



AALBORG UNIVERSITET

Art and Technology, AAU, 2nd semester 2014

Performative Space and Technology - Festival Light Art - Nibe Festival 2014



Rune Guneriussen: A Grid of Physical Entities

Semester details

School: CAT

Study board: ArT Study Board

Study regulations: BA Study Program in Art and Technology, The Faculty of Humanities, AAU, September 2012

Semester code: ArT2 HSA220019F

Study regulations code: HSA16121

Semester framework theme

Performative Space and Technology.

The semester project for ArT2 2014 is called: **Festival Light Art - Light Installations for Nibe Festival 2014.**

In the semester project "Performative Space and Technology" students will be working on light installations for Nibe Festival. The project theme is defined in collaboration with Nibe Festival, and takes the spatial and social characteristics of the festival site into consideration. The project must result in an integrated art project where light effects, sculptural/architectural form, construction, interactive/responsive/performative features, the festival context and our perception of such a space meet. Students must present such an intergraded project in 1:1 functional installation or mock up, an A0 Poster, in 2D and 3D visualizations, process models and prototypes for the exam.

Music Festivals are rather extreme contexts for art: a lot of people will be seeing and experiencing the work at all hours. The audience is extremely open minded, playful and adventurous, so heavy use of the art works will take place. The installations have to work aesthetically both day and night - and they have to work in bad weather too.

This is your chance to challenge a chaotic site, and leave your mark on the quality of the festival city!

The concept for the installations will be developed during the courses and workshops during the semester.

Main phases in the semester:

1. Analysis of site and context. Students will be introduced to different strategies for analysing space and site. Students will work with models, drawings and diagrams of the site, how to place installations at the site. Various experiments in form making and form construction will support the development of the installations.
2. Technical solutions: programming of responsive elements and/or light. Weather proofing.
3. Production phase: construction principles and manufacturing of the installations.

It is expected that report writing will take place throughout the semester, and simultaneously with the practise-based work on the project.

Method and Learning goals:

Context and site: the meaning of the site, what is a site, and what does the site tell us?

Each project must take departure in a thorough analysis of the site of the specific project. The context is not only considered to be the physical site/space, but also the historic context, the cultural or societal context. Lectures on public art, site-specificity and mapping in AAM II and lectures covering the perception of space in Perception II will deal with these topics.

Form and Aesthetics: Any installation is the result of a strong idea of what kind of experience the work should give to the viewer. In order to express such an idea in an installation it is necessary to have an understanding of both technical and contextual elements, and also of an individual aesthetic understanding of shape, which is going to be developed further this semester. The artistic development of the form of the installation and research for possible solutions will be trained in AAM II, in lectures about light design and light art, and in DR1 where 2D and 3D constructions Methods will be presented as tools for realisation of the semester projects.

Technological aspects of the performative installations will be taught in the module PID II and the course BE II, where programming, sensors and actuators and basic electronics relevant for outdoor projects are central topics.

If the light sculptures live up to the quality- and safety standards of Nibe Festival, there will be an opportunity to install the installations at the festival, which runs from 2nd to 5th of July 2014. We will be in contact with Nibe Festival throughout the semester.

The role of the semester:

ArT2 focus on installation art and architectural and/or urban spaces as the context for art. A special focus of the semester is to create a significant link between art work(s) and the immediate context; i.e. to work actively with the relation between art work and site.

The semester introduces the students to analytical and methodological tools in relation to installation art, performative spaces, architectural and urban contexts for art and site-specificity. The semester also introduces the students to various tools in relation form analysis, form metamorphosis, site registration and mapping, model making, 2D and 3D construction methods: laser cutting and printing, and the semesters technical courses will build upon the skills acquired in first semester in programming.

Semester organisation and time schedule

Artistic and Academic Methodology II (Installation, Architectural Spaces and Urban Design) – AAMII:

- In Artistic and Academic Methodology II there will be lectures about site-specific art and art at music festivals so the student will get insights into how to explore the festival site from various perspectives: the spatial characteristics, the sociological aspects of a festival, the landscape qualities of the site etc.
- AAMII will have lectures in light art and light design that provide knowledge about state-of-the-art in light art, and an introduction to light/lamp design.
- AAMII will also offer a workshop in form morphology, which takes departure in the students inspiration from the site. In this workshop tools such as registration, mapping, morphology and model experiments will be included.
- During AAMII there will be a short excursion to the festival site in Nibe.

Digital Representation I - 2D-3D Constructions Methods (DRI):

- A course in different digital construction methods and the use of laser cutter and 3d-printer will support the construction phase of the works.

Perception in Theory and Practice II (PERII):

Physical Interface Design II (PIDII):

- The course module PIDII and Basic Electronics will support the students work in relation to implementing performative/responsive/interactive aspects to the light sculptures.

History of Art and Technology II (HATII):

- The course module HATII focus on art in the 20th century, especially on installation art. The course will support the students' broader understanding of their own practise in the semester project.

Semester coordinator and secretariat assistance

Semester Coordinator: Line Marie Bruun Jespersen

Course Coordinator:

Module 5. Performative Space and Technology: Line Marie Bruun Jespersen

Module 7. Physical Interface Design II: Lars Knudsen

Module 6. History of Art and Technology II: Line Marie Bruun Jespersen

Secretariat: Anne Nielsen

Teaching staff and supervisors:

- Jakob Bjerre Mikkelsen, research assistant, AD:MT
- Mads Brath, lab engineer, AD:MT
- Jakob Sabra, PhD-student, AD:MT
- Betty Li Meldgaard, external Lecturer, KOM
- Thomas Jaeger, Associate professor, AD:MT
- Lars Knudsen, research assistant, AD:MT
- Lance Putnam, assistant professor, AD:MT
- Ståle Stenslie, Obel professor, AAU/KOM
- Shelley Smith, associate professor, AD:MT
- Line Marie Bruun Jespersen, assistant professor, AD:MT

<p>Module title, ECTS credits and STADS code</p> <p><i>Module 5: Performative Space and Technology/Performativ rum og teknologi (20 ECTS)</i></p> <p><i>Activity code: HSA220019F</i></p>
<p>Location</p> <p><i>2nd semester</i></p> <p><i>Study board: Art & Technology</i></p>
<p>Module coordinator</p> <p><i>Module coordinator: Line Marie Bruun Jespersen</i></p>
<p>Type and language</p> <p><i>Module type: Project Module</i></p> <p><i>Language of instruction: English</i></p>
<p>Objectives</p> <p><i>From the study regulation:</i></p> <p>“Objectives:</p> <p>During this module, students should acquire:</p> <p>basic knowledge about</p> <ul style="list-style-type: none"> • physical installations and performative urban environments and their visual and spatial effects • architectural aesthetic expressions, interaction between people, space and technology, choice of materials and visual effects • the application of technology in connection with the creation and use of performative spaces. • methods and tools to be used in the creation of performative spaces from idea to completed project. <p>skills in</p> <ul style="list-style-type: none"> • identifying and formulating an art problem within the theme “Performative Space and Technology” and developing alternative concepts for a defined problem • developing and describing artistic and architectural concepts within the theme “Performative Space and Technology” • the application of appropriate technologies in regard to design and use of performative spaces • producing sketches, models and prototypes of spatial form • communicating technical issues to peers and non-peers <p>competencies in</p> <ul style="list-style-type: none"> • describing and analysing architectural spaces and their social, emotional and performative aspects • producing concepts for spatial installations of artistic quality • communication the final design in texts, drawings, and models” <p><i>If agreed by the study board, this may also comprise:</i></p>

- a brief description of the methodological and practical knowledge and capabilities that students will achieve
- indication of the course activities in subsequent semesters which the module supports.

Academic content and basis

Artistic and Academic Methodology II consist of lectures focusing on light art and light design, and introduce to theoretical positions within art in public space and the relation between art and site.

In addition to the lectures there will be a mini-workshop introducing registration and mapping of a site+experience of the site, and translating these impressions into abstract, spatial form exercises.

Scope and expectations

Performative Spaces and Technology 20 ECTS - 14 ECTS project work and 6 ECTS courses:

- Artistic and Academic Methodologies II – 2 ECTS
- Basic Electronics II – 1 ECTS
- Perception in theory and practice II– 1 ECTS
- Digital Representation I – 2D and 3D Construction methods – 2 ECTS

Participants

Art2 students.

Prerequisites for participation

Module activities (course sessions etc.)

Artistic and Academic Methodology II (Installation, Architectural Spaces and Urban Design) - AAM II

Lecture 1

Art and design for music festivals.

Introduction to semester project. Lecture on site-specific art and art in the festival city. After the lecture there will be a brainstorming session leading up to the group formation process.

Lecturer(s) Line Marie Bruun Jespersen

Date of the activity: 04.02.2014

Set readings: Gitte Marling and Hans Kiiib: *Instant City@Roskilde Festival*. Aalborg University Press. 2011 pp. 239-284 and pp. 373-388

Lecture 2

PH – The founder of Danish lightning culture.

Poul Henningsen was from the middle of 1920 to his death in 1967 the most prominent and dominant figure in Danish lightning design. His theories and principles can be traced to nearly all other Danish lightning designers in the 20. Cent. And he lamps was the first to be recognized internationally by the avant-garde architects of the international movement.

Lecturer(s) Thomas Arvid Jaeger. Associated Professor, Ph.D

Date of the activity: 05.02.2014

Set and recommended readings: *Light years ahead: the story of the PH lamp*, By Tina Jørstian, Poul Erik Munk Nielsen, Publ. by Louis Poulsen 2.edt. Kbh. 2000
 Jørstian og Munk Nielsen: *TÆND. Ph Lampens historie*. Forlag: Gyldendal

Lecture 3

Castiglioni and Ingo Mauer. Two approaches to lightning design.

The design companies of Castiglioni and Ingo Mauer design have been 2 of the most dominant figures in modern European lightning design from 1960 up to now. Castiglioni's design has a clear functional approach while Mauer in many works is much more conceptual and related to modern art.

Lecturer: Thomas Arvid Jaeger. Associated Professor, Ph.D

Date of the activity: 12.02.2014

Set and recommended readings: Vercelloni, Matteo: Achille and Pier Giacomo Castiglioni. Publ.: 24 ORE Cultura 2011. Ingo Mauer: Lieferung mit Leuchtmitel. Publ. by Bauhaus Archiv 2009

Lecture 4

Light Art.

The lecture will give an overview of the state of art of Light Art, from its historic origins to the latest in large scale projection mapping and high-tech architectural light monuments.

Mankind has played with light and shadows since the taming of fire. In the context of philosophy, light art has been discussed since Plato's famous allegory of the cave. Recently, the advent of digital technologies and lighting technologies such as lasers and LEDs have enabled brand new artistic expressions. The lecture will discuss these developments through exemplary works of light art.

Lecturer Ståle Stenslie

Date of the activity: 13.02.2014

Links and resources:

- Plato: the allegory of the cave: <http://webspace.ship.edu/cgboer/platoscave.html>
- Oslo Lux <http://oslolux.wordpress.com/>
- <http://www.pinterest.com/prangg/light-installation-art/>

Lecture 5.

Workshop Activity - The Creation of Spatial Experience – cases in question.

This lecture will give an introduction to different ways of creating space and provide a vocabulary and tools with which to analyse, assess and define space. Spatial experiences such as: a space to stay in/ a space to pass through/a route to follow/a point de vue,/atmospheres as well as the use of "space-makers" such as physical objects, light, rhythms and sounds will be explored. The students will be assigned case studies that must be analysed and presented to the other students.

Keywords: defining space, creating space, spatial experience

Lecturer: Shelley Smith

Date of the activity: 17.02.2014

Recommended readings:

Ching, F. 1996. Form, Space and Order, 2nd ed. NY: Von Nostrand and Reinhold

Spatial Relationships pgs. 178-187

Spatial Organizations pgs. 188-189

(Spatial Organizations pgs. 188-225)

Circulation Elements pgs. 228-229

Configuration of the Path pgs. 252-253

Path Space Relationships pgs. 264

Ordering Principles pgs. 320-321

(Note: above contains many diagrams)

Video from DAC exhibitions Around the Corner – tendencies in Danish Public Space, 2009/2010:

Oplevelse/Experience: <http://www.youtube.com/watch?v=C4KhpYuCIBE&feature=relmfu>

Böhme, G, 1996. Atmosphere as an Aesthetic Concept. Daidalos, 68, 112-115. (pdf)

Slides and other resources: Lecture slides and assignment material as applicable will be made available on moodle following the lecture:

Lecture 6.

Workshop Activity - *Student case study analysis.*

A. Case study presentations by the students + Lecture + assignment

Case study presentations: Short conclusion based on the case study-assignment.

Lecturers: Shelley Smith and Line Bruun Jespersen

Recommended readings: None

B. Site Registration – ways of experiencing - techniques and tools

In preparation for the field trip excursion to the festival site in Nibe, this lecture will provide information on techniques for registration of a site, i.e., what to look for and how to collect material that 'registers' the site so that analysis and further work with it can be accomplished.

Keywords: perception, phenomenology, experience, senses, haptic.

Assignment/Task:

Excursion to Nibe

The students will go on an excursion to the festival site in Nibe in order to experience the site first-hand and to make registrations of the site which can be taken back to the studio for analysis and further work with the site.

Lecturer: Shelley Smith

Date of the activity: 18.02.2014

Recommended readings:

Pallasmaa, J, 2012. *The Eyes of the Skin*. 3rd ed. UK: Wiley pgs. 44-64

Slides and other resources

Lecture slides and assignment material as applicable will be made available on moodle following the lecture

Lecture 7.

Workshop Activity - *Pin-up + Introduction to Spatial Model Experimentation.*

Exhibition of and short talk about registrations from the site.

Spatial Model Experimentation

Introduction to perceptual spatial model assignment. In which the students are required to experiment with spatial models and interpret impressions from the site into three-dimensional shape.

Lecturer: Shelley Smith and Line Bruun Jespersen

Date of the activity: 19.02.2014

Recommended readings:

None

Slides and other resources

Model example slides and assignment material as applicable will be made available on moodle

Workshop Activity

Pin-up of model experiments and final perceptual model 8

Lecturers: Shelley Smith and Line Bruun Jespersen

Date of the activity: 21.02.2014

Recommended readings: None

Slides and other resources

Student models.

Digital Representation I – 2D-3D Constructions Methods - DR1

Lecture 1.

Workshop - *Basic navigation and modelling in Rhino.*

The module will introduce basic tools, modeling operations and workflows in Rhinoceros. The students will have to bring a laptop with Rhino installed and the workshop will be arranged as

'learning-by-doing' sessions.

Lecturer: Jacob Bjerre Mikkelsen

Date: 25.02.2014

Recommended readings:

It is recommended that you get familiar with the functions presented in Rhino 5 Training Level 1 Training Guide p. 11 – 47 (found at:

<http://www.rhino3d.com/download/rhino/5.0/Rhino5Level1Training>)

You must install Rhino before the course begins, you could use the following link:

<http://www.rhino3d.com/download> (evaluation (free) or full installation)

CAD files used in the workshop will be available through moodle before the course.

Lecture 2.

Workshop - Modelling and Laser Cutting.

Modelling and preparation for laser cutting Brief description: In this module we will look at how to model complex geometries and how to transform these from 3D objects to 2D curves for laser cutting. The students will have to bring a laptop with Rhino installed and the workshop will be arranged as 'learning-by-doing' sessions.

Lecturer: Jacob Bjerre Mikkelsen

Date: 25.02.2014

Recommended readings: We use the Training Guide from Module 1, but specifically Chapter 9: Creating surfaces. Rhino 5 Training Level 1 Training Guide p. 162 – 196 (found at:

<http://www.rhino3d.com/download/rhino/5.0/Rhino5Level1Training>)

You must install Rhino before the course begins, you could use the following link:

<http://www.rhino3d.com/download> (evaluation (free) or full installation)

CAD files used in the workshop will be available through moodle before the course.

Lecture 3.

AD-CAM.

This lecture will look at the basic aspects of working between the digital space in Rhino and the production of physical prototypes through CAM machinery. The student will be introduced to several case studies that will showcase the potentials and limitations of 2D production and how they deal with subjects like uniqueness, repetition, numbering, interlocking assemblies, joints, material behavior, etc.

Lecturer: Mads Brath, Lab. Engineer

Date: 03.03.2014

Recommended readings: "Digital Design and Manufacturing – CAD/CAM Applications in Architecture and Design"; Schodek, D.; page: 237-255

Lecture 4-5-6.

Workshop - Joints

This workshop will deal with the design of joints through hands-on work with physical models. The student will work with different joining techniques and learn how altering the joint can alter the potential design space of the final product. The student will also learn how to use a laser cutter and how to tweak the settings of this machine to get a desired output.

Lecturer: Mads Brath, Lab. Engineer

Date: 04.03.2014 4

Date: 04.03.2014 5

Date: 05.03.2014 6

Recommended readings: "Digital Design and Manufacturing – CAD/CAM Applications in Architecture and Design"; Schodek, D.; page: 297-312

Lecture 7-8.

Workshop – Assembly.

Applying the knowledge of “joint design” from the previous workshop the student will work with the design of a complete object. Focus will be on the creation of several iterations of the same design so as to force the student to explore and optimize the design within aspects such as structural integrity, assembly logics, formal expression, functionality, etc.

Lecturer: Mads Brath, Lab. Engineer

Date: 06.03.2014 7

Date: 07.03.2014 8

Recommended readings: “Digital Design and Manufacturing – CAD/CAM Applications in Architecture and Design”; Schodek, D.; page: 297-312.

Perception in Theory and Practice II - PERII

Objectives

The purpose of the perception course is to work with concepts of space from different theoretical and practical angles with perception as the experiential centre. The students will work theoretically as well as practically with concepts of space and spatiality. Through the course students will get a basic understanding of the various paradigms of perception in relation to space, navigation and spatial relations and the theories introduced will have its outset in psychological and architectural approaches to space and place.

Academic content and basis

The Perception II course on 2. Sem. is a continuation of Perception I on 1. Sem. theories, which specifically relates to space perception and concepts of space, will be introduced on an informative level in order to provide students with a general idea of the theoretical landscape in relation to space and place concepts.

The perception course supports the semester in relation to the individual and shared experience of the cityscape and will challenge student’s perceptual awareness through the psycho-geographical assignment.

Lecture 1.

Space and Perception.

The first lecture introduces various concepts of space and scientific theories relating to space.

Lecturer: Betty Li Meldgaard

Date: 07.04.2014

Lecture 2.

Space and Perception.

Continuation of Space and Perception 1, where theories of space perception are introduced. This lecture will end with an introduction to Psycho - geography and the assignment for the course will be presented.

Assignment: **Psycho-geography after Dark.** The purpose of the assignment is to explore the urban environment after dark. In the dark perception may be distorted due to the lack of natural light and the presence of artificial light and the various shadows that appear. Sound may appear altered due to an altered self-awareness and things that were comfortable and safe in the light may appear to be the opposite in the dark. The purpose of the assignment is to create a psycho-geographical map of the city in the dark. The objectives of assignment is to enable students with basic understanding of how light and shadow can alter the perception of space as well as the sense of presence in a place. The purpose of the assignment is further to provide a method that is relevant for the main semester assignment.

Lecturer: Betty Li Meldgaard
Date: 07.04.2014

Lecture 3.

Psycho-geography.

Continuation of lecture 2, with specific focus on psycho-geographical mapping.

Lecturer: Betty Li Meldgaard

Date: 10.04.2014

Lecture 4.

3D on 2D.

Theories of perception vary in the degree they are capable of producing a valid explanation of perception. In this lecture we will look at theories that are suitable as a foundation for constructing 3D images on 2D planes.

Lecturer: Betty Li Meldgaard

Date: 11.04.2014

Recommended Readings:

Siegfried Gideon "Space-time in Architecture" - excerpts

James J. Gibson "Ecological approach to visual perception" – excerpts.

<http://makingmaps.net/2009/06/22/making-psycho-geography-maps/>

Guy Debord – "Situationist". Texts will be uploaded to Moodle 2 weeks before lecture as PDF's.

Basic Electronics II - BEII

The goal of this course is to advance the students expertise in working with electronics, in relation to interactive artworks. The course covers how to use Arduino to control many things, exceeding the amount of pins available and how to use actuators that exceed the capabilities of the Arduinos outputs. Lastly the course will introduce different techniques for protecting circuits against the elements.

The course assumes the student has knowledge of basic electronics, but if the basics concepts cause problems, revisiting the curriculum of Basic Electronics I is recommended. If the student wants to study any specific topic further, then Practical Electronics for Inventors is recommended literature.

Literature:

Michael Margolis, 2011, Arduino Cookbook, O'Reilly Media (ISBN 978-0-596-80247-9)

Lecture 1.

Arduino Circuits.

The course will begin with a survey of the students' knowledge of basic electronics so far. Further this lecture will address using an Arduino without relying on the official Arduino board. Exercises in topics from BE1 and using a microchip on a breadboard.

Lecturer: Lars Knudsen

Date of the activity: 10.04.2014

Set readings: Survey BE1 literature. <http://www.arduino.cc/en/Main/Standalone> and <http://arduino.cc/en/Tutorial/ArduinoToBreadboard>

Lecture 2.

Controlling many things.

This lecture will cover how relays, transistors, fets and optocouplers can be used in conjunction with Arduinos to enable control of powerful actuators, which can't be run directly from the Arduinos output pins.

Assignment: Control a halogen light with an Arduino

Lecturer: Lars Knudsen

Date of the activity: 16.04.2014

Set readings: Arduino cookbook 5.8 *Reading More Than Six Analog Inputs*, 7.7 *Controlling an LED Matrix Using Multiplexing* and from 7.9 *Driving a 7-segment LED Display* to 7.14 *Increasing the Number of Analog Output Using PWM Extender Chips*

Lecture 3.

Controlling powerful things.

This lecture will cover how relays, transistors, fets and optocouplers can be used in conjunction with Arduinos to enable control of powerful actuators, which can't be run directly from the Arduinos output pins.

Assignment: Control a halogen light with an Arduino

Lecturer: Lars Knudsen

Date of the activity: 24.04.2014

Set readings: Arduino cookbook from 8.6 *Controlling Solenoids and Relays* to 8.8 *Driving a Brushed Motor Using a Transistor* and 10.4 *Controlling a Digital Camera*

Lecture 4.

Weatherproofing.

Problems and suggestions to solutions in relation to exposing hardware to the elements. The course will introduce a selection of methods and classifications of hardware.

Lecturer: Lars Knudsen

Date of the activity: 01.05.2014

Set readings: None

Examination

Submission Requirements:

The module is concluded with the submission of a group project consisting of an installation and a written report.

The installation must be presented as either a finished project or in 1:1 models. In addition to that various visualisations (drawings, renderings), prototypes and process models must be included in the report. Prototypes can be a "mock-up" of the installation, a part of the installation and/or of significant details.

The installation and the report must demonstrate that the students have fulfilled the objectives regarding 2nd semester, outlined in the study plan and the study guide for ArT

Submission of 2 printed and 3 digital versions of the group project. The size of the report mounts to max 10 pages per student. A page is 2400 keystrokes.

The digital version of the report should be provided on a DC/DVD or USB, attached to the printed version of the report.

Written report structure:

The report must contain 2 main parts:

A: Semester Project Report

The semester project report documents the group project made in Module 5 "Performative Space and Technology". Illustrations and pictures must support the written documentation.

Part A of the report must contain:

Front page: Project title, names of group members, student numbers, Semester, Supervisor(s) name(s)

List of content

Introduction

Problem formulation/vision. The specific choice of focus points stated here must be addressed throughout the report.

Concept and Theory

Key elements:

1. Analysis of reference works of art i.e. other urban installations
2. A reflection of the installation's potential in relation to the ecological perceptual system
3. More elements can be added by the group

Tests, Methodology and Results

Key elements:

1. Analysis of site/context in text, mappings and other types of illustrations.
2. Research and tests: materials
3. Research and tests: construction principles
4. Research and tests: experimental effects of fx. Light and shadow, responsive elements etc.
5. More elements can be added by the group

Design and Implementation

Key elements:

1. Presentation of final design and the design process.
2. "Blueprints" of the installation that communicate the construction of the installation and all the parts of the installation.
3. Visualisation of the final installation in its context; one or more renderings of the installation *in situ*.
4. Documentation of the technical content of the installation in text and diagrams.
5. Documentation of programming.
6. More elements can be added by the group

Discussion/Reflection

Conclusion and perspective

Bibliography

Appendix

Summary

The content of the report will be elaborated further in correspondence with assigned supervisor throughout the semester.

B: Course documentation

Document, discuss and reflect on your work in the courses:

Artistic and Academic Methodology II

Perception in Theory and Practice II

Digital Representation I

Basic Electronics II

Illustrations, pictures, diagrams etc. must support the written documentation. The size of this part amounts to 3-5 written normal pages pr. Group. There is no maximum number of illustrated pages.

For the exhibition and the exam the project group must bring:

1:1 Installation (finished product or mock-up)

Context model incl. installation

Presentation poster, A0. The poster must include all names of group members, semester, year, project title, synopsis, illustrations (ArT will keep the posters for future exhibitions)

Process models, sketches and other material that document your work during the semester

Exam dates:

Exhibition dates: 17.-18.5.2014

If the light sculptures live up to the quality- and safety standards of Nibe Festival, there will be an opportunity to install the installations at the festival, which runs from 2nd to 5th of July 2014. We will be in contact with Nibe Festival throughout the semester.

Deadline:

Project hand in is: June 3, 2014 at 10 am

At ArT secretary Anne Nielsen.

Exam dates: June 16, 17, 18, 19 and 20, 2014

Module title, ECTS credits and STADS code

Module 6: Physical Interface Design II/Fysisk Interface design II (5 ECTS)

Activity code: HSA220020D

Location

2nd semester

Study board: Art & Technology

Module coordinator

Lars Knudsen

Type and language

Module type: Project Module

Language of instruction: English

Objectives

From the study regulations:

basic knowledge about

- programming concepts for interactive systems
- actuating possibilities: servo motors, solenoids, and simple mechanics
- using micro-controllers: interface to the computer, analog/digital input/output
- circuit applications: DC filtering, circuit protection and amplifier
- real-time use of signals (such as ADC/DAC, sampling rate, scaling and filtering)
- related work in software development and the media arts

Skills in

- analyzing use of the basic programming with various sensors and actuators
- synthesizing knowledge in written documentation
- communicating technical issues to peers and non-peers

Competencies in

- evaluating an artefact with regard to programming, sensors, and actuators

The topics taught in this module will be used in 3rd semester Programming II and 4th semester Interactive technologies

Academic content and basis

This module introduces programming and the fundamental concepts in this regard. Furthermore these concepts will be applied on a microcontroller with sensors and actuators, enabling the student to create physical interfaces and interactive artefacts

Scope and expectations

Participants

ArT2 Students.

Prerequisites for participation

Students have passed Physical Interface Design 1

Module activities (course sessions etc.)

Programming I - PROI

Programming I is the first in a series of programming courses meant to teach fundamental concepts of imperative and object-oriented programming using the C++ language in the context of real-time, multimedia systems. Programming I will introduce you to the foundations of programming: types, operators, functions and control flow. In addition you will learn basic Unix and usage of the command-line interface.

Literature:

Loudon, K. (2003). C++ Pocket Reference. O'Reilly Media, Inc., USA.

cplusplus.com. (2000). C++ Language Tutorial, <http://www.cplusplus.com/doc/tutorial/>

Lecture 1.

Unix, CLI, and Source Code.

Topics include paths, Unix commands, source code and compilation, program structure (the main function), basic input and output to the console, comments, and "Hello World!".

Lecturer Lance Putnam

Date of the activity: 06.02.2014

Set and recommended readings: Loudon, "Program Structure", pp.3-12. Loudon, "I/O Streams", pp. 122-124. "Structure of a program - C++ Documentation",

http://www.cplusplus.com/doc/tutorial/program_structure/. "Basic Input/Output - C++ Documentation", http://www.cplusplus.com/doc/tutorial/basic_io/

Lecture 2.

Types and Operators.

Topics include boolean, floating-point, integer, and string types, variable declaration, statements, scope, and mathematical operators.

Lecturer: Lance Putnam

Date of the activity: 13.02.2014

Set and recommended readings: Loudon, "Fundamental Types", pp.12-17. Loudon, "Operators", pp.34-37. Loudon, "Expressions", pp.46. Loudon, "Scope", pp.47-49 (skip "Class Scope"). Loudon, "Declaring Variables", pp.51-52 (skip "Pointer variables"). "Variables. Data Types. - C++

Documentation", <http://www.cplusplus.com/doc/tutorial/variables/>. "Constants - C++

Documentation", <http://www.cplusplus.com/doc/tutorial/constants/>. "Operators - C++

Documentation", <http://www.cplusplus.com/doc/tutorial/operators/>. "Boolean Operations - C++

Documentation", <http://www.cplusplus.com/doc/boolean/>.

Lecture 3.

Control Flow.

Topics include general program flow, if/else if/else and switch conditionals and iteration with for/do/while loops.

Lecturer: Lance Putnam

Date of the activity: 06.03.2014

Set and recommended readings: Loudon, "Iteration Statements", "Selection Statements", and "Jump Statements", pp.60-65. "Control Structures - C++ Documentation", <http://www.cplusplus.com/doc/tutorial/control/> (skip 'The goto statement' and 'The exit function').

Lecture 4.

Functions.

Topics include "what is a (mathematical) function?", syntax for declaring, defining and calling functions, pass-by-value versus pass-reference, and recursion.

Lecturer Lance Putnam

Date of the activity: 27.03.2014

Set and recommended readings: Loudon, "Declaring Functions", pp.52-54. "Functions (I) - C++ Documentation", <http://www.cplusplus.com/doc/tutorial/functions/>. "Functions (II) - C++ Documentation", <http://www.cplusplus.com/doc/tutorial/functions2/> (skip 'inline functions').

Suggested reading: "What is a Function" <http://www.mathsisfun.com/sets/function.html>

Sensors and Actuators II - SAI

Sensors and Actuators II will work with applying programming concepts taught in programming 1 to produce interactive artefacts using microcontrollers. The course requires knowledge of basic electronics, which is applied to connect the microcontroller with sensors (inputs) and actuators (outputs). The course will use the Arduino microcontroller platform to teach these topics. ArT cannot supply each student with an Arduino so exercises require sharing Arduinos. Arduinos will be used in other courses and are often a part of semester projects, so it may also be beneficial to buy one on your own.

Literature: Michael Margolis, 2011, Arduino Cookbook, 2nd Edition, O'Reilly Media (ISBN 978-1-449-31387-6)

There is a lot of additional online literature on working with arduinos available. Recommendable sources include:

<http://arduino.cc/en/Reference/HomePage> and <http://arduino.cc/en/Tutorial/HomePage> - Official references and tutorials for code examples included in the Arduino software package. I would not recommend venturing to the official Arduino playground until after the course.

http://arduino.cc/playground/uploads/Main/arduino_comic_v0004.pdf - A illustrated conceptual and short practical introduction

<http://www.ladyada.net/learn/arduino/> - A thorough and very practical introduction complete with schematics, code examples and exercises

<http://www.jeremyblum.com/category/arduino-tutorials/page/2/> A videoseries with good explanations on topics ranging from very basic to very advanced. Comes with recommendation from previous students.

Lecture 1.

Introducing the Arduino.

This lecture introduces the notion of microcontrollers. Survey of the Arduino platform, covering the possibilities it offers as well as the limitations it has. Using a digital output and how to use it to control an LED. Assignment: Download and install arduino IDE. Demonstrate control of a led, by programming a specific sequence of blinks with different duration.

Lecturer Lars Knudsen

Date of the activity: 28.02.2014

Set and recommended readings: Arduino Cookbook, Preface and from beginning of chapter 1 to 1.5 *Creating and Saving a Sketch* and from beginning chapter 2 to 2.4 *Working with Groups of Values*.

Lecture 2.

Using digital inputs.

This lecture covers connecting basic digital inputs to the Arduino, and incorporating them in interactive system. Using serial communication for debugging and using arithmetic operators will also be covered. Assignment: Connect a PIR sensor and light up a led for a set amount of time each time the sensor is activated. Count the amount of people passing by the sensor.

Lecturer Lars Knudsen

Date of the activity: 14.03.2014

Set and recommended readings: Arduino Cookbook, from beginning of chapter 3 *Using Mathematical Operators* to 3.7 *Raising a Number to a Power*, from beginning of 4 *Serial Communications* to 4.2 *Sending Formatted Text and Numeric Data from Arduino* , from beginning of 5 *Simple Digital and Analog Input* to 5.4 *Determining How Long a Switch Is pressed*

Lecture 3.

Using analog inputs.

This lecture covers using the Analog to Digital Converter (ADC) to connect sensors with variable output voltage to the Arduino. The lecture also covers manipulating this input by e.g. scaling and filtering. A vibration and a light sensor will be used as examples Assignments: Read an analog sensor and print the measurement to the serial monitor. Use the output to trigger a LED once it crosses a threshold and turn off the LED if it goes below the threshold again.

Lecturer Lars Knudsen

Date of the activity: 20.03.2014

Set and recommended readings: Arduino Cookbook 5.6 *Reading Analog Values*, 5.7 *Changing the Range of Values*, 5.9 *Displaying Voltages Up to 5V*, 5.10 *Responding to Changes in Voltage*, 5.11 *Measuring Voltages More Than 5v (Voltage Dividers)* and 6.2 *Detecting Light*

Lecture 4.

"Analog" output.

This lecture covers the problem of the Arduino's lack of proper analog output voltage, and the use of pulsewidth modulation to generate voltages, which in some cases act much like an analog output. Assignments: Create three different relationships between one (or more) analog input and three leds.

Lecturer Lars Knudsen

Date of the activity: 03.04.2014

Set and recommended readings: Arduino cookbook 3.11 *Generating Random Numbers*, 7.1 *Connecting and using LEDs*, 7.2 *Adjusting the Brightness of an LED* and 7.5 *Sequencing Multiple LEDs: Creating a Bar Graph*.

Examination

Form of examination:

The examination is a 7-day assignment on a set subject.

Number of pages: the written part must not exceed 5 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

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

<p>Module title, ECTS credits and STADS code</p> <p><i>Module 7: History of Art and Technology II/Kunst og Teknologihistorie II (5 ECTS)</i></p> <p><i>Activity code: HSA220021D</i></p>
<p>Location</p> <p><i>2nd semester</i></p> <p><i>Study board: Art & Technology</i></p>
<p>Module coordinator</p> <p><i>Module coordinator: Line Marie Bruun Jespersen</i></p>
<p>Type and language</p> <p><i>Module type: Study subject module</i></p> <p><i>Language of instruction: English</i></p>
<p>Objectives</p> <p><i>From the Study Regulation:</i></p> <p>“In connection with the module, courses may be offered within the following area:</p> <ul style="list-style-type: none">• History of Art and Technology II <p>Objectives: During this module, students should acquire: basic knowledge about</p> <ul style="list-style-type: none">▪ the history of art and technology, including selected styles of art and scientific theories within the area of space, composition and components▪ central works of selected art periods and genres <p>skills in</p> <ul style="list-style-type: none">▪ analyzing works of art within selected art periods and genres▪ applying central concepts and analytical methods within the history of art and technology – and acquiring familiarity with their historical context and conditions▪ communicating technical issues to peers and non-peers <p>competencies in</p> <ul style="list-style-type: none">▪ comparing various works from selected art periods as regards artistic expression, technological contents, and experience effect▪ applying central works from the history of Art & Technology as a framework for reflection and inspiration in relation to their own works” <p>The course module is organized as a series of lectures incl. smaller sessions of discussions, exercises and student presentations. Throughout the course smaller written assignments will be given, and the hand-in of these assignments is part of the “active participation” of the course.</p>

<p>Academic content and basis</p> <p><i>From the Study Regulation:</i></p> <p>“Module contents: The module is an introduction of the students to the history of Art & Technology with special emphasis on space, composition and components and to the theories and techniques which have been or are currently prevailing in the areas of experience and aesthetics. Using the methodology of lectures, workshops and seminars, the unit will introduce problems regarding perception, description and analysis, including the science of formalization.” The module will introduce students to history of art of primarily 20th century.</p> <p>It is advised that students buy the following books for the course:</p> <p>Claire Bishop: Installation Art – A Critical History. Tate 2005 Anne D’Alleva: Methods and Theories of Art History. Lawrence King Publishing 2012</p>
<p>Scope and expectations</p> <p>5 ECTS =27,5 hours= 137,5</p>
<p>Participants.</p> <p>Art2 students.</p>
<p>Prerequisites for participation</p> <p>HATI</p>
<p>Module activities (course sessions etc.)</p> <p>History of Art and Technology II – HATII</p> <p>Lecture 1. <i>History of Installation Art.</i> This lecture focus on the two themes Claire Bishop calls “The Dream Scene” and “Heightend Perception” in her book: Installation Art – A Critical History. Group work and discussions on central examples handed out during the lecture. Date: 10.2.2014 Lecturer: Line Marie Bruun Jespersen <i>Set and recommended readings:</i> <i>Set readings:</i> Claire Bishop: Installation Art – a critical history. Tate Publishers. 2005 Pages 6-81 Anne D’Alleva: Methods and Theories of Art History. Lawrence King Publishing 2012 pages 88-117</p> <p>Lecture 2. <i>History of Installation Art.</i> This lecture focus on the two themes Claire Bishop calls “Mimetic Engulfment” and “Activated Spectatorship” in her book: Installation Art – A Critical History. <i>Group discussions and research for hand-in 1.</i> One student presentation – Mimetic Engulfment One student presentation – Activated Spectatorship Date: 17.2.2014</p>

Lecturer: Line Marie Bruun Jespersen

Set and recommended readings

Set readings: Claire Bishop: *Installation Art – a critical history*. Tate Publishers. 2005 pages 82-134.

Lecture 3.

Land Art and Site Specificity in art history.

This lecture will focus on land art and site specific art. Various ways of dealing with notions of place and space in art will be presented and discussed. Student presentations: Walther de Maria: *Lightening Field* and Robert Smithson: *Spiral Jetty*.

Lecturer Line Marie Bruun Jespersen

Date of the activity: 03.03.2014

Set readings: Rosalind Krauss: "Sculpture in The Expanded Field", in *The Originality of the Avant-Garde and Other Modernist Myths*, MIT-Press 1986 (1979), pp. 275-290.

Tim Cresswell: *Place – a short introduction*. Blackwell Publishing. 2004 pp 1-12.

Lucy Lippard: *The Lure of the Local. Senses of place in a multicentered society*. The New Press. New York. 1997 pp.4-21

Lecture 4.

Excursion - *Installation Art at AROS*.

Lecture about the collection of 20th century art at ARoS + research assignments in the gallery.

Date: XX.XX.XXXX

Lecturer: Guest lecture by inspector at ARoS

Set and recommended readings: TBA

Lecture 5.

The robot and robotics in a historic perspective, in both art and technology history.

Lecturer: Elisabeth Jochum

Date of the activity: XX.XX.XXXX (week 13)

Set and recommended readings: TBA

Lecture 6.

Some Major Trends in the History of Photography.

Photography has an innate paradoxical relation to the depiction of reality, as on the one hand an objective mechanical, optical, chemical and/or electronic process, and on the other hand, a subjective art form. Throughout its history, this dual-nature has led photographers to demonstrated very different and often opposing attitudes to the media, depending as much on available techniques as on artistic attitude. This makes photography an extremely diverse field, including everything from everyday consumer photography and commercial photography to its very different artistic manifestations. In this lecture, some of the major trends in the history of art photography and their relation to technical as well as cultural development will be described.

Lecturer: Lars Brorson Fich. Post. Doc. AD:MT

Date of the activity: 10.03.2014

Set and recommended readings:

Set readings:

William Eggleston: <http://www.youtube.com/watch?v=rIEDqDwU98k>

<http://www.youtube.com/watch?v=0TdYoithgel>

Steven Shore: *Shore, Stephen, 2011. Form and Pressure. Aperture 205, pp. 44-49.*

<http://www.youtube.com/watch?v=J8kuBc27VO8>.

Martin Parr: <http://www.youtube.com/watch?v=7WUanz5mFFM>

Richard Billingham: <http://www.youtube.com/watch?v=Hu8XLq0Zskc>.

Bernd and Hilda Becher:

<http://www.youtube.com/watch?v=6ZSLvFY1X6g&list=PL76039B67135B0A29>.

<http://www.youtube.com/watch?v=joAcSm0NeI4&list=PL76039B67135B0A29>

Andreas Gursky : Galassi, Peter, 2003.

Andreas Gursky. New York: Museum Of Modern Art pp. 9-43.

<http://www.youtube.com/watch?v=jCSc0oHgC1w>.

Barbara Probst: http://www.youtube.com/watch?v=ej_LCjA1Fkg. *slides and other resources*.

Lecture 7.

Histories of Sound Art / Sounds of Art Histories.

Sound art is a rich and multifaceted field involving elements from all corners of art, technology, engineering, music and art history. There is not one history of sound art, but many; sound art is never explained solely by examining one line of history, but by relating a complexity of influences from the 19th, 20th and 21st century to each other. This course introduces to the vast and complex of fields that feed into the 'histories of sound art'. How does this relate to the history of Art of Technology? is one question that will be asked.

Lecturer Morten Søndergård

Date of the activity: 20.03.2014

Literature: Moodle. Sterne, J. (2012).

Sonic Imaginations. in: Sterne, J. ed: The Sound Studies Reader. London, Routledge 2012.

Moodle.

Sangild, T. (2002). Sensitive Electronics in: Hultberg et.al. eds: SeeSound / Look at the Music.

Ystad/Roskilde, Kulturbro 2002. Moodle. Søndergaard, M. (2002) Sound-art.

An Inter-Aesthetic Project in: Hultberg et.al. eds: SeeSound / Look at the Music. Ystad/Roskilde, Kulturbro 2002. Moodle.

Marstal, H. (2002). Noise, Noisality, Nosstalgia. in: Hultberg et.al. eds: SeeSound / Look at the Music. Ystad/Roskilde, Kulturbro 2002.

Lecture 8.

Color and Light + writing workshop.

This lecture consist of two parts:

- A. Different Color theories will be presented. Significant examples of color and light in historic examples will be investigated further. Exercises in smaller groups: different color experiments and analysis of works of art. Analytical focus on color and light.
- B. In a workshop like environment we will focus on how to write and talk about art. The lecture will show good examples and present possible ways of how to write an art analysis and to academic requirements in general. *Bring a written analysis of a work. Which you have made for this particular purpose. In smaller groups you will give each other constructive feedback on your texts.*

Lecturer: Line Marie Bruun Jespersen

Date of the activity: 31.03.2014

Set and recommended readings:

Set readings: Johannes Itten: The Art of Color. 1962

Erwin Panofsky: Iconography and Iconology: An Introduction to the Study of Renaissance Art. In: Donald Preziosi: The Art of Art History. A Critical Antology. Oxford University Press 2009 pages 220-236.

Anne D'Alleva: Methods and Theories of Art History.

Lawrence King Publishing 2012 pages 152-165, 16-25, 118-125

Recommended readings: Michael Baxandall: Patterns of Intention.

In: Donald Preziosi: The Art of Art History. A Critical Antology. Oxford University Press 2009 pages 45-55

Examination

Transcript of the description of examination and assessment from the study regulations and curriculum, possibly including:

- *relevant evaluation criteria in the assessment*
- *time and manner of submission, possibly including uploading to the project library and screening in the plagiarism checker (Ephorus)*
- *link to examination plan (when available)*

If agreed by the study board, some items may be omitted.

Examination 7

An internal written examination in **Module 7 “History of Art and Technology 2”**.

Form of examination: c)

The examination is a 7-day assignment on a set subject. The assignment is evaluated by one examiner and awarded a pass/fail grade.

Number of pages: the written work must not exceed 12 pages.

Evaluation: pass/fail. 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% 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

Writing week: May 19-23, 2014.

Hand-in: April 22, 2014, at 10 am.