Art and Technology, AAU, 5th semester 2014

Narratives and Interaction / Narration og interaktion

Skammekrogen by Johan Knattrup Jensen

Semester details:

Narratives and Interaction

The semester introduces the production and creation of narrative artefacts and universes with special emphasis on the integration of interactive narratives and physical stages. Understanding the logic that shapes the narrative aspects of culture production and artefacts is essential for designing compelling and interactive user experiences. The modules are informed by theoretical and practical courses and seminars concerning concept development for new media including interactive cinema, video editing, scripting, screenings, workshops and discussion. The semester projects provide opportunities to establish collaborative processes and projects with external partners and the city of Aalborg.

The semester consists of 4 modules:

Module 15: *Narratives and Interaction*, (15 ECTS). The module comprises the semester-project and the following courses supporting the semester-project (10 ECTS):

1. *Artistic and Academic Methodology V* (Participatory Methods). Course Coordinator Ståle Stenslie. (1 ECTS). Lectures and workshops. (Integration of the courses on Artistic and Academic Methodology and Manuscript).

2. *Narrativity, Dramaturgy and Media 1*: Narrative theories from literature, film, performance and new media. Course coordinator: Elizabeth Jochum (2 ECTS). Lectures, workshops and in-course assignments.

3. *Manuscript I*: Storyboards, playwrighting and authoring performance scores. Course Coordinator: Elizabeth Jochum (1 ECTS).

4. *Video Editing*: Video Camera, Projection and Live Performance. Course coordinator: Elizabeth Jochum. Lecturer: Thomas Busk. (1 ECTS)

Module 16: *Mixed Reality Technologies* (5 ECTS). Focuses on the technology needed to do your semester-projects. The module comprises the following courses:

1. Programming Multimedia Systems. Course coordinator: Palle Dahlstedt. Lecturers: Palle Dahlstedt. (2 ECTS).

Module 17: *Art-Based Research* (5 ECTS) is about concept development strategies and practice-based research. The module comprises the following courses:

1. 1. Art-Based Research: Theory and Practice. Course coordinator: Ståle Stenslie. Lecturers: Ståle Stenslie, Maria Cuevas. (2 ECTS).

Module 18 (Elective): *Multimedia Programming* (5 ECTS). The module comprises the following courses:

1. Multimedia Programming in Autonomous Art. Course coordinator: Lance Putnam. Lecturers: Lance Putnam, Elizabeth Jochum. (2 ECTS).

OR

You can attend course(s) offered by other study programs. Both you will need to sign up for (contact the study counselors or Anne Nielsen for further information).

Narratives and Interaction / Narration og interaktion

Semester Theme (2015): *Intermedia Performance*

This semester will focus on narratives and interaction through intermedia performance. Students will develop new approaches for designing interactive performance spaces and working with live performers to restructure the performer and the viewer's experience. The semester project lies at the intersection of cinema, digital media, dramaturgy, dance and performance.

All students will participate in the creative and practical development of a live, intermedia performance. The performance will be open to the public and is schedule for

FRIDAY, DECEMBER 4th in THEATRE NORDKRAFT.

All students will collaborate with Dansefytårn Nord and Theatre Nordkraft to develop interactive narratives for a live performance. The external collaboration will be supervised by Anamet Magven, Rikke Steen Mapstone and Elizabeth Jochum, and will include dancers from the *Unge På Vej* contemporary dance project. Through group projects, students will combine narrative, film, and interactive technologies to design responsive/interactive narrative universes and physical spaces for live performance. Teaching is organized in a series of workshops and related courses aimed at supporting project work. In addition to their individual contributions to group projects, all students will be assigned a role in the Production Team for the event/exhibition, which will take place on FRIDAY, DECEMBER 4th 2015 in THEATRE NORDKRAFT. Participation in the live event (including the production and technical rehearsals prior to the performance) is required for successful completion of the semester.

During the semester courses will teach you the theories, histories and practices of interactivity and narrativity in art and technology and intermedia performance. You will also be introduced to different technologies and artistic methods, including improvisation techniques and basic principles of stage design. You will learn to analyze, discuss, compare and apply aesthetic theories and methodologies such as intermediality, performance technology, and postdramatic theatre in relation to live performance.

Semester coordinator and secretariat assistance:	
Semester coordinator:	Elizabeth Jochum, KOM jochum@hum.aau.dk

	+45 52 23 09 02
Secretariat:	Anne Nielsen, KOM amn@hum.aau.dk +45 9940 9919
Supervisors:	Elizabeth Jochum, KOM jochum@hum.aau.dk +45 52 23 09 02

Module 15: Narratives and Interaction (15 ECTS)
- Artistic and Academic Methodology V (Participatory Methods)
- Dramaturgy and Media I
- Manuscript I
- Video Editing

Supervisors:	Elizabeth Jochum
Teaching staff:	Elizabeth Jochum, KOM Falk Heinrich, KOM Ståle Stenslie, KOM Thomas T. Busk, MediaLab

Module 16: Mixed Reality Technologies (5 ECTS)
- Programming Multimedia Systems

Supervisors:	Palle Dahlstedt, KOM dahlstedt@hum.aau.dk +45 20702102
Teaching staff:	Palle Dahlstedt, KOM

Module 17: ArT-Based Research (5 ECTS)
- Art-Based Research – theory and practice

Supervisors:	Ståle Stenslie, KOM stenslie@hum.aau.dk +47 9056 2963
Teaching staff:	Ståle Stenslie, KOM Maria Cuevas, External

Module 18: Multimedia Programming (Elective) (5 ECTS)
- Multimedia Programming

Supervisors:	Lance Putnam, MT lp@create.aau.dk +45 9940 3609
Teaching staff:	Lance Putnam, MT, Elizabeth Jochum, KOM

Departments:

KOM	Department of Communication and Psychology
AD	Department of Architecture, Design and Mediatechnology (Architecture and Design)
MT	Department of Architecture, Design and Mediatechnology (Mediatechnology)
BYG	Department of Civil Engineering

Module title, ECTS credits and STADS code:	(from study regulations)

Module 15 Narratives and Interaction (Narration og interaction) (15 ECTS)

HSA550027F

Location:	ArT5
Study Board:	ArT & Technology
Module coordinator:	Elizabeth Jochum, KOM jochum@hum.aau.dk +45 52 23 09 02
Method of work and language:	Project work in groups. English
Module contents:	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 across a variety of formats and new media, including interactive cinema, video editing, scripting, archival research and databases. Furthermore, the module seeks to establish collaborative processes and projects with external partners. **Courses:** In connection with the module, courses may be offered within the following areas: ☐ Artistic and Academic Methodology V (Participatory Methods) ☐ Dramaturgy and Media I ☐ Manuscript ☐ Video Editing

Objectives

The objective of Module 6: "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 narratology, (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 narratology 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 solutions (concepts) for a chosen problem/theme

☐ transforming basic knowledge and theories of narrativity and media technology into valid 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 combines 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 re-/interactive 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

The module is completed with: **Examination 15**

Examination 15

An internal combined written and oral examination in **Module 15: "Narratives and Interaction"**

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.

Evaluation: Grading according to the 7-point scale.

Proportional weighting: An aggregate grade is awarded for the artefact, the written and oral performances. The assessment results in an individual grade.

Credits: 15 ECTS

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

The dates for the oral evaluation are Week 3, January 12th to 22nd 2016.	

Exam dates:	Oral Evaluations are Week 3, January 18th to 22nd 2016
Exhibition dates:	FRIDAY, DECEMBER 4, 2015
Deadline:	
Hand-in date:	THURSDAY 17 December 2015
To:	Anne Nielsen

Scope and expectations:

Semester Theme: Intermedia Performance

This semester will focus on narratives and interaction in intermedia performance. Students will develop new approaches for designing interactive performance spaces and working with live performers to restructure the performer and the viewer's experience. The semester project lies at the intersection of cinema, digital media, dramaturgy, dance and performance.

All students will participate in the creative and practical development of a live, intermedia performance. The performance will be open to the public and is schedule for

FRIDAY, DECEMBER 4th in THEATRE NORDKRAFT.

This LIVE PERFORMANCE IS THE FINAL EXHIBITION FOR ArT5.

Attendance and Participation is Mandatory.

Semester Deliverables:

Working in small groups (no more than 5 members to a group) you will design a narrative and an interactive performance, including a performance score. This performance will be created in the stages: 1) DEVELOPMENT, 2) PITCH and 3) REALIZATION. There will be a chance to re-form groups or re-evaluate the design concepts following the development workshops based on feedback from the external collaborators and supervisor. Feedback will include technical feasibility, as well as aesthetic and thematic considerations. Groups are free to employ any variety or combination of media but they MUST meet all of the following criteria:

1. Narrative (this can be an original narrative or based on a pre-existing story, play, opera, poem, real-life event, historical event, myth, etc.).

2. Minimum three-minute film (original footage or animation, not only "recycled" or found footage. This may include real-time or live-generated video based on cameras or sensor data).

3. A body. (This can be a live body, multiple bodies, dis-embodies, bodies in remote locations, mediated or augmented body, etc, but there must be a *live human performer* incorporated in the piece).

4. Interactive or Responsive Component. (This may include the use of contact microphones on the stage, on dancers, EKG or electrocardiographic sensors or other bio-inspired sensors, haptic devices, motion tracking using the Kinect or other cameras/sensors, touch-technologies, video or projection mapping. The interactive component can be designed for the dancers, musicians, technical operators, the audience or any combination of these).

5. Sound score. (This may include silence but, as with Cage's *4:33*, each note/movement must be scored.)

Semester Reports:
This semester, students will be divided into groups of four to five students and each group will work on a single project with the goal of creating a time-based art installation and/or performance to be included in the end-of-semester exhibition. The project reports will present your research in a particular area of investigation. They should clearly present the motivation, design, implementation, and analysis of the artwork. The report should include the following sections:

Report Guideline:
All reports should adhere to the following format:

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 what the problem is you are investigating. You may also present a hypothesis to be supported or rejected through your own experiments.

BACKGROUND/ STATE-OF-THE-ART
This should contain previous work in the area you are investigating. This is of major importance in conducting any type of research, academic or otherwise. You should clearly identify antecedents and point out both the importance and shortcomings of each in relation to your own work. Always reference refutable sources (i.e., peer-reviewed journals, books, etc.) and, when possible, primary sources (i.e., the original author of the work) to avoid misinformation. Google and Wikipedia are okay only as starting points.

DESIGN
Here is where you outline your process of creation and the decisions you made along the way. Elaborate on and justify your artistic, aesthetic, and technical choices. Describe your experiment design.

IMPLEMENTATION
How was the final work constructed? Include overall system diagrams and exhibition arrangement. Detail the most important aspects of the implementation and place the rest in the appendix. One should be able to fully and unambiguously re-create your artwork based on the information in this section.

COLLABORATION
Describe what you learned from the collaboration with the external partners. Do nut summarize, but reflect on key learning outcomes: What were your initial assumptions about intermedia performance and contemporary dance at the start of the semester? How did these assumptions shift based on your experience with Dansefytårn? What challenges did you face when working in a performance context? Please include discussion of your role and involvement as a member of the production team. This should be independent from the discussion of your individual creative contribution and consider your involvement with the production process *as a whole*.

ANALYSIS
Was your work successful? Support this with experimental data. If you made an initial hypothesis, do your observations support or reject it?

FUTURE WORK

Is there anything you could have done better? How? If you were to develop this project more, what would you work on next?

CONCLUSION
This is where you bring it all together. It is NOT simply a summary of what you have done---that is supplied by the abstract. You should connect all the dots and synthesize new insights here. What can others learn from this?

BIBLIOGRAPHY
List of references following the Harvard referencing style.

APPENDIX
Include all data produced during your investigation. This can include experimentation/observation logs, transcriptions of interviews, survey data, source code, etc. Note that the main text can reference the information in this section.

All figures, tables, and images in the report must be labelled with a brief description and cited in the main text. You are also required to make a video documentation of the final artefact and hand it in with the report.

Three hard copies of the project report must be produced (one for the examiner, one for the censor and one for the department secretary and archiving purposes). The video and any other relevant digital media (e.g., images, sounds) should be provided on a CD/DVD and submitted with the printed report in a pocket inside the back cover.

All material in the report that is not the original creation of the students in the group must be properly acknowledged by using the Harvard referencing style. Failure to do this will be considered plagiarism and will lead to immediate failure and possibly also to expulsion from the program.

Prerequisites for participation:

Module activities (course sessions etc.)
Artistic and Academic Methodology V: Participatory Methods (1 ECTS) The purpose of the course is to introduce the student to theories and methods of conceptualizing, preparing and writing narratives and interactive content relevant for the semester theme. The course is made as a two day workshop. It takes a practice-based approach towards realizing an interactive art installation and/or concept.

Lesson 1:	Lecture
	AAM-1: Introduction to Interactivity and its Methods – How to Conceptualize, Textualize and Implement Your Work of ArT. How do we engage users through Art and Technology? How to use digital media and interactive storytelling to better engage users? The lecture will focus on interactive works of art and how they engage users through interactivity. But how do we define interactivity? And how to apply interactive Augmented Reality as a method to create better users experiences, not just more complicated ones? An overview of different approaches of how ArT works are implemented will be given.
	Lecturer(s): Ståle Stenslie
	Heim, Michael (1998) *Virtual Realism*. Oxford University Press. Hauser, Jens (2008) *Sk-Interfaces*. Liverpool University Press. Isaacs, Julian. *Psycho-technology: Its Present & Future*. http://www.mindmodulations.com/resources/General-psychotech.html accessed August

	2013 Svanæs, Dag (2000) Understanding interactivity: steps to a phenomenology of human-computer interaction. Ph.D. dissertation, NTNU, Norway. http://www.idi.ntnu.no/~dags/interactivity.pdf accessed August 2013. Stenslie, S. *Virtual Touch*. 2010. Page 232, section: 6.3.2. Grau, Oliver (2003) Virtual Art – From Illusion to Immersion. The MIT Press.
Lesson 2:	Lecture
	AAM-2: AUGMENTED IMMERSION What is immersion and how do we use it to create encompassing, even holistic user experiences? The lecture will present and discuss some historical pieces, starting with media archeological approaches, presenting the historical field of Virtual Reality onwards to contemporary means of creating Mixed and Augmented Realities. Basic technologies and techniques of making AR experiences will be introduced. All students are asked to bring their own Smartphone. Assignment: Present one example of immersive art from Grau's book, or an Augmented Reality piece by your choice. Length: max 1. Page.
	Lecturer: Ståle Stenslie
	Benford, Steve & Giannachi, Gabriella (2011) Performing Mixed Reality. MIT Press.
Lesson 3:	Lecture and Workshop
	AAM-3: CONCEPT: AUGMENTING YOUR STORY The lecture will be held as a workshop where the various groups develop a concept with a storyboard for presentation and discussion in class. Assignment: Groupwise prepare a storyboard with a technique of your choice. Present and discuss in class. Assignment: realize your storyboard project and document it
	Lecturer: Ståle Stenslie
	set and recommended readings
	slides and other resources
Lesson 4:	Workshop
	AAM-4: Final Presentation Each group will present their final AR work in class for discussion and critique.
	Lecturer: Ståle Stenslie
	set and recommended readings
	Narrativity, Dramaturgy and Media I (3 ECTS)
Lesson 1:	Lecture and in-class assignment
	NDMI-1 *Narrative & Storytelling from the Birth of Tragedy to the Death of the Author* This course introduces students to the theory and study of narrative and narrative structure. Special focus will be given to literary theory and how these concepts translate to film theory and visual art theory, and how they influence dramaturgies across different fields.
	Lecturer(s): Elizabeth Jochum
	REQUIRED READING *Poetics* (Aristotle) "Death of the Author" "From Work to Text" (Roland Barthes)

	"Ricoeur on Time and Narrative" (William Dowling)
Lesson 2:	Workshop
	NDMI- 2 Workshop: Improvisation and Dance
	Students will learn methods in improvisation and creative techniques for conceptualizing and staging devised work for the stage and intermedia performance. Special focus will be given to understanding how choreographers work with kinesics, context, and multimedia in the adaptation/staging of narratives.
	Readings: TBA
	Lecturer(s): Elizabeth Jochum and Anamet Magven
Lesson 3:	Workshop
	Workshop: Improvisation and Storytelling
	Students will learn methods in improvisation and creative techniques for conceptualizing and staging devised work for the stage and intermedia performance.
	Lecturer(s): Elizabeth Jochum and Anamet Magen
	Readings: *Mapping Intermediality in Theatre and Performance* (Bay Cheng)
Lesson 4:	Workshop
	NDMI 4: *Interactive narratives: pitch, manuscript and storyboarding for Intermedia Performance* On the basis of the student groups' specific story world ideas, the groups will produce, present and discuss pitch documents, manuscripts and storyboards for the semester project. Exercise: The student groups have to prepare a pitch documents prior to the workshop and present it at the workshop. During the workshop, the students will work with manuscript and storyboarding techniques relevant to their projects.
	Required Readings: *On Defining Visual Narratives* (Sherline Pimenta, Ravi Poovaiah) *Surrogate Stages: Theatre, Performance and the Challenge of New Media* (Balme)
	Lecturer(s): Elizabeth Jochum
Lesson 5:	Lecture
	NDMI-5: *Interactivity and Dramaturgy* The lecture introduces, firstly, relevant notions of interaction and interactivity, secondly, various dramaturgical models of interactive narratives and, thirdly, work methods such as pitch, manuscript and storyboarding relevant for interactive narratives. Assignment: Each group has to prepare and present at the following lecture (no 6) a pitch document that conveys the group's idea of an interactive narrative of your choosing. Mandatory readings: Ryan, Marie-Laure, 2001. *Narrative as Virtual Reality.* Baltimore: John Hopkins University Press (chapter 3, 7, 8) **(available as e-book via Auboline)** further reading:

	Manovich, Lev, 2001. *Language of New Media.* Cambridge MA: MIT Press (p 226ff)	
	Ryan, Marie-Laure, 2008. "Interactive Narratives, Plot Types and Interpersonal Relations", ICIDS '08 Proceedings of the 1st Joint International Conference on Interactive Digital Storytelling: Interactive Storytelling	
	DATE: 22 September 13:10-15:15	
	Lecturer(s): Falk Heinrich	
Lesson 6:	Lecture	
	NDMI 6: *Interactive narratives: a) productive interactivity and b) pitch, manuscript and storyboarding* The lecture introduces the concept of productive interactivity as a second artistic and academic perspective on interactive narratives. It discusses the theoretical assumptions and practical challenges. The second half is a student presentation of their pitch document. On the basis of the specific story world ideas, the groups will produce, present and discuss pitch documents, manuscripts and storyboards. Exercise: The student groups have to prepare a pitch documents prior to the workshop and present it at the workshop. During the workshop, the students will work with manuscript and storyboarding relevant for their project. Readings: Crawford, Chris, 2005 *On interactive storytelling.* Berkeley: New Reader Games (chapter 3) Katz, S. 1991. *Shot by Shot.* Studio City, CA: Michael Wiese Productions further reading: *Begleiter, Marcie. 2001. From word to image.* Studio City, CA: Michael Wiese Productions Bruce Block, 2001. *The visual story*. Focal Press	
	DATE: 24 September 13:10-15:15	
	Lecturer(s): Falk Heinrich	
Lesson 7:	Lecture	
	NDMI-7: *Narrative Cinema: from D.W. Griffith to Deren to Brackage*. This course considers approaches to narrative in film. We examine how filmmakers used the new medium to create alternative narrative structures through experimentation and exploration. What do these structures reveal about the nature of perception, and how does the filmic medium shape the production and interpretation of meaning in other areas of visual culture? In-class student presentations on relevant artists (10 minutes, including slides, video, audio, one-page written summary).	
	Lecturer(s): Elizabeth Jochum	
	REQUIRED READING: *The History of Early Cinema* (Manley) *Film* Analysis "Battleship Potemkin" (Bill Nichols) Film Analysis "The Birth of a Nation" (Daniel Bernardi) *Montage of Attractions* (Sergei Eisenstein) REQUIRED VIEWING: *Birth of a Nation* (1915) D. W. Griffith *Battleship Potemkin* (1925) Eisenstein	

	Man With a Movie Camera (1929) Dziga Vertov *Meshes of the Afternoon* (1943) Maya Deren *At Land* (1944) Maya Deren *Mothlight* (1963) Stan Brakhage *Water for Maya* (2000) Stan Brakhage
Lesson 8:	Workshop
	NDMI 8: *Interactive narratives: pitch, manuscript and storyboarding* On the basis of the student groups' specific story world ideas, the groups will produce, present and discuss pitch documents, manuscripts and storyboards. Exercise: The student groups have to prepare a pitch documents prior to the workshop and present it at the workshop. During the workshop, the students will work with manuscript and storyboarding techniques relevant to their projects.
	Required Readings: *Kandinsky's Yellow Sound* *Mecchanized Eccentric (*Maholy Nagy in *Theatre of the Bauhaus*, W. Gropius) *Surrogate Stages: Theatre, Performance and the Challenge of New Media* (Balme)
	Video Editing (1 ECTS)
Lesson 1:	Workshop
	VE-1: Introduction to the camera
	Lecturer(s): Thomas T. Busk
Lesson 2:	Workshop
	VE-2: Film lighting
	Lecturer(s): Thomas T. Busk
Lesson 3:	Workshop
	VE-3: Live Projections and Performance
	Lecturer(s): Thomas T. Busk
	Readings: *Avid Media Composer 6.5 vejledning AAU 2014*
Lesson 4:	Workshop
	VE-4: Live Projections and Performance
	Lecturer(s): Thomas T. Busk
	Manuscript (1 ECTS)
	During this one-day development workshop students will work with choreographers from the Dansefytårn project in the location (Theatre Nordkraft) to develop manuscript, narratives, and performance score for their interactive narratives. Students should come prepared with concepts, sketches, initial ideas and narratives to "try out" within the context of the performance space, the choreographers, and the other members of the production staff at Theatre Nordkraft. Students may also choose to bring in edited video footage or other technical tools to experiment with. The focus of this workshop is on the DEVELOPMENT of the main project nodule, and is first important step before the formal "PITCH" presentations during Week 44/45.
	Lecturer(s): Elizabeth Jochum, Anamet Magven, Rikke Steen Mapstone

AALBORG UNIVERSITY
DENMARK

Lessons 1, 2, 3, 4	Date: 9 October 9:15-17:15 (with breaks) LOCATION: Theatre Nordkraft

Module title, ECTS credits and STADS code:	(from study regulations)

Module 16 Mixed Reality Technologies (Mixed reality teknologi) (5ECTS)

HSA550028F

Location:	ArT5
Study Board:	ArT & Technology
Module coordinator:	Palle Dahlstedt, KOM dahlstedt@hum.aau.dk
Method of work and language:	Individual or small groups. English
Module contents:	The module is comprised of theoretical and practical courses and seminars within technologies for construction of performative environments or installations The objective of Module 16 "Technologies for performative environments and installations" is to introduce the students to theories and methods of technologies in relation to the creation of interactive or re-active narratives and performances that merge virtual and material spaces.

Objectives

In connection with the module, courses may be offered within the following areas:
- Performance Technology I
- Programming Multimedia Systems

Learning objectives:
During this module, students should acquire:

Basic **knowledge** about
- basic theories and methods for fiducial recognition and tracking
- basic theories and methods for natural object recognition and tracking
- basic theories and methods for development of augmented and virtual reality systems
- basic theories and methods for human motion capture and tracking
- mapping between real and virtual world environments
- methods for measurement of experiences and presence in different environments

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

Competencies in
- analysing and constructing augmented, mixed and virtual environment
- analysing and constructing human motion capture systems

- analysing and constructing systems that map information between real, augmented, mixed or virtual reality environments

The module is completed with:

Examination 16

An internal written examination in **Module 16: "Mixed Reality Technologies"**
Form of examination: c)
The assignment is evaluated by one examiner and awarded a pass/fail grade.
Number of pages: the written work must not exceed 10 pages.
Evaluation: pass/fail. In case of a Fail grade, also a second examiner will evaluate the assignment.
Substitution: the examination may be substituted by satisfactory and active participation in courses, i.e. 80% presence and submission of all assignments set during the course.
Credits: 5 ECTS

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

Exam dates:	Deadline for hand-in of mini-project: 13 November; Exam: Week 47 (November 19th)
Exhibition dates:	
Deadline:	
Hand-in date:	Deadline for hand-in of mini-project: Week 46: 13 November; Exam: Week 47: 19 November.
To:	Anne Nielsen

Scope and expectations:

The project for this module is expected to comprise a small report and an artistic product. This product may be part of the semester's main product. Both the report and the product are to be made in a group. In the event that the main semester project is used as case for this module, then this group should be identical to the main semester project group.

The project should address all relevant aspects taught in this module, i.e. the technologies used, how it fits within the different definitions of mixed reality, how it is implemented, and how it will be evaluated.

Participants:

Prerequisites for participation:

Module activities (course sessions etc.)

Programming Multimedia Systems (2 ECTS)

This series of lectures and workshops will teach how to use mixed media technologies in an interactive performance situation, tightly integrated with the semester project. The course is based around the free, open-source, multi-platform graphical programming environment Pure Data (often called PD, https://puredata.info/), which is very common in interactive art, music and performance applications. The module will be taught hands-on, so you are expected to bring a laptop to every lecture and use it in the classroom.

Before the course, install the package *PD-extended* on your laptop from the above website. It contains the core of PD together with the most commonly used extensions, including the video/graphics library GEM, which will be used extensively in the course.

Lesson 1:	Lecture/workshop with active participation
	History of the Max/PD family of languages. Basics of PureData programming: Event processing, UI and sound.
	Date and time: Sept 14, 13.30-15.15
	Lecturer: Palle Dahlstedt, KOM
	Readings: https://en.wikipedia.org/wiki/Pure_Data Excerpt from "Designing Sound" by Andy Farnell – a good introductory book on PD http://dm.ncl.ac.uk/courseblog/files/2011/02/pd_intro.pdf The PD manual and the tutorials that come pre-installed with PD (see Help-Help Browser-Pure Data inside the PD window).
Lesson 2:	Lecture/workshop with active participation
	The basics of PureData continued. The GEM graphics library: 3D graphics (OpenGL), camera input, video streams and processing. An exercise using the acquired skills will be given, to be carried out in the project groups. It should be presented in a five-minute presentation at lecture 3
	Date and time: Sept 15, 9.15-11.00
	Lecturer: Palle Dahlstedt
	Readings: PD and GEM tutorial examples.
Lesson 3 + 4:	Lecture/workshop with active participation
	Presentation of exercises. Virtual Reality, Augmented Reality and Mixed Reality – theory, history and examples.
	Date and time: Sept 28, 13.30-17.15
	Lecturer: Palle Dahlstedt
	Readings: TBA
Lesson 5 + 6 :	Lecture/workshop with active participation
	Virtual Reality, Augmented Reality and Mixed Reality in PD: Tracking technologies, sen-

		sors, motion detection, blob detection, skeleton detection.
		An excercise will be given, to be carried out in the project groups. It will be presented in a five-minute presentation at lecture 7.
		Date and time: Sept 29, 9.15-13.15
		Lecturer: Palle Dahlstedt
		Readings: PD and GEM tutorial examples. Further readings will be given on Moodle.
Lesson 7:		Lecture/workshop with active participation
		Interaction models in performance situations. From direct event-based interaction to more complex interaction models, and computer-mediated human-to-human interaction. Evaluation methods for Mixed Realities.
		Date and time: Nov 5, 10.15-12.00
		Lecturer: Palle Dahlstedt
		Readings: TBA
Lesson 8:		Lecture/workshop with demonstrations
		Demonstration and discussion together with the choreographers. Performance examples.
		Date and time: Nov 5, 14.30-16.15
		Lecturer: Palle Dahlstedt
		Readings: TBA

Module title, ECTS credits and STADS code:		(from study regulations)

Module 17 ArT-Based Research (Kunstnerisk forskning) (5 ECTS)

HSA550029B

Location:	ArT5
Study Board:	ArT & Technology
Module coordina- tor:	Ståle Stenslie, KOM, stenslie@hum.aau.dk Marie Cuevas (Guest Faculty), d.cuevasr@recol.es
Method of work and language:	Individual or smaller groups in relation to course activities. English
Module contents:	The module "Art-Based Research" focuses on the meeting be- tween artistic experimental practices as academic methods. The- se can be artistic installations or exhibitions seeking to generate empirical data of various kinds. The installation should be concep- tualized and realized as a methodical means in relation to a set or self-chosen artistic problem formulation. Emphasis will be firstly on practical planning and realization of the installation and, sec- ondly, on the collection and interpretation of the empirical data.

In connection with the module, courses may be offered within the following area:
- Art-Based Research – theory and practice

Learning objectives:
During this module, students should acquire:
Basic **knowledge** about
- art-based research
- planning, curating and realizing an art-based research installation or exhibition

Skills in
- stating a technologically relevant art-based research problem
- creating concepts for artistic research experiments
- applying testing methods
- employing methods of practical planning, realization, and evaluation of art- based research installations
-

Competencies in
- developing and realizing art-based research project in the field of art and technology

The module is completed with:

Examination 17

An external oral examination in **Module 17 "Art-Based Research"**
Form of examination: a)
For the examination students are required to produce an artistic research design and an academic report/paper, which must not exceed 10 pages.
Evaluation: Pass/Fail.
Credits: 5 ECTS

Any re-examination will be held in accordance with the above guidelines on the basis of the revised report or parts hereof specified by the examiner.

	The examination should demonstrate that the student has fulfilled the objectives outlined above.
	Period of teaching: full lecture and workshop week from 7.9 to 11.9
Exam dates:	October 2nd 2015 (Week 40)
Deadline:	
Hand-in date:	September 18th (Week 38)
To:	Moodle / Anne Nielsen

Purpose and Goals: Art-Based Research (ABR) is about doing research though the practice of ArT. ABR is the core of the academic legitimacy of ArT: the use of an ArT-practice for investigating into and finding new knowledge. Where different disciplines have their particular research strategies, the ethnographic methods, the sociological methods, etc. for specific fields, ABR is about the methods used in particular in ArT.

The course introduces the students the foundation of research in an academic context and to discussions about the different forms of research in particular artistic research and practice-based research.

Goals: The course will provide the students with a basic knowledge of dealing with agendas of research and how to construct a research design.

Content: Scope and expectations:

The goal is to develop art research projects based on formulating a personal artistic problem, the conceptualization, development and implementation of which are carried out in the art and technology field.

   The methodology used is orientated so that students gain content and practical skills to help them develop their art project and develop an academic discourse, both oral and written, aimed at defending art projects in the university environment.

   The seminars and workshop will introduce participants to the world of wearable technology applied to fabric or any other medium. After an introduction, in which we will see various projects from artists and designers who are working with these techniques, participants will learn to design and develop an interactive fabric piece. We will experiment with flexible conductive materials, basic electronics and some smart materials. We will learn about different types of sensors and actuators. We will study some flexible circuit design techniques and develop a LED controlling device together.

Exhibition: The workshop will end with a one day display/mini exhibition of the results during the week.

Prerequisites for participation: None.

Module activities (course sessions etc.)

Art-Based Research – theory and practice (2 ECTS)

Lecture 1:	Theorizing artistic practice as research, part 1
	The lecture will present and discuss various theoretical approaches to artistic practice as research. The purpose of this is to serve as a theoretical platform for both the workshop and final written assignment
	Date and Time: 7 september 09:15 - 11
	Lecturer(s): Ståle Stenslie & Marie Cuevas (Guest Faculty)
	Required readings: Hannula, Mika; Suoranta, Juha; Vaden, Tere (2005) Artistic research. University of Gothenburg. Download from:

	https://www.academia.edu/2396657/Artistic_Research._Theories_Methods_Practices **Suggested Readings:** Sullivan, Graeme (2010) Art Practice as Research - Inquiry in Visual Arts. Pennsylvania State University, USA. Downloadable from http://uk.sagepub.com/sites/default/files/upm-binaries/31775_Chapter4.pdf
Lecture 2:	Theorizing artistic practice as research, part 2
	The lecture will focus experimental aesthetics as research and give an overview of methodological mapping.
	Date and Time: 7.9 14:30 – 16:15
	Lecturer(s): Ståle Stenslie & Marie Cuevas (Guest Faculty)
	Required Readings: Slager, Henk (2015) The Pleasure of Research. Hatje Cantz. Read Chapter 3 and 4.
Workshop 1:	Workshop-based teaching
	Introduction to wearable technology. Project presentation.
	Date and Time: (week of 7.9-11.9)
	Lecturer(s): Ståle Stenslie & Marie Cuevas (Guest Faculty)
	Readings:
Workshop 2:	Workshop-based teaching
	Practice based research. How to involve basic concepts of electronics: components, circuits, sensors and actuators in wearable applications.
	Date and Time: (week of 7.9-11.9)
	Lecturer(s): Ståle Stenslie & Marie Cuevas (Guest Faculty)
Workshop 3:	Workshop-based teaching
	Interactivity concepts and techniques in a wearable project. Presentation of various techniques.
	Date and Time: (week of 7.9-11.9)
	Lecturer(s): Marie Cuevas (Guest Faculty)
Workshop 4:	Workshop-based teaching and final presentation
	Develop and present a prototype.
	Date and Time: (week of 7.9-11.9)
	Lecturer(s): Marie Cuevas (Guest Faculty)

Module title, ECTS credits and STADS code:		(from study regulations)

Module 18 Multimedia Programming (Elective) (Multimedie programmering (valgfag)) (5 ECTS)

HSAVB0030D

* This module may be offered by the board of study depending on e.g. the amount of students enrolled or other relevant circumstances.

Location:	ArT5
Study Board:	ArT & Technology
Module coordinator:	Lance Putnam, MT lp@create.aau.dk +45 9940 3609
Method of work and language:	Individual or small groups. English
Module contents:	

Objectives

In connection with the module, courses may be offered within the following area:
- Multimedia Programming

Learning objectives:
During this module, students should acquire:

Basic **knowledge** about
- advanced topics of software development relevant to the design and implementation of multimedia software applications, e.g., software design patterns, programming mobile devices and other embedded systems, network programming and VR and AR programming.

Skills in
- applying a variety of intermediate and advanced software technologies, techniques and methods in the construction of effective and efficient multimedia software applications

Competencies in
- analyzing multimedia software engineering problems and select, apply and evaluate appropriate technologies in developing successful solutions
- applyíng advanced concepts in multimedia programming and software engineering

The module is completed with:

Examination 18

Examination 18
An internal written examination in **Module 18: "Multimedia Programming" (Elective).**
Form of examination: c) The examination is a 7-day assignment on a set subject.
Number of pages: the written part must not exceed 10 pages.
Evaluation: pass/fail. One examiner evaluates the assignment. In case of a Fail grade, an additional examiner will also evaluate the assignment.
Substitution: the examination may be substituted by satisfactory and active participation in courses, i.e. 80% attendance and submission of all assignments set during the course.

Credits: 5 ECTS 34	
The examination should demonstrate that the student has fulfilled the objectives outlined above.	

Exam dates:	18 November 2014 10:15-13:15
Exhibition dates:	18 November 2014 10:15-13:15
Deadline:	
Hand-in date:	21 November 2014 17:00
To:	Anne Nielsen

Scope and expectations:
The aim of this course is to introduce students to the theoretical and practical aspects of robotic art. The course places equal emphasis on both aesthetic and technical concerns so students can develop competencies in the creation of an aesthetically engaging autonomous art work. Students will learn how to design, program and execute a computer-controlled work of art using models such as random walks, flocking, and Markov chains. Students will also confront issues in planning, coordination, and control that arise when transitioning from computer simulation to the physical world. There are two assignments: (1) a midterm sketch/study and one-page summary and (2) the completion of a group-based mini-project incorporating computer-controlled robotics. Students will be provided with robots to experiment with (the Arduino robot and Sphero mobile robot), but are invited to develop their own design or robotic prototypes. Prior experience in imperative and object-oriented programming (e.g., C++ or Java) is required.There are two assignments: (1) a midterm sketch/study and one-page written summary and (2) the completion of a group-based mini-project incorporating computer-controlled robotics. The mini-project must be accompanied by a written report and oral presentation summarizing the project, method, approach, and conclusions (10 pages maximum).

Students will be provided with robots to experiment with (the Arduino robot and Sphero mobile robot), but are invited to develop their own design or robotic prototypes. |

Participants:

Prerequisites for participation: Prior experience in imperative and object-oriented programming (e.g., C++ or Java) is required.

Module activities (course sessions etc.)

Multimedia Programming (2 ECTS)

Lesson 1:	Lecture with subsequent exercises
	Robotic Art and Autonomous Systems Origins and development of robotic art from 20th century-present. This course provides an overview of robotic art from kinetic sculpture to contemporary robotic art.
	TBA

	Lecturer: Elizabeth Jochum
	Required Readings: "History of Robotic Art" (Eduardo Kaz) "Robot and Cyborg Art" (Jack Burnham) "The Machine as Autonomous Performer" (Bown et al.)
Lesson 2:	Workshop with subsequent exercises.
	Robot Communications Sending commands to and receiving reports from the robot.
	TBA
	Lecturer(s): Lance Putnam
	Assignments: Programming exercises based on session. Required Readings:
	slides and other resources
Lesson 3:	Workshop with subsequent exercises.
	Language of Motion I Introduction to the concepts of turtles and random walks as a means for executing basic motions.
	TBA
	Lecturer: Lance Putnam
	Assignments: Programming exercises based on session. Required Readings: Random walk - Wikipedia, https://en.wikipedia.org/wiki/Random_walk Further Readings: Abelson, H. and diSessa, A. A. (1980). Turtle Geometry: The Computer as a Medium for Exploring Mathematics. MIT Press. Braitenberg, V. (1984). Vehicles: Experiments in Synthetic Psychology. MIT Press. Pearson, K. (1905). The problem of the random walk. Nature, 72:294, 318, 342. (Mostly for historical interest)
Lesson 4:	Workshop
	Lecturer: Peter Skotte
	Required Readings: "Designing Robots with Motion in Mind" (Hoffman and Ju)
	LOCATION: Fab Lab
Lesson 5:	Lecture with subsequent exercises
	Language of Motion II Kinesics, flocking/swarming: 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.

	n-class presentations of mid-term sketch/studies with evaluation and feedback. One page summaries due.

	Required Readings:
	Control and Art (Spring, 2013)
	   "So You Think You Can Dance" (Schoellig et al.)
	   "Generating Music from Flocking Dynamics" (Hueppe et al.)
	Morphology of Movement (George Rickey)

	Lecturers: Elizabeth Jochum
Lesson 6:	Lecture with subsequent exercises
	Markov Chains and "Acting for Robots" Composing simple motions with state transition networks (Markov chains). Non-functional animations and simulated interactions.
	Lecturers: Lance Putnam, Elizabeth Jochum
	Assignments: Programming exercises based on session. Required Readings: Markov Chains: A Visual Explanation by Victor Powell: http://setosa.io/blog/2014/07/26/markov-chains/
Lesson 7:	In-class demonstrations
	Oral presentation of projects and in-class demonstrations. At the end of the presentations, the class will decide which projects will be presented at the conference "How To Do Things With Art." Held at AAU in Week 46
	Lecturers: Lance Putnam and Elizabeth Jochum
Lesson 8:	*How To Do Things with Art*
	Students in the class are required to attend or participate in the conference at AAU: http://www.en.cgs.aau.dk/research/conferences/howtodothingswithart/
	Lecturers: Lance Putnam and Elizabeth Jochum

Module 22 "Electives" (Valgfag)

Location of module: 5th and/or 6th semester
Credits: 5 ECTS
Method of working: Individual, or project work in groups

Module contents: The contents of the module will vary according to the academic profile pursued by the student. The contents will be shaped by the modules chosen by the students from the list offered by the various study programs at the faculties of engineering, science and medi-

cine, social sciences, and humanities. Thus, electives offered may be of the following character and academic contents:

- Mathematics
- Nordic architecture, design and art
- Advanced programming
- Advanced aesthetic theory
- Advanced theory of architecture and design
- Advanced theory of science
- Advanced communication and/or media theory
- Advanced interaction technology
- Rhetoric
- Entrepreneurship and Economics

The Board of Studies must approve electives selected by the students no later than mid-August. In connection with the approval of electives, students must state the academic profile they wish to pursue.

General objectives:
That the students select one or more subjects relevant to their study program, and which may support their specific academic profile and specialization thereof – including any further academic perspective the students may have in relation to possible choice of MA program.

Specific objectives:
See the study program regulations of the module in question.

The module is completed with:

Examination 22

The examination will be conducted in accordance with the examination procedure laid down by the Board of Studies in question and the study program regulations of the elective(s)/elective modules in question.

In case the Board of Studies of Art & Technology offers the elective module, the examination is internal, and the following will apply:

Form of examination: c)

The examination is a free assignment, which is evaluated by one examiner and awarded a pass/fail grade.

Number of pages: the written work must not exceed 10 pages.

Evaluation: pass/fail. One examiner evaluates the assignment. In case of a Fail grade, an external examiner will also evaluate the assignment.

Substitution: the examination may be substituted by satisfactory and active participation in courses, i.e. 80% presence and submission of all assignments set during the course.

Credits: 5 ECTS

The examination should demonstrate that the student has fulfilled the objectives outlined in the study program regulations of the module in question.