



AALBORG UNIVERSITET



Semester guide: Art and Technology 2nd semester Spring 2015

Study board: Art and Technology

School: Communication, Art and Technology

Study regulations: BA Study Program in Art and Technology September 2014

Semester Coordinator: Line Marie Bruun Jespersen

Illustration: Bruce Munro. Field of Light.

Art & Technology – 2nd semester 2015: Performative Space and Technology

School: Communication, Art and Technology

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ArT 2: Performative Space and Technology - HSA 160066

The semester operates with two main definitions of a 'performative space' – and the project challenges you to work with both definitions!

1. Performative space as a space that performs: the space itself has interactive or responsive features that can react on the environmental impacts, which can be light, wind, touch, human presence, etc. (Kolarevic and Malkawi 2005)
2. Performative space as a space that promotes certain performances: the layout of the space invite/afford/promote specific behaviors, such as dialogue, relaxation, physical activity etc. (Kolarevic and Malkawi 2005)

Other aspects of the ArT2 semester project:

At 2nd semester your semester project must address 'architectural space and/or urban space' The fact that the semester project will be for an outdoor setting in a festival like context poses several challenges to the projects:

The 'performative spaces' must contain elements that make the installation interesting both during daylight and at night. For night-experiences light is a must.

The 'performative spaces' will be exhibited outdoors, so they must be able to endure wind, rain, heat and use by many visitors. Weatherproofing is important. Functional aspects, such as creating opportunities for seating, shade or shelter are also important for the project.

The installations must take the characteristics of the site into consideration. The site is a small forest-like area next to the main venue, which poses a lot of possibilities that must be included.

Your installations will be transported to Nykøbing Mors on the culture ferry OM:FORM, so the installations must be able to be dismantled and packed 'IKEA-style', so it will fit in the ferrys cargo hull. Furthermore the installations must be delivered with a detailed instruction for assembly, and assembly must be easy and quick, so everyone can do it. Think: movable, easy-to-install and pop-up like performative space.

Lasting effects for the site and/or the city: consider how your transformation of the site can contribute to the local community after the Cultural Meeting. Maybe the projects leave a better, improved forest behind, for the neighbours to enjoy? Maybe the performative space consists of elements that can be reused for other purposes after the event, either on site or in other contexts in the city?

The overall concept for the performative space will be developed during the courses and workshops during the semester in dialogue with curator Boris Brorman Jensen.

The project must result in an integrated art project where light effects, sculptural/architectural form, construction, interactive/responsive/performative features, the spatial context and our perception/experience of such a space meet. Students must present such an intergraded project

on a context model 1:50, in 1:1 functional elements, an A0 Poster, in 2D and 3D visualizations, process models 1:25 and other prototypes for the exam.

The students' academic progression:

The semester projects must take departure in a thorough analysis of the site. The context is not only considered to be the physical site/space, but can also be the historic, the cultural or societal context. Lectures on public art, site-specificity and mapping in AAM II and 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 workshops about light design and light art, and in DR1 where 2D and 3D constructions Methods will be presented as tools for realization of the semester projects.

Technological aspects of the performative spaces 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.

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

Semester organisation and time schedule

Physical Interface Design II (Course module)

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 (course module)

The course module HATII focus on art in the 20th century, especially on installation art.

Performative Spaces and Technology – Semester project

The work on the semester project is structured in 4 (5) phases:

1.

Registration, Mapping and representations of space and the site.

On a study trip to Mors, students will measure, map and collect materials/information about the site. After the trip a context Model 1:50 is produced by students, so ideas can be tested 'on site' in Aalborg.

Trip to Mors: February 4th

2.

Concept development. 2 week session, followed by pin-up seminar.

Students work in smaller groups in developing ideas for the performative space at Kulturmødet. The ideas must address topics such as: logistics and flow, spatial concept, materials, acoustics/sound, light, climate, weather proofing, shade and shelter, content, functions, atmospheres.

3.

Pin-up seminar, first iteration: March 6, with Boris Brorman Jensen and Line Bruun Jespersen. The field of ideas is narrowed down.

Another 2-week session follows:

Concept development.

Students work in groups, formed on the basis of their expressed interests, on developing solutions for the overall concept.

Pin-up seminar, second iteration: March 20th, with Boris Brorman Jensen, Ditte Bendix Lanng, Simon Wind and Line Bruun Jespersen Final concept is defined.

(Group formation. Final groups)

4.

Group formation. Final groups.

Prototyping.

Development of functional prototypes. Technical drawings and instructions for assembly+installation are produced.

Solutions for transport/flat packaging is developed and documented.

Test of prototypes on site. Trip to Mors May 8th

(5).

After the exam all parts of the performative space, must be packed incl. drawings and instructions, and delivered to OM:FORM.

Other activities in the semester, related to the semester project:

Workshops:

The project course modules (Perception II, PIDII, AAMII) have been planned as workshop activities. This means that you will have to set aside whole days of working on tasks related to the workshop, during the days where the project course modules are scheduled.

In addition to the courses described in the study regulations, we recommend that you keep an eye on the program for SOL festival, which runs from the 20th-29th of March, where exhibits and workshops related to the performative urban spaces theme will be on display in Aalborg.

Supervision Seminars and Pin Up Sessions:

During the semester a series of supervision seminars/clustered supervision for all/more groups at the same time and Pin Up Sessions where all groups will present their work is scheduled. This is to make sure that knowledge exchange between the groups take place, that all of you get the most out of the shared competences of the supervisors, and to make sure that progression is made according to the overall time plan for the semester.

23.02.2015 10.00-12.00 Supervision session for all groups by Line

03.03.2015 13.30-15.00 Supervision session for all groups by Ditte and Simon

06.03.2015 Pin Up Session with Boris and Line

20.03.2015 Pin Up Session with Boris, Ditte, Simon and Line

25.03.2015 Joint Semester Seminar

Study trips:

Two trips to Nykøbing Mors. We will visit the site at Nykøbing Mors twice during the semester. At Mors we will meet curator Boris Brorman Jensen and other relevant stakeholders. The purpose of the first trip to Mors is to get to know the site: you will have time to make mapping of the site in drawings, photos and other forms of mapping which you will need in your further work. The purpose of the second trip to Mors is to test prototypes and plan for the installation of the performative space, in more detail.

04.02.2015 First trip

08.05.2015 Second trip

Exhibition:

The context model, functional prototypes, and a AO poster with visualizations of your performative space and must be exhibited at the semester exhibition at Rendsburggade 14, the 20th-22nd of May 2015.

Report Hand In:

3rd of June. 2015

Beyond the semester:

The final project(s) will be travelling with the culture ferry OM:FORM at their 'Tour de Limfjord'. (Aalborg, Tall Ships Race 1st-4th of August, Løgstør 8th-9th August and Kulturmødet på Mors the 20th -21st of August).

Collaboration with external stakeholders:

Architect, curator Boris Brorman Jensen, Århus

Kulturmødet på Mors 2015, Region Nordjylland and Morsø Kommune

Kulturfærgen OM:FORM

Semester coordinator and secretariat assistance

Semester coordinator: Line Marie Bruun Jespersen. KOM. linebruun@hum.aau.dk

Course coordinator AAMII: Line Marie Bruun Jespersen. KOM. linebruun@hum.aau.dk

Course coordinator PIDII: Lance Putnam, AD:MT lp@create.aau.dk

Course coordinator HAT2: Line Marie Bruun Jespersen. KOM. linebruun@hum.aau.dk

Secretariat assistance provider: Anne Nielsen. amn@hum.aau.dk

Teaching staff:

Betty Li Meldgaard. KOM

Mads Brath. AD:MT

Boris Bromand Jensen. ArT

Shelley Smith. AD:MT

Rasmus Krarup Madsen. AD:MT

Palle Dahlstedt. HUM

Ditte Bendix Lanng, AD:MT

Simon Wind, AD:MT

<p>Module 5 Performative space and technology (Performative rum og teknologi)</p> <p>20 ECTS</p> <p>HSA 220019F</p>
<p>Location</p> <p>2nd semester</p>
<p>Module coordinator</p> <p>Line Marie Bruun Jespersen. KOM. linebruun@hum.aau.dk</p>
<p>Type and language</p> <p>Project module</p> <p>Language of instruction: English</p>
<p>Objectives</p> <p><i>From the study regulations BA Art and Technology 2014:</i></p> <p>“Module contents: The basis of this module is human experiences in relation to architectural and performative spaces. Students work with mechanical and technological means in the creation of spatial and performative experiences. Experiments will be made with various technologies, tectonic and architectural principles for the creation spaces, physical spatial structures and experienced environments. Students work theoretically and experimentally with realizations of spatial installations including the transformation of space into interactive or otherwise performative architectural environments.”</p> <p>“The objective of module 5: “Performative Space and Technology” is to introduce to space as the artistic medium for the creation and construction of artefacts and events within the field of art and technology.”</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

Competencies in

- describing and analyzing 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”

Academic content and conjunction with other modules/semesters

A brief and general description of the academic content of the module as well as the basis and motivation for the module; i.e. a brief review of the content and foundation of the module.

The intention is to provide students with an overview of each module and to create understanding of the module in relation to the semester and the entire programme.

Semester theme: Performative Spaces and Technology

Project course module: Artistic and Academic Methodology II, DRI, Perception II, Basic Electronics I

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

Artistic and Academic Methodology II will take the form of workshop activities related to site-specific art, so the students will get insights into how to explore a site from various perspectives: the spatial characteristics, the sociological aspects, the landscape qualities of the site etc. During AAMII there will be two study trips to the site in Nykøbing Mors.

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

DR1 is a workshop in different digital construction methods in 2D and 3D, including the use of the laser cutter. The workshop will support the construction phase of the works.

Perception in Theory and Practice II (PERII):

The course will support the students' broader understanding of their own practise in the semester project.

Basic Electronics (BE):

The course will focus on topics relevant for the semester theme, as it builds upon the knowledge acquired during first semester

Scope and expected performance

The expected scope of the module in terms of ECTS load. This comprises number of teaching hours, exercises, preparation time, travel activity etc.

Total workload: 20 ECTS = 550 hours

13 ECTS project work =375,5 hours

7 ECTS courses=192,5

AAMII 2 ECTS=55 hours

<p><i>Teaching hours. 8x2x45min=24hours</i></p> <p><i>Preparation 4 hours</i></p> <p><i>Workshop activities 6 hours</i></p> <p><i>Study trip 14 hours</i></p> <p>DRI 2 ECTS=55 hours</p> <p><i>Teaching hours 8x2x45min=24hours</i></p> <p><i>Work shop activities</i></p> <p><i>Preparation</i></p> <p>BE 1 ECTS =27,5 hours</p> <p><i>Teaching hours 4x2x45min=12 hours</i></p> <p><i>Work shop activities</i></p> <p><i>Preparation</i></p> <p>Perception 1 ECTS =27,5 hours</p> <p><i>Teaching hours 4x2x45min=12 hours</i></p> <p><i>Work shop activities</i></p> <p><i>Preparation</i></p>
<p>Participants</p> <p>ArT2 Students</p>
<p>Prerequisites for participation</p> <p><i>Students who have passed ArT1 or can demonstrate equivalent qualifications</i></p>

AAM II

Lecture

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

In preparation for the field trip to the site in Mors, this lecture will provide information on techniques for registration of a site, i.e., what to look for and how to collect material that documents the site so that analysis and further work can be accomplished. Keywords: perception, phenomenology, experience, senses, haptic.

The students will be assigned mapping and registration tasks that must be prepared before and executed on-site on Mors.

Date: 3/2

Lecturer: Line Marie Bruun Jespersen

Set readings:

Kevin Lynch: The Image of the City. MIT Press 1960 pp. 46-83

Gordon Cullen: The concise townscape. Architectural Press 1961 Pp. 7-57

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

Recommended readings:

Lecture

2 The Creation of Spatial Experience

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: 3/2

Set readings:

Ching, F. 1996. Form, Space and Order, 2nd ed. NY: Von Nostrand and Reinhold Spatial Relationships pgs. 197-198 Spatial Organizations pgs. 206-208 (Spatial Organizations pgs. 206-242) Circulation Elements pgs. 253-294 Configuration of the Path pgs. 276-290 Path Space Relationships pgs. 290 Ordering Principles pgs. 350-418 (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>

Recommended readings:

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

3 Workshop incl. lecture

Lecturer: Boris Brorman Jensen

Excursion to Mors.

Architect and Curator of Kulturmødet Boris Brorman Jensen will give an introduction to framework and context of the semester project and show reference works. After the lecture, students will do registration and mapping assignments on site.

In smaller groups students will Collect data, materials and impressions for mapping/measuring of the site for context model building 1:50 a serial vision (Gordon Cullen) presented on one A3 Page. (Area will be assigned to the groups) an analysis of the site based on Lynch's methods on one A3 Page an individual mapping focusing on a more haptic/sensual/atmospheric approach to the site.

Group discussions on spatial possibilities on site.

Date: 4/2

Set readings:

Recommended readings:

Browse: <http://kulturmoedet.dk/forside.aspx#0?end=7>

Materials:

For the excursion to Mors you must bring:

- Camera, paper for notes, pens, paper for drawing, prints of maps of the site, a plan for how to investigate the site. Certain tasks will be assigned to you, but you might want to add more parameters.
- You must wear WARM and practical clothes according to Danish winter weather, so that you will be able to work and keep warm– you will spend most of the day outside.
- If you have a long measuring tape (10 or 20meters) please bring it.

Lecture

4 Introduction to Spatial Model Experimentation

Exhibition of and short talk about registrations from the site. Bring your material from the excursion to Mors in organized folders.

You must bring:

- a serial vision (Gordon Cullen) presented on one A3 Page. (A specific route will be assigned to the each of the groups)
- an analysis of the site based on Lynch's methods on one A3 Page.
- and an individual mapping focusing on a more haptic/sensual/atmospheric approach to the site.

Students will be introduced to a 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.

Keywords: abstraction, composition,

Lecturer: Shelley Smith

Date: 16/2

Set readings:

Recommended readings:

A book on model making. Below you find two suggestions, but there are plenty of books on the topic, where you can find inspiration for techniques, materials and more.

Criss B. Mills: Designing with models. A Studio Guide to Architectural Process Models. John Wiley & Sons. 2011

Nick Dunn: Architectural Model Making (Portfolio Skills) Lawrence King Publishing 2010

Materials:

For Spatial Model Experimentation all students must bring:

Cutting board, Steel ruler, Knives: scalpel and craft knife, Scissors, White glue, Gluegun+glue

You will need these tools throughout the semester. These tools can be purchased from Architegn, most book stores and shops selling craft/hobby materials.



We also encourage you to explore the different model materials available in Architegn.

Workshop

5 Spatial Model Experimentation

Workshop session. Presentation of the student's spatial model experimentation. Experiments in and discussion of scale and strategies for space making. The student's spatial models and the context model of the site will be used for exploration of different strategies for space-making.

Lecturer: Line Marie Bruun Jespersen

Date: 17/2

Set readings: Francis D.K. Ching: Architecture. Form, Space and Order. Wiley 2015. Introduction X-XI, Additive form pp62-97, Form defining space pp 110-173, Organisation pp.195-207

Recommended readings:

Seminar

6 Pin-up session

After two weeks of project work, student groups will present their suggestions for an overall concept for the site in Mors. The purpose of the session is to find and choose a strong overall concept to explore further.

From the pool of 7-10 ideas, we will discuss, combine and develop ideas into 3 concepts for further exploration during the next two weeks.

Lecturer: Boris Brorman Jensen

Date: 6/3

Set readings:

Recommended readings:

Seminar

7 Pin-up session

After another two weeks of project work student groups will present their suggestions for the site in Mors. From the presentations we will extract the overall concept for the site, and distribute tasks/areas for six project groups. After this date the project enters the prototyping and production

phase.

Lecturer: Boris Brorman Jensen

Date: 20/3

Set readings:

Recommended readings:

Workshop

8 Excursion to Mors: test of prototypes on-site

2nd excursion to Mors. Functional prototypes will be installed on-site and possible/necessary adjustments and improvements will be discussed.

If any alterations of the site has to be made, these will also be planned and/or executed. Documentation of projects in situ for reports.

Lecturer: Boris Brorman Jensen

Date: 8/5

Set readings:

Recommended readings:

DRI

Materials: For DR1 you must bring:

Programs: You must install the program **Rhinoceros** (newest edition) on your computers before the course begins.

A free 90 day trial version is available at: <https://www.rhino3d.com>

Workshop

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: Mads Brath

Date:

Set 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.

Recommended readings:

Workshop

2 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: Mads Brath

Date:

Set 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.

Recommended readings:

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

Date:

Set readings:

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

Recommended readings:

Workshop

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

Date 4:

Date 5:

Date 6:

Set readings:

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

Recommended readings:

Workshop

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

Date:

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

Recommended readings:

Perception II

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.

Lecture

1 Space and Perception

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

Lecturer: Betty Li Meldgaard

Date:

Set readings:

Recommended readings:

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:

Set readings:

Recommended readings:

Lecture

3 Psycho-geography

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

Lecturer: Betty Li Meldgaard

Date:

Set readings:

Recommended readings:

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:

Set 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".

Recommended readings:

Basic Electronics II

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 connecting simple circuits to the Arduino

Lecturer: Rasmus Krarup Madsen

Date:

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

Recommended readings:

Lecture 2 Controlling many things.

This lecture will cover how multiplexers, port extenders and shift registers can be used to extend the functionality of the Arduino

Assignment: Control a shift register with inputs from a multiplexer

Lecturer: Rasmus Krarup Madsen

Date:

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

Recommended readings:

Lecture 3 Controlling powerful things.

This lecture will cover how relays, transistors, MOSFETS 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 or similar components with an Arduino

Lecturer: Rasmus Krarup Madsen

Date:

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

Recommended readings:

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: Rasmus Krarup Madsen

Date:

Set readings: none

Recommended readings: none

Examination

From the Study Regulation. BA Study Program in Art and Technology. September 2014

"The module is completed with:

Examination 5

*An internal combined written and oral examination in **Module 5: “Performative Space and Technology”**.*

The examination will take the form of a conversation between the students, the examiner and an external examiner on the basis of the project report and/or portfolio prepared by the student(s) 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: 20 ECTS

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

Module 6 Physical Interface Design II (Fysisk interface design II)

5 ECTS

HSA 220020D

Location

2nd semester

Module coordinator

Module coordinator PIDII: Lance Putnam, AD:MT

Type and language

Course module

*Language of instruction: English***Objectives****From the study regulations. BA Study Program in Art and Technology. September 2014:***“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*

Competencies in

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

Purpose and Goals:

This module introduces basic concepts in programming and how they can be applied on a microcontroller to create physical interfaces and interactive artefacts.

Content:

The module will be taught as two courses, one focusing on programming concepts and the other on applying these on a microcontroller.

Programming 1(1ECTS):

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 imperative programming: types, operators, functions, and control flow. In addition, the course will teach basic computer skills regarding use of the file system and 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/>

Sensors and Actuators 2 (1ECTS):

The purpose of this course is to apply the programming concepts acquired in Programming 1 towards the production of interactive artefacts using microcontrollers. The course will also require the student to understand basic electronics, which is used to connect microcontroller to sensors and actuators. This course will take departure in the Arduino platform and will cover the use of inputs and outputs to add sensors and actuators to our systems.

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 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.

Academic content and conjunction with other modules/semesters**Scope and expected performance****Participants**

Art and Technology 2nd semester students

Prerequisites for participation**Module activities**

Programming 1**Lecture+exercises****1 Unix, Command-line Interface, and Source Code.**

Topics include file systems, the command-line interface and Unix commands, source code and compilation, program structure (the main function), basic input and output to the console, comments, and your first "Hello World!" program.

Date:

Lecturer: Lance Putnam

Set 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+exercises**2 Types and Operators**

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

Date:

Lecturer: Lance Putnam

Set 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+exercises

3 Control Flow

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

Date:

Lecturer: Lance Putnam

Set 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 + exercises

4 Functions

Topics include syntax for declaring, defining and calling functions, and pass-by-value versus pass-by-reference.

Date:

Lecturer: Lance Putnam

Set 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').

Recommended reading:

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

Sensors and Actuators 2

Lecture+assignments

1 Introducing the Arduino

This lecture introduces the notion of microcontrollers, and why they are interesting. 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 for an LED.

Assignment: Download and install Arduino IDE. Demonstrate control of an LED by programming a specific sequence of blinks.

Date:

Lecturer: Rasmus Madsen

Set 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+assignments

2 Using Digital Inputs

This lecture covers connecting basic digital inputs to the Arduino, and incorporate 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.

Date:

Lecturer: Rasmus Madsen

Set 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 + assignments

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

Assignment: 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.

Date:

Lecturer: Rasmus Madsen

Set 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+assignments

4 “Analog” Output

This lecture covers the problem of the Arduino’s lack of proper analog output voltage, and the use of pulse-width modulation to generate voltages, which in some cases act much like an analog output.

Assignment: Create three different relationships between one (or more) analog input and three LEDs.

Date:

Lecturer: Rasmus Madsen

Set 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

The course can be passed by active participation which involves satisfactory completion of homework assignments. Otherwise, a 7-day written exam will be assigned as outlined in the study regulations.

From the study regulations. BA Study Program in Art and Technology. September 2014:

”Examination 6

*An internal written examination in Module 6: “Physical Interface Design II” Form of examination: c)
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

<p>Module 7 History of Art and Technology II (Kunst- og Teknologihistorie II)</p> <p>5 ECTS</p> <p>HAS 220021D</p>
<p>Location</p> <p>2nd semester</p>
<p>Module coordinator</p> <p>Module coordinator HAT2: Line Marie Bruun Jespersen. KOM. linebruun@hum.aau.dk</p>
<p>Type and language</p> <p>Course module</p> <p>Language of instruction: English</p>
<p>Objectives</p> <p>From the study regulations. BA Study Program in Art and Technology. September 2014:</p> <p><i>“Method of working: Individual work in relation to course activities</i></p> <p><i>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.</i></p> <p><i>” Learning objectives:</i></p> <p><i>During this module, students should acquire:</i></p> <p><i>Basic knowledge about</i></p> <ul style="list-style-type: none"> • <i>the history of art and technology, including selected styles of art and scientific theories within the area of space, composition and components</i> • <i>central works of selected art periods and genres</i> <p><i>Skills in</i></p> <ul style="list-style-type: none"> • <i>analyzing works of art within selected art periods and genres</i> • <i>applying central concepts and analytical methods within the history of art and technology – and acquiring familiarity with their historical context and conditions</i> <p><i>Competencies in</i></p> <ul style="list-style-type: none"> • <i>comparing various works from selected art periods as regards artistic expression, technological contents, and experience effect</i>

- *applying central works from the history of Art & Technology as a framework for reflection and inspiration in relation to their own works*

Academic content and conjunction with other modules/semesters

Scope and expected performance

The expected scope of the module in terms of ECTS load. This comprises number of teaching hours, exercises, preparation time, travel activity (if applicable) etc.

5 ECTS = 137,5 hours student work

Teaching hours: 24 hours. (8 lectures= 8x2x45min.)

Exercises: 73,5 hours. (group exercises before/in connection to lectures + individual written work)

Preparation time: 40 hours. (preparation, reading for lectures)

Participants

Art and Technology 2nd semester students

Prerequisites for participation

Module activities (course sessions etc.)

Lecture 1. Introduction to History of Art and Technology II. 20th century art and technology I

Brief description: Based on the text Botin/Jamison the lecture focuses on selected works by artists from the 20th century in order to investigate the relationship between art and technology in the 20th century. Group work and class discussions.

Distribution of assignments. Assignments: Each student will have an artwork assigned as the main subject for their HATII paper. Students will work on a series of tasks throughout the course, that will support writing the paper.

Date

Lecturer: Line Marie Bruun Jespersen

Set readings:

Lars Botin, Andrew Jamison: The Hybrid Imagination. Chapter 6 (Moodle)

Recommended Readings:

Stephen Farthing. Art the Whole Story. Thames & Hudson. 2012 pp. 316-449

Paper assignment: Choice of artwork. Write a description and a formal analysis of your artwork.

Lecture 2. 20th century art and technology II

Based on the Introduction to Art Since 1900 the lecture focuses on various analytical/theoretical strategies for understanding and analysing art. The lecture focus on selected artists from the 20th century and their work. Exercises in art analysis (group work) will be part of this lecture.

Date

Lecturer: Line Marie Bruun Jespersen

Set readings:

Hal Foster, Roslind Krauss, Yves-Alain Bois, Benjamin H. D. Buchloh : Art Since 1900. Modernism, Antimodernism, Postmodernism. Thames & Hudson. 2012 pp. (Moodle).

*Anne D'Alema: Methods and Theories of Art History. Lawrence King Publishing. 2012 pp.5-15
Recommended readings.*

*Anne D'Alema: Methods and Theories of Art History. Lawrence King Publishing. 2012 pp.15-151
Stephen Farthing. Art the Whole Story. Thames & Hudson. 2012 pp.452-459, pp. 484-491, 497-508.*

Paper assignment: Describe the technological content of your assigned art work and relate the artwork to one or more of the texts in lecture 1+2.

Lecture 3 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

Lecturer: Line Marie Bruun Jespersen

Set readings:

Claire Bishop: Installation Art. A Critical History. Tate Publishers 2005 pp. 6-81

Anne Ring Petersen: Installationskunsten. Mellem billede og scene. Museum Tusulanums Forlag. 2009 pp.471-488 (Installation Art between Image and Stage: An English Summary)(Moodle)

Recommended readings:

Anne Ring Petersen: Installationskunsten. Mellem billede og scene. Museum Tusulanums Forlag. 2009

Julie H. Reiss: From Margin to Center. The spaces of installations art. MIT Press. 2001

Paper assignment: Research: find at least 70 pages from at least 3 different sources that can help you broaden and deepen your understanding of the artwork. Search for texts/articles about the artwork, the artist, the theme in the artwork, similar art/artists etc.

Lecture 4 History of Installation Art II

This lecture focus on the two themes Claire Bishop calls “Mimetic Engulfment” and “Activated Spectatorship” in her book: Installation Art – A Critical History.

One student presentation – Mimetic Engulfment

One student presentation – Activated Spectatorship

Date

Lecturer: Line Marie Bruun Jespersen

Set readings:

Claire Bishop: Installation Art. A Critical History. Tate Publishers 2005 pp. 182-133

Recommended readings

Claire Bishop: Artificial Hells.

Claire Bishop: The Social Turn. Collaboration and its discontents. Art Forum. Feb. 2006:

<http://newsgrist.typepad.com/files/claire-bishop-the-social-turn-collaboration-and-its-discontents-in-2006-artforum.pdf>

Write an analysis of your artwork that clarifies why and how your artwork relates to Bishops categories of installation art. You must also write a critical assessment of Bishops text.

Lecture 5 Sites, Non-sites and found objects.

Brief description

This lecture is about the sitings of art: Art in public space, Land Art and the institutionalisation of the art world in the 20th century. Found objects, readymades and other approaches to the artefact and materiality in art.

Date

Lecturer: Line Marie Bruun Jespersen

Set readings:

Rosalind Krauss: Sculpture in the expanded field. (Moodle)

Robert Smithson: Fragments of a conversation.

<http://www.robertsmithson.com/essays/fragments.htm>

MOMA, Object Trouvé: http://www.moma.org/collection/theme.php?theme_id=10135

Recommended readings:

Carol Duncan: The Art Museum as Ritual. In: The Art of Art History. A Critical Anthology. Donald Preziosi. Oxford History of Art. 2009 pp.424-434 (Moodle)

Brian O'Doherty: InsideThe White Cube. The Ideology of the Gallery Space. University of California Press. 1999

Lecture 6 Light Art (and Color)

Significant examples of the use of light and color in historic examples will be investigated further. Different Color theories will be presented. Exercises in smaller groups: various light and/or color experiments and exercises in art analysis focusing on color and light.

Date

Lecturer: Line Marie Bruun Jespersen

Set readings:

Jack Burnham: Beyond Modern Sculpture. Pp.285-312 (Moodle)

John Gage: Colour in Art. World of Art. Introduction pp. 6-14 and Light from Colour – Colour from Light 14-60 (Moodle)

Richard Yot: Light for visual artists. Understanding and using Light in Art and Design. Laurence King Publishing 2011 pp.128-138 (Moodle)

Recommended readings

Johannes Itten: The Art of Color. 1962

Lecture 7 Sound Art

Brief description

Date

*Lecturer: **Palle Dahlstedt***

Set readings

Recommended readings

Lecture 8 Summing up + Writing with theory

Brief description: Class discussions on major themes and overview of 20th century history of art and technology.

Before lecture 8: you must have finalized the paper assignments as described above, including this:

Paper assignment: Relate on or more texts and important lessons from the lectures 4, 5, 6 to your artwork.

Bring all three written assignments.

Group session: reading and reviewing texts prepared by students. Assignments distributed in Lecture 1

After the final lecture, students will re-write/edit their texts into one paper, that is handed in via Moodle the 15th of May.

Date

Lecturer: Line Marie Bruun Jespersen

Set readings:

Anne D´Aleva: Methods and Theories of Art History. Lawrence King Publishing. 2012 pp. 152-167

Recommended readings

All the above.

Examination

From the study regulations. BA Study Program in Art and Technology. September 2014:

“Examination 7

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

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