AALBORG UNIVERSITET

ArT & Technology Semesterguide 5. Semester 2020

Semester details

Study board: ArT & Technology

Study regulations: BA Study Program in Art & Technology, The Faculty of Humanities, AAU, September 2019:
https://studieordninger.aau.dk/preview?path=/admin/collection/1128/visualizationeducation/87/en-GB/True&ui=en-GB

Semester framework theme

The module introduces the production and creation of narrative artefacts and narrative universes with special emphasis on the integration of interactive narratives and physical stages. The module is supported by theoretical and practical courses and seminars within concept development of narrative installations of various kinds, video editing, scripting, and possibly special ad hoc activities evolving from the production processes of the students. Furthermore, the module seeks to establish collaborative processes and projects with external partners.

Courses
In connection with the module, the following courses will be offered:

- Narratives and Interaction
- Artistic and Academic Methodology V

Other courses may be offered within the following areas:
• Dramaturgy
• Manuscript

Semester organisation and time schedule

The semester is organized around a collaborative performance project: the development of an intermedia performance in collaboration with Trekanten Kulturhus located in Aalborg Øst (www.trekanten.info). ArT 5 students will work collaboratively to adapt Johann Wolfgang von Goethe's *Faust* for a live performance. The groups will be organized according to assigned production roles, and will work together to develop a cohesive, unified performance. Trekanten is a co-producing partner, and students will work with the organization to promote and curate the live performance.

Important Dates

Tuesday 1 September – 9:15-11:30 ArT 5 Semester Start (Classroom)
Thursday September 3rd – 9:15-12 ArT Joint Semester Start (CREATE: TBA)
Tuesday September 7-11 Introductory meetings with Trekanten and Manuscript
Monday, 26 October, 9:15-16h Joint Semester Seminar (Required Participation)
Wednesday 4 November 13-15h KunST Day (CREATE)
6, 7 November ALL DAY – ArTs IT Conference (CREATE)
4 December – Art-Based Research Hand-In
18 December – Semester Project Hand-In
ABR Exam and module 15 Exams will be held in January

Week 46-47: Production Week at Trekanten (Required Participation)*

The dates reserved for Trekanten Residency are November 12-23, 2020. This includes load-in, rehearsals, live performances, and load-out. Exact dates and times TBD.

Dates and times of performance will be determined by the Production Team, but most likely:

Nov 12 - Load-In
Nov 13 - Nov 18 Technical Rehearsals
Nov 19 - Teacher Walk Through (Preview Performance/Dress Rehearsal)
Nov 20-22 - Public Performances
Nov 23 - Load-Out

Report Guidelines
Please use the following template to format your Semester Report.

ABSTRACT

A short paragraph summarizing the main aspects of the investigation---context, problem, results, and insights.

INTRODUCTION

This is where you set the context for your work. What is the big picture? What is the motivation for investigating this area?

PROBLEM STATEMENT

Here you concisely state the problem that you are investigating. You may also present a hypothesis to be supported or rejected through your own experiments.

BACKGROUND (STATE-OF-THE-ART)
Present the state-of-the-art of the given topic/area you are investigating (e.g. intermedia performance, mixed-reality performance, participatory performance, post-dramatic theatre,virtual theatre, cyborg performance, etc). This grounding is important when conducting any type of research, as it demonstrates your knowledge of the field and helps locate your contribution within that field. Clearly identify significant theoretical frameworks and significant art works/performances and how they relate to your research area. Always reference reputable sources (i.e., peer-reviewed journals, books, etc.) and, when possible, primary sources (i.e., the original author of the work).

DESIGN/METHODS

What specific academic and artistic methods are you employing in your study? How will you test your hypotheses, or carry out the research aspects of your project? Identify at least 3 methods (1 artistic, 2 academic) that will form the backbone of your investigation.

IMPLEMENTATION

How was the final work developed and constructed? Include overall system diagrams, floorplans, scenic designs, renderings, illustrations and other supporting evidence of the exhibition. Detail the most important aspects of the implementation and place the rest in the appendix. (For ArT 5, a completed manuscript/playtext should be included in the Appendix). Ideally, a reader should be able to re-create your artwork/performance based on the information in this section.

ANALYSIS

Was your work successful? Support this with qualified analysis using the academic and artistic methods you outline in DESIGN METHODS section. If you made an initial hypothesis, do your observations support or reject it? What were the strengths and limitations of this study/project? Were there results that were inconclusive? What might account for that?

How well did your project help you to realize learning objectives of the Project Module? (It is a good idea to review these). *Where possible, link the outcomes of your project to specific knowledge, skills and competencies outlined in the main project module*.

COLLABORATION

Each group member should provide individual descriptions and self-evaluations of their individual contribution to the production team, and reflect on the collaboration with the external partners. One or two paragraphs per student (should be written in the first person).

FUTURE WORK

If given the opportunity, how would you expand on this work? What new research directions or avenues of exploration have opened up as a result of your project? Is there anything you could have done better? If you were to develop this project further, what would you work on next?

CONCLUSION

This is where you reflect on your individual efforts, and connect back to the broader field of Art and Technology. It is not merely a summary of what you did. Rather, you should succinctly connect all the dots and synthesize new insights here. What can others learn from your work?

REFERENCE LIST

List of references following the APA referencing style. https://www.apastyle.org

Please ensure your report follows APA guidelines for citation and formatting.

APPENDIX
Please include short project video with ArT Title Slide.

Semester coordinator and secretary assistance **Semester coordinator**: Elizabeth Ann Jochum **Secretariat assistance**: Elsebeth Bækgaard

Module description (description of each module)

Module title, ECTS credits Narratives and Interaction (M15) 15 ECTS
Location 5. Semester
Module coordinator Elizabeth Jochum
Type/Method and language Project work in groups English
Learning objectives: The objective of the Module: "Narratives and Interaction" is to introduce the students to problem areas and solutions in relation to the creation of artefacts and projects, in which different forms of structuring of narrative information plays a major role, i.e. interactive storytelling, collaborative narrative projects, hypertexts etc. The module comprises of theoretical and practical courses and seminars within narrativity, (interactive) dramaturgy, understanding and creation of fictional universes, writing of manuscripts and storyboards. During this module, students should acquire: Basic **knowledge** about • central theories within narrativity with special focus on narratives in interactive settings • methods for the creation of narrative installations • central theories within (inter/re-active) dramaturgy and performance design • theories and methods of combining physical and digitally enhanced spaces • artistic and technological strategies within performance design and performative events • manuscripts and storyboards as central creation methods of narrative media installations • artistic and academic methods of collaborations with external partners. **Skills** in

• identifying and formulating an artistic problem and/or theme within the field "Narratives and Interaction" and
developing different artistic concepts and solutions for a chosen problem/theme
• transforming basic knowledge and theories of narrativity and media technology into artistic concepts
• identifying dramaturgical challenges within interactive fiction and performance
• applying and implementing (interactive) dramaturgical models that combine physical and digitally enhanced spaces
• applying technological solutions in regard to interactive narratives and performance design

Competencies in

• conceiving ideas and developing concepts of (interactive) narrative artefacts that combine physical and digital means of expression
• analyzing and constructing narrative artefacts and events that merge virtual and material spaces
• employing a number of digital performance technologies
• analyzing and creating manuscripts and storyboards in regard to inter-/reactive story telling
• contextualizing own artistic solutions (to state-of-art, socio-cultural requisites and consequences, art theoretical and aesthetic dimensions, etc.)
• describing, analyzing, and documenting artistic design solutions on a professional level, and communicating this to external collaborative partners.

Academic content

The module introduces the production and creation of narrative artefacts and narrative universes with special emphasis on the integration of interactive narratives and physical stages. The module is supported by theoretical and practical courses and seminars within concept development of narratives installations of various kinds, video editing, scripting, and possibly special ad hoc activities evolving from the production processes of the students. Furthermore, the module seeks to establish collaborative processes and projects with external partners.

Scope and expected performance

15 ECTS credits. 1 ECTS credit = 27,5 hours of work. 20 ECTS = 412,5 hours of work consisting of preparation for course sessions, course participation, group work, exercises, counselling and exams.

Module activities (course sessions etc.)

The semester theme is Intermedia Performance. Students will collaborate with ArT students will work together to adapt a text for live performance. The semester groups will be organized according to production roles, and will work together to develop a cohesive, unified performance project based on Goethe's play *Faust.*

The live performance will be presented for the public in Trekanten Kulturhus auditorium during Week 47. At the beginning of the semester, students will be assigned roles in a production company. Each student is assigned to a role/team that is responsible for coordinating a specific technical aspect of the production (such as lighting, scenery, costumes, sound design, public relations, or producing/fundraising). This exposure provides students with the opportunity to gain experience in areas that might be new to them while also developing skills necessary for

collaboration - skills essential for future work in the creative industries and applicable to the broader professional world.

Active participation in the development, production team, group work, and performances is required for successful completion of the semester.

Course: Narratives, Dramaturgy, and Media I (M15) Course

Sessions:

5 lessons, 1 practical workshop, 1 live performance + discussion,

10 weekly production meetings

Lesson 1: Introduction to Performance + Narrative (Lecture)

Instructor: E. Jochum

This course introduces students to the narrative for the semester project, and provides a general introduction to theories of performance and its relevance for contemporary art and technology practice.

In addition to Goethe's text, we will also consider other narrative adaptations across media throughout history, such as Christopher Marlowe's *The Tragical History of Doctor Faustus*, Berlioz's opera *The Damnation of Faust* (c. 1846), Gounod's opera *Faust* (1859), Thomas Mann's novel *Doctor Faustus* (1947), Bulgakov's novel *The Master and Margarita* (1967), Friedrich Murnau's film adaptation (1926), Alexander Sokurov's film (2011), Faust: Seven Games of the Soul video game (1999), and other contemporary adaptations such as Punchdrunk Theatre's *Faust* (2006).

Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Faust (Goethe)	539		yes
Performance (M. Carlson) Ch 3	30		yes
The Narrative Imagination (Nussbaum) Introduction	20		yes

Lesson 2: Narratives & Interactive Dramaturgy (Lecture)

Instructor: E. Jochum

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Dramaturgy & Performance (Turner & S. Berhrndt) (2016) Palgrave Introduction & Ch 1	38		yes
On Interactive Storytelling (Crawford) Ch 3	20		yes
Cambridge Intro to Theatre Studies (Balme) Ch 12	40		yes

Lesson 3: Participatory & Immersive Performance (Lecture)

Instructor: E. Jochum

Literature:

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Dramaturgy & Performance (Turner & S. Berhrndt) (2016) Palgrave Ch 7: The Dramaturg & Devising	20		yes
Dramaturgy & Performance (Turner & S. Berhrndt) (2016) Palgrave. Ch. 6 The Production Dramaturg	16		yes
Reframing Immersive Theatre (Frieze)	25		yes

Lesson 4. Post-Dramatic Theatre (Lecture)

Instructor: E. Jochum

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Post Dramatic Theatre (Lehmann)	53		yes
Dramaturgy & Performance (Turner & S. Berhrndt) (2016) Palgrave. Ch. 6 The Production Dramaturg	16		yes

Lesson 5: Performance Art & Mixed Reality Performance (Lecture)

Instructor: E. Jochum

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Intermediality in Theatre & Performance (2006) (Kattenbelt) "Modes of Experience"	30		yes
Performance and New Media (Saltz)	40		
Performing Mixed Reality (Benford & Gianacchi) (2011) Ch 4 The Experience of Mixed Reality: Spectating, Authoring, and Orchestrating	40		yes
Digital Performance (Steve Dixon) (2007) CH. 23 "Performing Interactivity		40	yes
Performance and New Media (Saltz, David)	40		

Lesson 6: Live Performance & Discussion

Instructor: E. Jochum

Students will attend a live performance at Aalborg Theatre or Teater Nordkraft and post-performance discussion, moderated by the instructor and artists from the company.

Lesson 7: Designing for the Theatre (Workshop)
Instructor: E. Jochum with Mia Willett Guest Instructor from Aalborg Teater on Lighting & Scenic Design

Manuscript (1 ECTS)

Lessons 1-4: Basics of Dramatic Writing

Instructor: E. Jochum

Over the course of the one-week workshop, students will work together to adapt and develop the script, which will form the basis of the live performance for the semester project and Main Project Module. All students will be involved in the co-authoring of the dramatic text.

At the end of the weeklong workshop in Manuscript, students will leave with a first draft of a performance text, which will serve as the foundation for the semester project.

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Faust (Goethe)	529		yes
Playwriting (Smiley, S & Bent, N)	40		yes
Poetics (Aristotle)	40		yes
Dramaturgy & Performance (Turner & Behrndt) Ch 5: The Dramaturg and the Playwright	22		yes

Course: Artistic & Academic Methodologies: Participatory Methods (M15) Lesson 1:

Lesson 1: Performing Perception Practice (Lecture + Workshop)
Lecturer: Sandro Masai

This lecture introduces techniques for improvisation and choreography in modern dance and physical theatre. The students will practice the concept of 'thinking through the body', physically working with the dynamics of presence and movement, while reflecting upon the performer-audience interaction.

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Dalsgaard, P. and Hansen, L. K. (2008). *Performing Perception – Staging Aesthetics of Interaction*.	33		Yes
			Yes

Lesson 2: Performing Perception Practice – Part 2 (Lecture + Workshop) Lecturer: Sandro Masai

This lecture introduces techniques for improvisation and choreography in modern dance and physical theatre. The students will practice the concept of 'thinking through the body', physically working with the dynamics of presence and movement, while reflecting upon the performer-audience interaction.

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Research Methods in Theatre and Performance (2011) Baz Kershaw, Helen Nicholsen – CH. 9 Researching the Body As/In Performance and	26		Yes
"Audience Agency in Participatory Performance" (2015), Astrid Breel, *Participations: Journal of Audience and Receptions Studies*	20		Yes

Lesson 3: Performance Design – Devised and Performed – Part 1 (Lecture + Workshop)
Lecturer: Sandro Masai

Design Methods applied to Performance Art. "What? (strategy) Why? (vision) How? (tactics)" Practical exercises (project communication within the groups and external partners – moodboards, sketches and graphics) and group discussions.

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
David Benyon (2014). *Designing Interactive Systems – A Comprehensive Guideto HCI, UX and Interaction Design.* Harlow, UK: Pearson	5		Yes
Koskinen, I., Zimmerman, J., Binder, T., Redstrom, J., Wensveen, S., (2011). *Design Research Through Practice: From the Lab, Field and Showroom.* Waltham, MA, USA: Morgan Kaufmann.		whole book	Yes

Lesson 4: Performance Design – Devised and Performed – Part 2 (Lecture + Workshop)
Lecturer: Sandro Masai

Design Methods applied to Performance Art.: "What? (strategy) Why? (vision) How? (tactics)" Practical exercises (project communication within the groups and external partners – moodboards, sketches and graphics) and group discussions.

Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
David Benyon (2014). *Designing Interactive Systems – A Comprehensive Guideto HCI, UX and Interaction Design.* Harlow, UK: Pearson	5		Yes
Koskinen, I., Zimmerman, J., Binder, T., Redstrom, J., Wensveen, S., (2011). *Design Research Through Practice: From the Lab, Field and Showroom.* Waltham, MA, USA: Morgan Kaufmann.		whole book	Yes

Examination

Oral exam based on a project
The examination will take the form of a conversation between the student, the examiner and another internal
examiner on the basis of the project report prepared by the student(s), which may be in the form of a report or portfolio as well as the product created by the student. The project exam will also address other content from the module courses.

Form of examination: b)

Number of pages: the written work must not exceed 10 pages per student (15 pages in the case of individual
reports).

Duration of examination: 20 minutes per student and 10 minutes for assessment and communication of grades per group, however, the duration of the examination is maximum 2 hours.

The assessment is made of the individual student based on the learning objective. The assessment must also be based on an overall evaluation of the project report, the presentation, the joint discussion and the individually oriented questions. In order for the examinee to pass the exam, all these aspects must be satisfactory. The project report is thus part of the overall basis for the assessment, and is not given an independent grade.

Criteria: The written report, the product and the oral examination should demonstrate that the student has fulfilled the objectives outlined above.

5. Semester

Module title, ECTS credits

Mixed Reality Technologies
(Module 16)

Location

5. Semester

Module coordinator

Anthony Brooks

Type/Method and language

Project work in groups
English

Learning objectives:

During this module, students should acquire:

Basic knowledge about
- theories and methods used towards the creation of mixed reality systems
- mapping between real- and virtual-world environments
- methods for evaluating experiences and presence in different environments
- design of mixed reality environments

Skills in
- applying methods for development of augmented, mixed and virtual environment
- applying methods for tracking of objects
- applying methods for analysis and recognition of human motion
- analyzing mappings between real, augmented, mixed or virtual reality environments
- analyzing user experiences and presence in augmented, mixed or virtual reality environments.

Competencies in
- analyzing and constructing augmented, mixed and virtual environments
- analyzing and constructing motion capture systems
- analyzing and constructing systems that map information between real, augmented, mixed or virtual reality

environments.

Academic content

The goal of this module is to introduce the students to theories and methods of mixed reality technologies in relation to the creation of interactive or re-active narratives and performances that merge virtual and material spaces. The module is comprised of theoretical and practical courses and seminars that concern use of technology for construction of performative environments and/or installations.

Scope and expected performance

5 ECTS credits. 1 ECTS credit = 27,5 hours of work. 5 ECTS = 137,5 hours of work consisting of

preparation course sessions, course participation, group work, exercises, counselling and exams.

Module activities (course sessions etc.)

The framework of this course will be an opening two lectures as introduction to the field followed by
seven lectures specific to applied tech (e.g. Unity, etc.) in creating a MR technical outcome.
A final summing u 'lecture' will focus on presentations by individuals of their MR creations.

Students by completion of the course required to design and create a
Mixed Reality as presented in Lecture 3.

Lessons 1 + 2: Mixed Reality (MR) Lessons 1 and 2
Lecture/Workshop
Lecturer: Tony Brooks

Lectures 1 and 2 will introduce the field, its history, selected players, and associated. The introduction provide grounding and a literature foundation for the course for students to explore. Considerations for different encountered scenarios are discussed. Various baseline techniques are introduced.

These lectures will include student priming for researching the guests Steve Benford; Monika Fleischmann and Wolfgang Strauss toward their 5-6th November live Online lectures associated as keynote speakers for the 9th EAI International Conference: Arts and Technology – Interactivity & Game Creation – see http://artsit.org/keynotes/ + http://designlearninginnovation.org/keynotes/ - This in order for maximising benefit from the keynotes inputs relating their works to MR course content (see literature as listed and others available Online)" – students are expected to be active in their research of these luminaries as it may be possible (tbc) that they will contribute specific to the study in addition to their keynote lectures.

Literature (Double lecture 1 + 2)

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
A taxonomy of mixed reality visual displays P Milgram, F Kishino	9		Y

(1994) IEICE TRANSACTIONS on Information and Systems 77 (12), 1321-1329			
Dick Higgins 'intermedia' **(1966)** http://www.primaryinformation.org/oldsite/SEP/Something-Else-Press_Newsletter_V1N1.pdf		3	Y
Being Really Virtual pp 155-163 The Coming Age of Next Realities In: Being Really Virtual. Springer, Cham https://link-springer-com.zorac.aub.aau.dk/chapter/10.1007/978-3-319-43078-2_10		8	Y
Giannachi, Lowood, Worthey, Price, Rowland and Benford - Documenting mixed reality performance: the case of CloudPad, Digital Creativity 2012, 1–17, ISSN 1462-6268		17	Y
Myron Krueger Responsive Environments http://raley.english.ucsb.edu/wp-content/Engl800/Krueger-AFIPS.pdf		pp.423-433 (11 pages	Y
Virtual Reality and Performance - Scott de Lahunta PAJ: A Journal of Performance and Art, Vol. 24, No. 1, Intelligent Stages: Digital Art and Performance (Jan., 2002), pp. 105-114 http://www.jstor.org/stable/3246463	pp. 105-114 (10 pages)		Y
A Survey of Augmented Reality Technologies, Applications and Limitations D.W.F. van Krevelen and R. Poelman The International Journal of Virtual Reality, 2010, 9(2):1-20		1-20 (20 pages	Y
A Survey of Evaluation Techniques Used in Augmented Reality Studies (2008) Andreas Dünser, Raphaël Grasset, Mark Billinghurst		27	Y

Lesson 3 + 4: Introduction to Mixed Reality
Workshop
Lecturer: Milo Marsfeldt Skovfoged
Introduction to what technologies that is available to the students. This includes an introduction to Unity as tha needed in order to use some of the underlying technologies.
This lesson covers the use of Unity and programming this will take a basis on some of the tutorials provided by Unity https://learn.unity.com/tutorials

A main assignment is for individual students to design and create a Mixed Reality ArT artefact to present in fin session [Lesson 10]. Assignment is presented during Lesson 3.

Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Unity Basics https://learn.unity.com/course/unity-basics			

Unity Beginner Scripting https://learn.unity.com/project/beginner-gameplay-scripting			

Lesson 5 + 6: Intro to Virtual Reality
Workshop
Lecturer: Milo Marsfeldt Skovfoged
This workshop is a part intro to what Virtual Reality is and what it can be used to in a performance. This will include some intro examples of use and demonstrations of tracking of objects. It continues the Unity from lesso and 4. With adding XR from unity to learn how Virtual Reality is use in modern Applications.

Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload

Lesson 7 + 8: Intro to Augmented Reality and Projection mapping
Workshop
Lecturer: Milo Marsfeldt Skovfoged
The workshop is on Augmented reality and Projection mapping. This workshop is going to be similar to the workshop on Virtual Reality. This continues the XR with focus on augmented reality and is exploring projection mapping and how it is used in modern applications.

Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload

Lesson 9: Open Workshop
Workshop

Lecturer: Milo Marsfeldt Skovfoged

This workshop is to help students in making their mini project, there will be no new information on this works is purely to help on any questions on the mini project.
Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload

Lesson 10: MR presentations of student mini-project deliverables
Lecture/Workshop: Students present their mini-projects for assessment/feedback summing up and conclusion of course.
Lecturer: Tony Brooks + Milo Marsfeldt Skovfoged

Examination

Active participation/continuous evaluation
Active participation in the module's series of lectures and other course related activities is required. Active participation is defined as reading of set literature, 80 % attendance of the module's series of lectures and other course related activities, contribution to the module's discussion sessions through presentations and active participation in discussions as well as hand in of all assignments.

Re-exam:
Form of examination: c)
Written exam.
Number of pages: the written work must not exceed 10 pages.
In case of a Fail grade, also a second examiner will evaluate the assignment.

Module description (description of each module)

Module title, ECTS credits
Art-Based Research (Module 17) 5 ECTS
Location

5. Semester

Module coordinator

Signe Meisner Christensen

Type/Method and language

Individual or smaller groups in relation to course activities
English

Learning objectives:

During this module, students should acquire:

Basic knowledge about
• selected theories and methods of arts-based research
• quantitative and qualitative methods in arts-based research
• the historic and epistemological dimensions of arts-based research
• formats of knowledge dissemination for arts based research findings
• evaluation criteria for arts-based research projects
• planning, curating and realizing an arts-based research project or exhibition.

Skills in
• conceptualize and formulate a relevant arts-based research problem or field of investigation
• creating concepts for artistic research experiments
• applying evaluation criteria as part of arts-based research
• employing methods of practical planning, realization, and evaluation of arts-based research projects.

Competencies in
• developing a research design
• developing and realizing arts-based research projects in the field of art and technology
• planning and realizing an arts-based research project.

Academic content

The module "Art-Based Research" focuses on the meeting between artistic experimental practices and academic, analytical methods. The module focuses on the interrelation between theoretical and practical approaches. Art -based research takes the form of projects based on a set or self-chosen problem formulation or problem field. The projects investigate this interrelation by means of artistic artefacts (e.g. installations, exhibitions, performances, events, etc.) and academic methods such as the production and analysis of empirical data. The module introduces theories related to art -based research, combined with the practical planning and realization of art -based research projects.

Scope and expected performance

5 ECTS credits. 1 ECTS credit = 27,5 hours of work. 5 ECTS = 137,5 hours of work consisting of preparation for course sessions, course participation, group work, exercises, counselling and exams.

Module activities (course sessions etc.)

Course: Art Based Research (M17)

Course Sessions
Lesson 1: What is art based research? (Lecture)
Lecturer: Signe Meisner Christensen

The lecture will present and discuss various theoretical approaches to art-based research.

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Borgsdorff, H. (2012) "The Debate on Research in the Arts", in The Conflict of the Faculties, Perspectives in *Artistic Research and Academia*, Leiden University Press, pp. 28-56	28		28
Holert, T. (2011) "Artistic Research. Anatomy of an Ascent" in *Texte zur Kunst*, Iss. 82 pp. 38-63			15

Lesson 2: Art and Knowledge (Lecture)

Lecturer: Signe Meisner Christensen

The lecture will present and discuss the epistemological and institutional contexts for art - based research.

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Sullivan, Graeme (2010). "Art Practice as Research" in *Art Practice as Research - Inquiry in Visual Arts*, Sage, Thousand Oaks, pp. 95-120	25		25

Eisner, E. (2008) "Art & Knowledge" in *Handbook of the Arts in Qualitative Research, Perspectives, Methodologies, Examples, and Issues*, Sage, pp. 1-9 Danvers, J. (2006) "The Knowing Body: Art as an Integrative System of Knowledge" in *Art Education in a Postmodern World. Collected Essays,* Tom Hardy and John Steers (eds.), Intellect Books Ltd. pp. 77-90 Maharaj, S. (2009) "Know-How and No-How: Stopgap Notes on 'Method' in Visual Art as Knowledge Production," *Art and Research, A Journal of Ideas, Contexts, and Methods 2*, no. 2, pp. 1-11 http://www.artandresearch.org.uk/v2n2/maharaj.html			9 14 11

Lesson 3: The Performativity of Artistic Research (Workshop)

Lecturer: Signe Meisner Christensen

What does it mean that artistic research is performative? This workshop investigates the concept of performativity and what that entails for artistic research. Performative here does not merely refer in a narrow sense to performance art, even if it also applies here. It may be argued that artistic practice - as a form of research - is inherently performative in the sense that it acts and generates new possibilities and realities. The workshop will involve students in practical exercises that expose the performative nature of art as action.

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Hantelmann, D. (2010) *How to do Things with Art: What Performativity Means in Art,* Zürich, JRP/Ringier pp. 128-173	45		45

Lesson 4: Experimentality - working in the art laboratory (Workshop)

Lecturer: Signe Meisner Christensen

This workshop will explore models of experimentation in between art, science and technology. During the past decade discussions of experimentation in art have become increasingly influenced by notions of artistic research. The workshop will take form as a series of guided exercises followed by reflections about how artistic experimentation can be articulated as a set of procedures for investigating the relations between humans, society and technology.

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload

Pickering, A. (2016) “Art, Science and Experiment” in *Journal of Fine Art Research*, 1(1): 7, pp. 1-5	5		5
Seppä, A. (2016) “Losing Hold of Experimenting” in . *Journal of Fine Art Research*, 1(1): 7, pp. 1–5,	5		5
Gander, R. and Cotter, L. (2016) “Research as Play: A Dialogue with Ryan Gander”. *Journal of Fine Art Research*, 2(1): 5, pp. 1–5,	5		5

Lesson 5: The Primacy of Method in Artistic Research (Lecture)
Lecturer: Signe Meisner Christensen

Method occupies a key role in post-disciplinary artistic practices and sometimes method is the very instigator of an art work. This lecture will discuss the eclectic use of method in contemporary artistic practices and ask what it means for artists’ methods that art is situated and embodied into specific contexts and scenes of experience.

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Slager, H. (2009) “Art and Method” in Artists with PhDs. On the New Doctoral Degree in Studio Art, Elkins, J. (ed.), Washington, New Academia Publishing, pp. 57-70.	13		13
Michelkevičius, V. (2018) “The Methodological Promiscuity of Artistic Research”, in *Mapping Artistic Research: Towards Diagrammatic Knowing*, Vilnius Academy of Art Press, pp. 124-39. Marsh, J. (2019) “Site-integrity: a dynamic exchange between site, artist, device and audience” in *Journal for Artistic Research*, 19 https://www.researchcatalogue.net/view/596787/597477	15	14	15
			9

Lesson 6: Is Making a Robot Artistic Research? (Workshop)

Lecturer: Signe Meisner Christensen

Taking its point of departure in the construction of a robotic prototype on the course Multimedia Programming, the workshop will set up a series of practical exercises that investigate “rudimentariness” as a concept for engaging with bio-interfaces - such as robotic making. The

robots and the process of constructing them will be turned into a test case for methodological reflection.

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Anik Fournier (2017) "Rudimentariness: A Concept for Artistic Research", Journal of Artistic Research, pp. 12 https://www.researchcatalogue.net/view/261526/262795	15		15

Lesson 7: Presentation as integral to artistic research (Workshop)

Lecturer: Signe Meisner Christensen

When speaking about art-based research, curatorial issues are not secondary. Contrarily, they are often an integral dimension of the research process. This workshop experiments with exhibition installation and curatorial strategies as an integral part of the research design of an artistic investigation.

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
O'Neil, P. (2012) "Curating as a Medium of Artistic Practice: The Convergence of Art and Curatorial	32		32

Practice since the 1990s" in The Culture of Curating and the Curating of Culture(s), The MIT Press, pp. 87-129. Obrist, H. U.(2016) "Conversation on Experimentality" , Journal of Fine Art Research, 1(1): 3, pp. 1–8,			8

Lesson 8 and 9: (Seminar)

Lecturer: Signe Meisner Christensen

Lessons 8 and 9 are seminars where the students present and discuss with the course deliverables their art-based research problem statement, their research designs and methods, their theoretical bearing and their expected outcomes.

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Henk Borgdorff (2012) "Ingredients for the Assessment of Artistic Research" in *The Conflict of the Faculties, Perspectives on Artistic Research and Academia*, Leiden University Press, pp. 200-214	14		14
Biggs; Karlson (2011) "Evaluating Quality in Artistic Research" in Biggs; Karlson (eds) *Routledge Companion to Research in the Arts.* Routledge: London, New York			22

Examination

Oral exam
Form of examination: a)

Oral group-based exam.

Duration of oral exam: 20 min per student including grading and assessment. Max 1 hour per group.

Evaluation: Graded.
Credits: 5 ECTS

The examination should demonstrate that the student has fulfilled the objectives outlined above.

Module description (description of each module)

Module title, ECTS credits

Multimedia Programming (Elective) (M18)
5 ECTS

Location

5. Semester

Module coordinator

Markus Löchtefeld

Type/Method and language

Individual or small groups
English

Learning objectives:
During this module, students should acquire:

Basic knowledge about
• advanced topics of software development and algorithms relevant to the design and implementation of multimedia software applications (these can include software design patterns, programming mobile devices and embedded systems, robots and robotic motion, network programming, and machine learning).

Skills in
• applying a variety of intermediate and advanced programming techniques and methods in the construction of effective and efficient multimedia software applications
• applying advanced programming techniques in combination with artistic and perceptual theories.

Competencies in
• analyzing multimedia engineering problems and select, apply and evaluate appropriate technologies in developing successful solutions
• applying quantitative analysis to evaluate multimedia solutions
• applying advanced concepts in multimedia programming and software engineering.

Academic content

The goal of this module is to strengthen the student's capacity to develop advanced multimedia applications. Based on a significant amount of prior knowledge of programming, the module will advance the students capabilities to develop software and physical systems through more complex algorithms and programming techniques.

Scope and expected performance

5 ECTS credits. 1 ECTS credit = 27,5 hours of work. 5 ECTS = 137,5 hours of work consisting of preparation for course sessions, course participation, group work, exercises, counselling and exams.

Module activities (course sessions etc.)

The aim of this course is to introduce students to the theoretical and practical dimensions of robotic art. The course places equal emphasis on aesthetic and technical concerns so students may develop competencies in the creation of an aesthetically engaging robotic art works. Students learn how to design, program and execute a computer-controlled work of art using models such as random walks

and Markov chains and Flocking. Students also confront issues in planning, coordination, and control that arise when transitioning from computer simulation to the physical world. Students are required to develop and experiment with robotic prototypes they will construct themselves. Prior experience in imperative and object-oriented programming (e.g., C++ or Processing) is required. As part of the course the students will have to complete a group-based mini-project incorporating a research project using computer-controlled robotics. The mini-project must be accompanied by a written report and oral presentation summarizing the project, method, approach, and conclusions (3 pages maximum).

Lesson 1: Foundations of Robotic Art (Lecture)
Lecturer: Elizabeth Jochum

Introduction to the origins and development of robotic art from 20th century-present. This lecture provides an introduction and overview of robotic art from kinetic sculpture to contemporary robotic art.

Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
"History of Robotic Art" (Eduardo Kac)	11		Yes
Into the Soft Machine (Chico MacMurtrie) in Robots and Art. Springer (2016) pp. 339-361)	22		Yes
Robotic Creatures: Anthropomorphism and Interaction in Contemporary Art (Ghedini; Bergamasco)	6		Yes

Lesson 2: Expressive Motion - Theories & Approaches (Lecture)
Lecturer: Elizabeth Jochum

This course explores concepts of expressive motion, and introduces students to creative approaches for designing expressive movement for robots. What is kinesics? Is imitation and mimesis the only way to design expressive behavior. How can flocking and swarming algorithms? What do these behaviors and motions indicate about narrative? What narrative, interactive, or dramaturgical potential can we tap into using these external physical behaviors? This lecture considers the use of flocking and swarming algorithms in robotic art installations.

Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
"Designing Robots with Motion in Mind" (Hoffman and Ju)	32		Yes
"Make Robot Motions Natural" (Amy Laviers)	2		Yes
The Helpless Soft Robot - Stimulating Human Collaboration Through Robotic Movement Milthers, A. D. B., Bjerre Hammer, A., Jung Johansen, J., Jensen, L. G., Jochum, E. A. & Löchtefeld, M., 2019, 2019 CHI Conference on Human Factors in Computing Systems. (CHI EA '19).	6		Yes

"An Experimental Study of Apparent Behavior" (Heider & Simmel)		17	

Lesson 3: Expressive Motion: Programming I

Lecture + Exercise
Lecturer: Markus Löchtefeld

Introduction to the concepts of state machines, turtle walks and random walks as a means for executing basic motions as well as how to implement those using the Processing programming language.

Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Random walk - Wikipedia, https://en.wikipedia.org/wiki/Random_walk	1		Yes
Abelson, H. and diSessa, A. A. (1980). Turtle Geometry: The Computer as a Medium for Exploring Mathematics. MIT Press.	3		Yes
Pearson, K. (1905). The problem of the random walk. Nature, 72:294, 318, 342.	3		No
Braitenberg, V. (1984). Vehicles: Experiments in Synthetic Psychology. MIT Press.		3	No

Lesson 4: Language of Motion - Programming II
Lecture + Exercise
Lecturer: Markus Löchtefeld

Composing simple motions with state transition networks (Markov chains). Non-functional animations and simulated interactions. Furthermore, basic concepts of Flocking will be introduced.

Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Powell, V. (2014). Markov chains. - http://setosa.io/blog/2014/07/26/markov-chains/index.html	1		Yes
Reynolds, C. W. (1987). Flocks, herds, and schools: A distributed behavioral model. Computer Graphics, 21(4):25-34	6		Yes

Lesson 5+6+7: Soft-Robotics
Workshop
Lecturer: Markus Löchtefeld & Elizabeth Jochum

Soft robots have the potential to change what we use robots for and challenge how we perceive them. Material scientists, roboticists, computer scientists and biologists are working together to challenge the motion of what a robot can be. Researchers are trying to build sustainable robots of materials that perish after they have completed their task. Students will explore the artistic aspects of soft robots as relational and processual objects through hands-on techniques. The workshop explores not what softness is, but what softness can do.

Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Rus, Daniela, and Michael T. Tolley. "Design, fabrication and control of soft robots." Nature 521.7553 (2015): 467.	23		Yes
Jørgensen, Jonas. "Interaction with Soft Robotic Tentacles." Companion of the 2018 ACM/IEEE International Conference on Human-Robot Interaction. ACM, 2018.	1		No
Laschi, Cecilia, et al. "Soft Robotics: Trends, Applications and Challenges." (2016).		15	Yes

Lesson 8: Conducting HRI Research With Soft Robots
Lecturer: Elizabeth Jochum

Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Bartneck, C., Belpaeme, T., Eyssel, F., Kanda, T., Keijsers, M., & Sabanovic, S. (2020). *Human-Robot Interaction – An Introduction*. Cambridge: Cambridge University Press. Ch 2 "What is HRI" & Ch 9 Research Methods	45		Yes
Jørgensen, Jonas. "Appeal and Perceived Naturalness of a Soft Robotic Tentacle." Companion of the 2018 ACM/IEEE International Conference on Human-Robot Interaction. ACM, 2018.	2		Yes
Portney, L.; Watkins, M. (2014) Foundations of Clinical Research: applications to Practice. Ch 13: "Exploratory Research: Observational Designs.	20		No
Anna Dagmar Bille Milthers, Anne Bjerre Hammer, Jonathan Jung Johansen, Lasse Goul Jensen, Elizabeth Ann Jochum and Markus Löchtefeld. 2019. The Helpless Soft Robot - Stimulating Human Collaboration through Robotic Movement. CHI EA '19. ACM, New York, NY, USA	6		Yes

Lesson 9: Project Pitches & Feedback
Lecturer: Elizabeth Jochum & Markus Löchtefeld & Jonas Jørgensen

In this workshop students will have the chance to present their mini-project ideas to the class and an expert visitor from SDU. Prototypes, sketches, puppets, and animations are all encouraged.

Students are required to submit a 1 page White Paper outlining their project concept, plan, and related work.

Lecture 10: Final Presentations
Lecture

Lecturer: Elizabeth Jochum & Markus Löchtefeld

In class presentations and screening of the project videos (from Video Editing). Completion of in-class assignment (3 page report using IEEE Template). Evaluation and feedback.

Examination

Active participation/continuous evaluation
Active participation in the module's series of lectures and other course related activities is required. Active participation is defined as reading of set literature, 80 % attendance of the module's series of lectures and other course related activities, contribution to the module's discussion sessions through presentations and active participation in discussions as well as hand in of all assignments.

Re-exam:

Written exam: Form of examination: c)

Hand in: Individual.

The examination is a 7-day assignment on a set subject. Number of pages: the written part must not exceed 10 pages.

In case of a Fail grade, an additional examiner will also evaluate the assignment.