandar Davić, PhD in Arts

Satus of the course: Elective

ECTS: 10

Condition: DIGITAL VIDEO 2

Goals of the course:
Goal of Digital Video 3A is to introduce the student to: use of motion pictures in different forms and genres, technological stages of pre-production of motion pictures.

Outcomes of the course:
Students are enabled to understand techniques used in different forms and genres of motion pictures, as well as in multimedia art. Students are enabled to prepare their projects for production.

Content of the course:

1. Project preparation – Theme and Idea
2. Video in multimedia work, video as a part of instalation,video in digital media
3. Project preparation – Research
4. Video in interactive multimedia, Processor Art
5. Project preparation – Synopsis, Screenplay
6. Recorded Performance
7. Project preparation – Choice of collaborators
8. Video used in performance, Closed-circuit television, Live broadcast
9. Project preparation – Storyboard, Shooting script
10. Video and Film in Theatre
11. Project preparation – locations, kostumes, props
12. Dance video, Choreography and Editing
13. Project preparation – Actors and Rehearsals
14. Music video, Music video and Narrative, Visualized Music
15. Project preparation – Shooting procedures

Bibliography

Michael Rabiger, Directing – Film Techniques and Aesthetics, Focal Press, 2003. (pages 253-375)
RoseLee Goldberg, Performance Art, Thames and Hudson, 1999.
Lev Manovich, The Language of New Media, MIT Press, 2001. (pages 6-115)
Susan Hayward, Cinema Studies The Key Concepts, Routledge, 2008. (pages 38-40)

Number of active teaching classes				Other classes
Lectures:1	Workshops:	Other forms of teaching:	Study Research: 8	

Teaching methods
Lectures, debates

Evaluation (optimal number of points 100)

Pre-exam obligations	points	Final exam	points
Activity during the course and attendance	50	Presentation of storyboard and theory	50

Course title: DIGITAL VIDEO 3B

Professors: Professor Aleksandar Davić, PhD in Arts

Satus of the course: Elective

ECTS: 5

Condition: DIGITAL VIDEO 2

Goals of the course:
Goal of Digital Video 3A is to introduce the student to: use of motion pictures in different forms and genres, technological stages of pre-production of motion pictures.

Outcomes of the course:
Students are enabled to understand techniques used in different forms and genres of motion pictures, as well as in multimedia art. Students are enabled to prepare their projects for production.

Content of the course:

1. Project preparation – Theme and Idea
2. Video in multimedia work, video as a part of instalation,video in digital media
3. Project preparation – Research
4. Video in interactive multimedia, Processor Art
5. Project preparation – Synopsis, Screenplay
6. Recorded Performance
7. Project preparation – Choice of collaborators
8. Video used in performance, Closed-circuit television, Live broadcast
9. Project preparation – Storyboard, Shooting script
10. Video and Film in Theatre
11. Project preparation – locations, kostumes, props
12. Dance video, Choreography and Editing
13. Project preparation – Actors and Rehearsals
14. Music video, Music video and Narrative, Visualized Music
15. Project preparation – Shooting procedures

Project is less demanding than for Digital Video 3A

Bibliography
Michael Rabiger, Directing – Film Techniques and Aesthetics, Focal Press, 2003. (pages 253-375)
RoseLee Goldberg, Performance Art, Thames and Hudson, 1999.
Lev Manovich, The Language of New Media, MIT Press, 2001. (pages 6-115)
Susan Hayward, Cinema Studies The Key Concepts, Routledge, 2008. (pages 38-40)

Number of active teaching classes				Other classes
Lectures:1	Workshops:	Other forms of teaching:	Study Research: 4	

Teaching methods
Lectures, debates

Evaluation (optimal number of points 100)

Pre-exam obligations	points	Final exam	points
Activity during the course and attendance	50	Presentation of storyboard and theory	50

Course title: DIGITAL VIDEO 4A

Professors: Professor Aleksandar Davić, PhD in Arts

Satus of the course: Elective

ECTS: 10

Condition: DIGITAL VIDEO 3A

Goals of the course:
Goal of Digital Video 4A is to introduce the student to: the use of motion pictures in different forms and genres, technological stages of production and post-production of motion pictures.

Outcomes of the course:
Students are enabled to understand techniques used in different forms and genres of motion pictures, as well as in multimedia art. Students are enabled to complete their projects.

Content of the course:

1. Musical, Opera and Film
2. Production – Work with actors
3. Commercials, Ellipsis and Narrative
4. Production – Shooting documentary, Interviews
5. Short and Feature Narrative Film
6. Post-production – Editing the picture
7. Documentary, Film essay, Cinema Verite
8. Post-production – Sound Editing
9. Found footage
10. Post-production – Visual effects
11. Experimental film
12. Post-production – Sound Design
13. Video Art
14. Presentation – Festivals, Galleries, Internet
15. Analysis of completed projects or projects in post-production

Bibliography

Michael Rabiger, Directing – Film Techniques and Aesthetics, Focal Press, 2003. (pages 385-562)
Susan Hayward, Cinema Studies The Key Concepts, Routledge, 2008. (pages 262-280, 282-284, 26-28, 31-38, 69-71, 73-75, 82-85, 165-172, 192-203, 76-77, 105-108, 97-98)
Ken Dancyger, Director`s Idea, Focal Press, 2006.

Number of active teaching classes				Other classes
Lectures:1	Workshops:	Other forms of teaching:	Study Research:8	

Teaching methods
Lectures, debates

Evaluation (optimal number of points 100)

Pre-exam obligations	points	Final exam	points
Activity during the course and attendance	50	Projection of completed project	50

Course title: DIGITAL VIDEO 4B

Professors: Professor Aleksandar Davić, PhD in Arts

Satus of the course: Elective

ECTS: 5

Condition: DIGITAL VIDEO 3A

Goals of the course:
Goal of Digital Video 4A is to introduce the student to: the use of motion pictures in different forms and genres, technological stages of production and post-production of motion pictures.

Outcomes of the course:
Students are enabled to understand techniques used in different forms and genres of motion pictures, as well as in multimedia art. Students are enabled to complete their projects.

Content of the course:

1. Musical, Opera and Film
2. Production – Work with actors
3. Commercials, Ellipsis and Narrative
4. Production – Shooting documentary, Interviews
5. Short and Feature Narrative Film
6. Post-production – Editing the picture
7. Documentary, Film essay, Cinema Verite
8. Post-production – Sound Editing
9. Found footage
10. Post-production – Visual effects
11. Experimental film
12. Post-production – Sound Design
13. Video Art
14. Presentation – Festivals, Galleries, Internet
15. Analysis of completed projects or projects in post-production

Project is less demanding than for Digital Video 4A

Bibliography

Michael Rabiger, Directing – Film Techniques and Aesthetics, Focal Press, 2003. (pages 385-562)
Susan Hayward, Cinema Studies The Key Concepts, Routledge, 2008. (pages 262-280, 282-284, 26-28, 31-38, 69-71, 73-75, 82-85, 165-172, 192-203, 76-77, 105-108, 97-98)
Ken Dancyger, Director`s Idea, Focal Press, 2006.

Number of active teaching classes				Other classes
Lectures:1	Workshops:	Other forms of teaching:	Study Research:4	

Teaching methods
Lectures, debates

Evaluation (optimal number of points 100)			
Pre-exam obligations	points	Final exam	points
Activity during the course and attendance	50	Projection of completed project	50

Course title: INTERACTIVE MULTIMEDIA 3A

Professors: Assistant Professor Aleksandra Jovanić, PhD in Arts

Status of the course: Elective

ECTS: 10

Condition: Interactive Multimedia 2

Goals of the course:
Gaining advanced knowledge necessary for creating complex interdisciplinary project, built on previous knowledge in interactive multimedia, mastering complex integration of new technical skills and artistic practices.

Outcomes of the course:
Gained knowledge for creating interactive standalone application. Upgraded programing techniques and getting acquainted with object oriented programing. Advanced usie of design and interactive animation in process of designing modern interface.

Content of the course:

(1-3) Creative combinations of different programing techniques. Development of a few small projects.
(4-7) Object oriented programing.
(8-15) Development of personal project – design and programing .

Bibliography

1. Paul, C. (2003) Digital Art. Thames & Hudson. London. UK.
2. Noble, J. (2012) Programming Interactivity. O'Reilly.
3. Terzidis, K. (2009) Algorithms for Visual Design Using the Processing Language.
4. Reas, C., Fry, B. (2010) Getting Started with Processing. O'Reilly Media
5. Reas, C., Fry, B. (2007) Processing: A Programming Handbook for Visual Designers and Artists, MIT Press.

Number of active teaching classes				Other classes
Lectures:9	Workshops: 1	Other forms of teaching:	Study Research: 8	

Teaching methods
Lectures, debates, workshops

Evaluation (optimal number of points 100)			
Pre-exam obligations	Points	Final exam	points
Activity during the course and attendance	10	Final project.	50
Activities in workshops	10		
Projects executed during semester	30		

Course title: INTERACTIVE MULTIMEDIA 3B

Professors: Assistant Professor Aleksandra Jovanić, PhD in Arts

Status of the course: Elective

ECTS: 5

Condition: Interactive Multimedia 3A

Goals of the course:
"B" course directly cooperates with the primary "A"course which the student has elected. Depending on the task in the (A) course (Digital Animation, Digital Image, Digital Video or Digital Sound) the student applies knowledge of interactive media, either through realization or as a presentation part of that project.

Outcomes of the course:
Depending on the contents of the elected segment connected with the "A" course , the student produces the part of main project, that could vary from implementing interactivity in work to presenting project outcomes in various interactive media.

Content of the course:

(1-3) Creative combinations of different programing techniques. Development of few small project.
(4-7) Object oriented programing.
(8-15) Development of personal project – implementing interactivity, designing and presentation in interactive media.

Bibliography

1. Paul, C. (2003) Digital Art. Thames & Hudson. London. UK.
2. Noble, J. (2012) Programming Interactivity. O'Reilly.
3. Terzidis, K. (2009) Algorithms for Visual Design Using the Processing Language.
4. Reas, C., Fry, B. (2010) Getting Started with Processing. O'Reilly Media
5. Reas, C., Fry, B. (2007) Processing: A Programming Handbook for Visual Designers and Artists, MIT Press.

Number of active teaching classes				Other classes
Lectures:5	Workshops: 1	Other forms of teaching:	Study Research: 4	

Teaching methods
Lectures, debates, workshops

Evaluation (optimal number of points 100)			
Pre-exam obligations	Points	Final exam	points
Activity during the course and attendance	10	Final project.	50
Activities in workshops	10		
Projects executed during semester	30		

Course title: INTERACTIVE MULTIMEDIA 4A

Professors: Assistant Professor Aleksandra Jovanić, PhD in Arts

Status of the course: Elective

ECTS: 12

Condition: Interactive Multimedia 3B

Goals of the course:
Acquiring advanced knowledge based on concepts, principles and practical interactive multimedia usage for production of complex interactive project.

Outcomes of the course:
Complete production of complex interdisciplinary and interactive multimedia project.

Content of the course:

(1-7) Project outline. Initial research. Testing and experimental development. Workshops.
(8-15) Final project development.

Bibliography

1. Paul, C. (2003) Digital Art. Thames & Hudson. London. UK.
2. Noble, J. (2012) Programming Interactivity. O'Reilly.
3. Terzidis, K. (2009) Algorithms for Visual Design Using the Processing Language.
4. Reas, C., Fry, B. (2010) Getting Started with Processing. O'Reilly Media
5. Reas, C., Fry, B. (2007) Processing: A Programming Handbook for Visual Designers and Artists, MIT Press.
6. Igoe, T. (2011) Making Things Talk: Using Sensors, Networks, and Arduino to see, hear, and feel your world. O'Reilly

Number of active teaching classes				Other classes
Lectures:9	Workshops: 1	Other forms of teaching:	Study Research: 8	

Teaching methods
Lectures, debates, workshops

Evaluation (optimal number of points 100)

Pre-exam obligations	Points	Final exam	points
Activity during the course and attendance	10	Final project.	50
Activities in workshops	10		
Projects executed during semester	30		

Course title: INTERACTIVE MULTIMEDIA 4B

Professors: Assistant Professor Aleksandra Jovanić, PhD in Arts

Status of the course: Elective

ECTS: 8

Condition: Interactive Multimedia 4A

Goals of the course:
Courses under "B" directly cooperates with the primary "A" course which the student has elected. Depending on the task in the main (A) course (Digital Animation, Digital Image, Digital Video or Digital Sound) the student applies knowledge of interactive media by creating personal portfolio, consisting of works completed during 3rd and 4th semester.

Outcomes of the course:
Depending on the context of the elected segment connected with the "A" course , the student produces one complex and interactive presentation of works created during this year with the focus on design, function, usability, user experience and quality of user interaction.

Content of the course:

(1-7) Project outline. Initial research. Testing and experimental development. Workshops.
(8-15) Final project development.

Bibliography

1. Paul, C. (2003) Digital Art. Thames & Hudson. London. UK.
2. Noble, J. (2012) Programming Interactivity. O'Reilly.
3. Terzidis, K. (2009) Algorithms for Visual Design Using the Processing Language.
4. Reas, C., Fry, B. (2010) Getting Started with Processing. O'Reilly Media
5. Reas, C., Fry, B. (2007) Processing: A Programming Handbook for Visual Designers and Artists, MIT Press.
6. Igoe, T. (2011) Making Things Talk: Using Sensors, Networks, and Arduino to see, hear, and feel your world. O'Reilly

Number of active teaching classes				Other classes
Lectures:5	Workshops: 1	Other forms of teaching:	Study Research: 4	

Teaching methods
Lectures, debates, workshops

Evaluation (optimal number of points 100)			
Pre-exam obligations	Points	Final exam	points
Activity during the course and attendance	10	Final project.	50
Activities in workshops	10		
Projects executed during semester	30		

Course title: DEFENSE OF DOCTORAL ART PROJECT		
Professors: assigned mentor		
Status of the course: Elective		
ECTS: 30		
Condition: 150 ECTS gained at doctoral studies – adopted mentor's report on completed obligations in the 5th semester. 6th semester of doctoral studies enrolled		
Goal of the course: Creation and public defense of doctoral art project and written work of 200,000 characters (100 pages).		
Outcomes of the course: Completed and demonstrated doctoral art project and public defense of doctoral art project and written work before the Commission for evaluation and defense of doctoral art project. The student is able to create and realize a complex interdisciplinary work of art and to explain it in writing and orally. In addition to artistic work which involves the synthesis of several media, the student is capable of theoretical and pedagogical work at the university level.		
Content of the course: Individual approach and choice of the topic and content. The content of the course consists of practical teaching related to the creation of an interdisciplinary digital artwork. From the basic idea, through the elaboration of the conceptual project, to the realization of the final work, the student works independently consulting with professors during each phase. Creating an interdisciplinary digital work implies the complete realization of at least two media components that influence senses in a different way. Examples: digital animated film, interactive multimedia presentation, internet presentation, video installation, combination of video and animation, combination of static images and sound scenes, digital installations, etc.		
Recommended literature: Relevant literature for the approved doctoral project and written work.		
Number of active teaching classes: 0	lectures: 0	Study research: 20
Teaching methods: Mentor work - oral and written consultations and corrections of artistic doctoral work and written work. Public defense of doctoral art project and written work before the Commission for evaluation and defense of doctoral art project.		
Assessment of knowledge (maximum number of points 100) The student submits a written report (1000 words) on performed researches and artistic realization of work Art project and written work 70 points Oral exam (defense of the project) 30 points		

Course title: RESEARCH AND CREATING OF DOCTORAL ART PROJECT

Professors: assigned mentor

Status of the course: Mandatory

ECTS: 30

Condition: 120 ECTS gained at doctoral studies – 5th semester of doctoral studies enrolled

Goal of the course:
Preparation and introductory part of doctoral art project realized using digital technology based on published artistic research and new artistic practices and techniques, as well as written work of 200,000 characters (100 pages) with mandatory theoretical explication.

Outcome of the course:
Preparation for realization and public presentation of doctoral art project realized in digital technology and preparation of its theoretical explanation in writing that will be defended before the Commission.

Content of the course:
Individual approach and choice of the topic and content. The content of the course consists of practical teaching related to the creation of an interdisciplinary digital artwork. From the basic idea, through the elaboration of the conceptual project, to the realization of the final work, the student works independently consultating with professors during each phase. Creating an interdisciplinary digital work implies the complete realization of at least two media. Examples: digital animated film, interactive multimedia presentation, internet presentation, video installation, combination of video and animation, combination of static images and sound scenes, digital installations, etc.

Recommended literature:
Relevant literature for the approved doctoral project and written work.

Number of active teaching classes: 0	lectures: 0	Study research: 20

Teaching methods:
Mentor work - oral and written consultations and corrections of artistic doctoral work and written work.

Assessment of knowledge (maximum number of points 100)
The student submits a written report (1000 words) on performed researches and artistic realization of work

Art project and written work 70 points
Oral exam (defense of the project) 30 points