



# Curriculum for the Master of Science Programme in Medialogy

**Aalborg University**  
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## Preface:

Pursuant to Act 261 of March 18, 2015 on Universities (the University Act) with subsequent changes, the following curriculum for the Master's programme in Medialogy is stipulated. The programme also follows the Joint Programme Regulations and the Examination Policies and Procedures for The Technical Faculty of IT and Design, The Faculty of Engineering and Science, and The Faculty of Medicine.

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## Chapter 1: Legal Basis of the Curriculum, etc.

### 1.1 Basis in ministerial orders

The Master's programme in Medialogy is organised in accordance with the Ministry of Higher Educations and Science's Order no. 1328 of November 15, 2016 on Bachelor's and Master's Programmes at Universities (the Ministerial Order of the Study Programmes) and Ministerial Order no. 1062 of June 30, 2016 on University Examinations (the Examination Order). Further reference is made to Ministerial Order no. 258 of March 18, 2015 (the Admission Order) and Ministerial Order no. 114 of February 3, 2015 (the Grading Scale Order) with subsequent changes.

### 1.2 Faculty affiliation

The Master's programme falls under the The Technical Faculty of IT and Design, Aalborg University.

### 1.3 Board of Studies affiliation

The Master's programme falls under the Board of Studies for Media Technology.

### 1.4 External examiners corps

The Master's programme is associated with the external examiners corps "Ingeniøruddannelsernes landsdækkende censorkorps – elektro og datalogi"

## Chapter 2: Admission, Degree Designation, Programme Duration and Competence Profile

### 2.1 Admission

#### Applicants with a legal claim to admission (retskrav):

Applicants with the following degree are entitled to admission:

- Bachelor of Science in Medialogy, Aalborg University

#### Applicants without legal claim to admission:

Students with another Bachelor's degree may, upon application to the Board of Studies, be admitted after a specific academic assessment if the applicant is deemed to have comparable educational prerequisites. The University can stipulate requirements concerning conducting additional exams prior to the start of study.

After the first semester, the programme consists of the general Medialogy line and three specialisations. The student must choose his/her specialisation before starting the 2nd semester.

### 2.2 Degree designation in Danish and English

The Master's programme entitles the graduate to one of the following designations:

- Games specialisation: Cand.scient. i medialogi med specialisering i spil. The English designation is: Master of Science (MSc) in Medialogy with specialisation in Games.
- Interaction specialisation: Cand.scient. i medialogi med specialisering i interaktion. The English designation is: Master of Science (MSc) in Medialogy with specialisation in Interaction.
- Computer graphics: Cand.scient. i medialogi med specialisering i computergrafik. The English designation is: Master of Science (MSc) in Medialogy with specialisation in Computer Graphics.
- Medialogy: Cand.scient. i medialogi. The English designation is: Master of Science (MSc) in Medialogy.

### **2.3 The programme's specification in ECTS credits**

The Master's programme is a 2-year, research-based, full-time study programme. The programme is set to 120 ECTS credits.

### **2.4 Competence profile on the diploma**

The following competence profile will appear on the diploma:

A graduate of the Master's programme has competencies acquired through an educational programme that has taken place in a research environment.

The graduate of the Master's programme can perform highly qualified functions on the labour market on the basis of the educational programme. Moreover, the graduate has prerequisites for research (a Ph.D. programme). Compared to the Bachelor's degree, the graduate of the Master's programme has developed her/his academic knowledge and independence, so that the graduate can independently apply scientific theory and method in both an academic and occupational/professional context.

## 2.5 Competence profile of the programme

### The graduate of the Master's programme:

- Knowledge**
- has in-depth **knowledge** and understanding of issues within one of the following areas: medialogy, games, computer graphics, interaction
  - can **understand** and, on a scientific basis, reflect on the technical, organizational and market drivers in the convergence of media technology as well as the interplay between technology, market and user issues
  - can **analyse** the specialisation area's knowledge, theory, methodologies and practice, and identify scientific issues
  - can **understand** the importance of innovation, creativity and entrepreneurship for media technology solutions and services
- Skills**
- ability to **synthesize** scientific methods, tools and general skills within the field of media technologies
  - ability to **evaluate** and select among relevant scientific theories, methods, tools and general skills and, on a scientific basis, advance new analyses and solutions within the subject areas
  - ability to **synthesize** research-based knowledge and discuss professional and scientific problems with both peers and non-specialists
  - ability to **synthesize** knowledge in scientific writing: articles, reports, documentation, etc.
  - ability to **analyse** and select among relevant theories, technologies and methods for development of media technology solutions and services
  - can **analyse** different technologies for optimal selection
  - can **analyse** the research potential or the market, ethical and regulatory framework for application of the technologies
- Competencies**
- ability to **apply** acquired knowledge in research, innovation and entrepreneurship that can be used to explore and exploit the great potential of new media technologies with an engineering approach
  - ability to **synthesize** acquired knowledge creatively and innovatively to identify and propose new opportunities and develop services/solutions, which can empower the users and assist them in solving their current and future tasks on a daily basis
  - ability to **synthesize** project work and problem based learning in a global/multicultural environment
  - ability to **apply** knowledge to independently initiate and implement discipline-specific and interdisciplinary cooperation and assume professional responsibility
  - ability to **synthesize** knowledge and independently take responsibility for own professional development and specialisation
  - **apply** acquired knowledge in mediating collaborations and exchange between development- and business-related functions in organizations

In addition, students should be able to acquire the following specialisation related competencies:

### Games

- Must be able to **analyse** previous research related to game technology and/or design
- Must be able to measure, **analyse**, and evaluate the user experience in games or play
- Must be able to **synthesize** acquired knowledge in the design and implementation of a game

### Interaction

- Must be able to **analyse** previous research related to interaction technology and/or design
- Must be able to **evaluate** and select relevant theories, methods, and tools related to interaction technologies and design, with the specific aim of working towards creating new products, commercially viable products, or new knowledge

### Computer Graphics

- Must be able to **analyse** previous research related to computer graphics
- Must be able to **evaluate** and select relevant computer graphics theories, methods, and tools, and synthesize them to produce new knowledge and solutions

### Medialogy

- Must be able to **analyse** previous research related to media technology
- Must be able to **evaluate** and select relevant media technology theories, methods, and tools, and synthesize them to produce new knowledge and solutions

## Chapter 3: Content and Organisation of the Programme

In addition to the general Medialogy line, the programme consists of three specialisations:

- Games
- Computer Graphics
- Interaction

To each specialisation belongs a specific project module on each of the four semesters. The choice of project module on the 1st semester, however, has no binding effects on the students' choice of specialisation. Students are required to finalize their choice of specialisation before the beginning of the 2nd semester of the education.

The programme is structured in modules and organised as a problem-based study. A module is a programme element or a group of programme elements, which aims to give students a set of professional skills within a fixed time frame specified in ECTS credits, and concluding with one or more examinations within specific exam periods. Examinations are defined in the curriculum. Each semester has an overall theme, which is reflected in the scope of the (mandatory) course modules and semester projects.

Upon approval by the Study Board for Media Technology a group of students working on a semester project may consist of students from different specialisations within the Master's programme in Medialogy.

The programme is based on a combination of academic, problem-oriented and interdisciplinary approaches and organized based on the following work and evaluation methods that combine skills and reflection:

- lectures
- classroom instruction
- project work
- workshops
- exercises (individually and in groups)
- teacher feedback
- reflection
- portfolio work

### 3.1 Overview of the programme:

All modules are assessed through individual grading according to the 7-point scale *or* Pass/Fail. All modules are assessed by external examination (external grading) or internal examination (internal grading) or by assessment by the supervisor or course-responsible only.

An overview of the ECTS credit breakdown for the various semesters by modules is shown in the table form below.

In general, students may choose different options for the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> semester. The thesis project must have a size of at least 30 ECTS, but it is possible to make larger thesis projects of 50 ECTS plus two 5 ECTS courses on the 3<sup>rd</sup> semester. The following options may be chosen:

#### Option 1:

- 3rd semester: 20 ECTS semester project, supplemented by the 2 3<sup>rd</sup> semester courses
- 4th semester: 30 ECTS thesis project

**Option 2:**

- 3rd semester: Project in collaboration with a company in Denmark or abroad, or exchange in Denmark or abroad (in this case the two courses on the 3<sup>rd</sup> semester may be waived)
- 4th semester: 30 ECTS thesis project

**Option 3 (long thesis project):**

- A thesis project of 50 ECTS and the two 5 ECTS courses from 3<sup>rd</sup> semester, extending over 2 semesters.

### 3.2 Courses

Semester	Module	ECTS	Assessment	Exam	Type
1st	Sensing Media – Games	15	7-point scale	Internal	Elective
	Sensing Media – Computer Graphics	15	7-point scale	Internal	Elective
	Sensing Media – Interaction	15	7-point scale	Internal	Elective
	Sensing Media	15	7-point scale	Internal	Elective
	Machine Learning for Media Technology	5	7-point scale	Internal	Mandatory
	Multimodal Perception and Cognition	5	7-point scale	Internal	Mandatory
	<b>Choose 1 from the following electives:</b>				
	Advanced A/V Production	5	7-point scale	Internal	Elective
	User Experience Design	5	Pass/Fail	Internal	Elective
	Prototyping and Fabrication	5	Pass/Fail	Internal	Elective
	Foundations in Medialogy	5	7-point scale	Internal	Elective

#### Specialisation in Games:

2 <sup>nd</sup>	Mediating Reality – Games	15	7-point scale	External	Mandatory
	Algorithms, Data Structures and Software Engineering For Media Technology	5	7-point scale	Internal	Mandatory
	<b>Choose 2 from the following electives:</b>				
	Modelling Physical Systems	5	7- point-scale	Internal	Elective
	Embodied Interaction	5	7-point scale	Internal	Elective
	Narratives in Digital Culture	5	7-point scale	Internal	Elective
	Image Processing and Computer vision <sup>1</sup>	5	Pass/fail	Internal	Elective
3 <sup>rd</sup>	Media Innovation – Games	20	7-point scale	Internal	Mandatory
	Creative Innovation and Entrepreneurship	5	7-point scale	Internal	Elective
	Research in Medialogy	5	7-point scale	Internal	Elective
or	Project-Oriented Work in a Company - Games	30 Possibly 20 25	Pass/Fail	Internal	Elective
4 <sup>th</sup>	Master's Thesis	30 Possibly 50	7-point scale	External	Mandatory

#### Specialisation in Computer Graphics

2 <sup>nd</sup>	Mediating Reality – Computer Graphics	15	7-point Scale	External	Mandatory
	Algorithms, Data Structures	5	7-point Scale	Internal	Mandatory

	and Software Engineering for Media Technology				
	<b>Choose 2 from the following electives:</b>				
	Modelling Physical Systems	5	7-point Scale	Internal	Elective
	Embodied Interaction	5	7-point Scale	Internal	Elective
	Narratives in Digital Culture	5	7-point Scale	Internal	Elective
	Image Processing and Computer Vision <sup>2</sup>	5	Pass/Fail	Internal	Elective
3 <sup>rd</sup>  or	Media Innovation – Computer Graphics	20	7-point Scale	Internal	Mandatory
	Creative Innovation and Entrepreneurship	5	7-point Scale	Internal	Elective
	Research in Medialogy	5	7-point Scale	Internal	Elective
	Project-Oriented Work in a Company- Computer Graphics	30 Possibly 20 25	Pass/Fail	Internal	Elective
4 <sup>th</sup>	Master's Thesis	30 Possibly 50	7-point Scale	External	Mandatory

#### Specialisation in Interaction

2 <sup>nd</sup>	Mediating Reality – Interaction	15	7-point Scale	External	Mandatory
	Algorithms, Data Structures and Software Engineering for Media Technology	5	7-point Scale	Internal	Mandatory
	<b>Choose 2 from the following electives:</b>				
	Modelling Physical Systems	5	7-point Scale	Internal	Elective
	Embodied Interaction	5	7-point Scale	Internal	Elective
	Narratives in Digital Culture	5	7-point Scale	Internal	Elective
	Image Processing and Computer Vision	5	Pass/Fail	Internal	Elective
3 <sup>rd</sup>  or	Media Innovation – Interaction	20	7-point Scale	Internal	Mandatory
	Creative Innovation and Entrepreneurship	5	7-point Scale	Internal	Elective
	Research in Medialogy	5	7-point Scale	Internal	Elective
	Project-Oriented Work in a Company - Interaction	30 Possibly 20 25	Pass/Fail	Internal	Elective
4 <sup>th</sup>	Master's Thesis	30 Possibly 50	7-point Scale	External	Mandatory

Medialogy without specialisation

2 <sup>nd</sup>	Mediating Reality	15	7-point Scale	External	Mandatory
	Algorithms Data Structures and Software Engineering for Media Technology	5	7-point Scale	Internal	Mandatory
	<b>Choose 2 from the following electives:</b>				
	Modelling Physical Systems	5	7-point Scale	Internal	Elective
	Embodied Interaction	5	7-point Scale	Internal	Elective
	Narratives in Digital Culture	5	7-point Scale	Internal	Elective
	Image Processing and Computer Vision <sup>3</sup>	5	Pass/Fail	Internal	Elective
3 <sup>rd</sup>	Media Innovation	20	7-point Scale	Internal	Mandatory
	Creative Innovation and Entrepreneurship	5	7-point Scale	Internal	Elective
	Research in Medialogy	5	7-point Scale	Internal	Elective
	Project-Oriented Work in a Company – without specialisation	30 Possibly 20 25	Pass/Fail	Internal	Elective
4 <sup>th</sup>	Master's Thesis	30 Possibly 50	7-point Scale	External	Mandatory

**Problem Based Learning:**

A compulsory course in Problem Based Learning (PBL) is offered as an integrated part of the project module to students not acquainted with PBL at Aalborg University.

Semester project

**Sensing Media – Games**  
(Sansning af medier – spil)

Workload: 15 ECTS, consisting of project work

Semester: 1st semester

**Objectives:**

Investigate the chosen specialisation from a formal perspective, with a focus on one or more of the following: 1) exploiting the possibilities and/or limitations offered by the perceptual system, 2) exploring the functioning of a particular cognitive process, 3) constructing an application or a part of an application in the chosen specialisation, or 4) analyzing and evaluating the developed application demonstrating how it supports, relies on, or exploits specific modalities or features of the perceptual system.

Additionally, students are required to work according to a scientific method and to report results in scientific forms, such as papers and posters.

Students who complete the module will gain knowledge, skills and competences as follows:

**Knowledge:**

- Must be able to **understand** game design principles
- Must be able to **understand** central issues related to the human perceptual system (including sensation, perception and cognition)

**Skills:**

- Must be able to measure, **analyse**, and evaluate the user experience in games or play

**Competencies:**

- Must be able to **apply** an understanding of the possibilities and limitations of the human perceptual system to the evaluation of a game or playware
- Must be able to communicate, discuss, and **evaluate** research-based knowledge in the area of games and playware in the formats of a scientific paper and a poster, and in the format of a 15 minute conference presentation

**Type of instruction:**

Academically supervised student-governed problem oriented project work

**Exam format:**

In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology:

Oral exam with an internal censor based on a scientific paper written in English and a media-technological product, an AVproduction illustrating and summarizing the project, a poster in English, and edited worksheets/portfolio documenting project details.

The assessment is performed in accordance with the 7-point grading scale.

**Evaluation criteria:**

The criteria for the evaluation are specified in the Joint Programme Regulations.

Semester project

### **Sensing Media – Computer Graphics**

(Sansning af medier – computergrafik)

Workload: 15 ECTS, consisting of project work

Semester: 1st semester

#### **Objectives:**

Investigate the chosen specialisation from a formal perspective, with a focus on one or more of the following: 1) exploiting the possibilities and/or limitations offered by the perceptual system, 2) exploring the functioning of a particular cognitive process, 3) constructing an application or a part of an application in the chosen specialisation, or 4) analyzing and evaluating the developed application demonstrating how it supports, relies on, or exploits specific modalities or features of the perceptual system.

Additionally, students are required to work according to a scientific method and to report results in scientific forms, such as papers and posters.

Students who complete the module will gain knowledge, skills and competences as follows:

#### **Knowledge:**

- Must be able to **understand** the core elements in computer graphics in terms of 3D geometry modelling and representation, surface material properties, and illumination conditions and relevant models for these
- Must be able to **understand** the principles in real-time (accelerated) and/or non-real-time (ray traced) computer graphics
- Must be able to **understand** central issues relating to the human visual system (sensation, perception and cognition)

#### **Skills:**

- Must be able to **apply** a graphics API such as OpenGL, a rendering package, or a game engine to design and implement a system which uses computer graphics as output modality

#### **Competencies:**

- Must be able to **apply** an understanding of the affordances and the limitations in the human visual system in the design of a computer graphics based solution, or in the evaluation of such a system
- Must be able to **synthesize** relevant computer graphics theory, techniques and tools to produce new knowledge and/or solutions
- Must be able to communicate, discuss and **evaluate** research-based knowledge in the area of 3D computer graphics in the formats of a scientific paper and a poster, and in the format of a 15 minute conference presentation

#### **Type of instruction:**

Academically supervised student-governed problem oriented project work

#### **Exam format:**

In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology:

Oral exam with an internal censor based on a scientific paper written in English and a media-technological product, an AVproduction illustrating and summarizing the project, a poster in English, and edited worksheets/portfolio documenting project details.

The assessment is performed in accordance with the 7-point grading scale.

#### **Evaluation criteria:**

The criteria for the evaluation are specified in the Joint Programme Regulations.

Semester project

### **Sensing Media – Interaction**

(Sansning af medier – interaktion)

Workload: 15 ECTS, consisting of project work

Semester: 1st semester

#### **Objectives:**

Investigate the chosen specialisation from a formal perspective, with a focus on one or more of the following: 1) exploiting the possibilities and/or limitations offered by the perceptual system, 2) exploring the functioning of a particular cognitive process, 3) constructing an application or a part of an application in the chosen specialisation, or 4) analyzing and evaluating the developed application demonstrating how it supports, relies on, or exploits specific modalities or features of the perceptual system.

Additionally, students are required to work according to a scientific method and to report results in scientific forms, such as papers and posters.

Students who complete the module will gain knowledge, skills and competences as follows:

#### **Knowledge:**

- Must be able to **understand** the core elements in human centred interaction, such as design methodologies, multimodal input recognition and interpretation, multimodal output generation and synchronisation, etc.
- Must be able to **understand** and distinguish participatory and ethnographic design approaches
- Must be able to **understand** and distinguish between methods for assessing the quality of a design solution
- Must be able to **analyse** central issues relating to human perception and cognition and their relevance for interaction design

#### **Skills:**

- Must be able to **analyse** and compare the state of the art in human centred interaction design
- Must be able to **apply** participatory or ethnographic design approaches
- Must be able to **apply** scientific methods for assessing the quality of their design solution
- Must be able to **synthesize** an interactive system based on a design solution
- Must be able to **analyse** the feasibility of the proposed solution in terms of cost/benefit and social impact

#### **Competencies:**

- Must be able to **analyse** a real world problem, design a solution and translate it into a human centred interactive system
- Must be able to compare and **analyse** the potential of different technologies, methods, and approaches in order to make the proper design choices for optimal functionality
- Must be able to **analyse** the ethical perspective of human centred systems
- Must be able to **analyse** research-based knowledge in the area of interaction design in the formats of a scientific paper and a poster as well as a 15 minute conference presentation

#### **Type of instruction:**

Academically supervised student-governed problem oriented project work

#### **Exam format:**

In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology:

Oral exam with an internal censor based on a scientific paper written in English and a media-

technological product, an AVproduction illustrating and summarizing the project, a poster in English, and edited worksheets/portfolio documenting project details.  
The assessment is performed in accordance with the 7-point grading scale.

**Evaluation criteria:** The criteria for the evaluation are specified in the Joint Programme Regulations.

Semester project

## **Sensing Media**

(Sansning af medier)

Workload: 15 ECTS, consisting of project work

Semester: 1st semester

### **Objectives:**

Investigate the chosen specialisation from a formal perspective, with a focus on one or more of the following: 1) exploiting the possibilities and/or limitations offered by the perceptual system, 2) exploring the functioning of a particular cognitive process, 3) constructing an application or a part of an application in the chosen specialisation, or 4) analyzing and evaluating the developed application demonstrating how it supports, relies on, or exploits specific modalities or features of the perceptual system.

Additionally, students are required to work according to a scientific method and to report results in scientific forms, such as papers and posters.

Students who complete the module will gain knowledge, skills and competences as follows:

### **Knowledge:**

- Must be able to **understand** the core elements in technology integration and media convergence in interactive multimodal systems in terms of hardware, software, electronics, networking, wired and wireless possibilities
- Must be able to **apply** the principles for creating, coding, manipulating and/or combining digital contents in different modalities
- Must be able to **understand** methods for assessing the different means by which a user might interact with content to create novel and engaging experiences
- Must be able to **apply** central issues relating to human perception and cognition in the interaction with content in multimodal systems

### **Skills:**

- Must be able to **synthesize** different technological components into a unified working multimodal system that accomplishes a specific function
- Must be able to design, create and **synthesize** content in multimodal systems
- Must be able to **apply** scientific methods for assessing experience and human response to content in a particular multimodal interactive system

### **Competencies:**

- Must be able to methodically identify and **analyse** state of the art technology and trends
- Must be able to **synthesize** emerging technologies into innovative systems
- Must be able to plan, design and **synthesize** content with a clearly defined objective and with a specific or coherent function
- Must be able to **analyse** the social and cultural implications of the integrated system and the content mediated
- Must be able to communicate and **analyse** research-based knowledge in the area of digital content and technology convergence, in the formats of a scientific paper and a poster, and in the format of a 15 minute conference presentation

### **Type of instruction:**

Academically supervised student-governed problem oriented project work

### **Exam format:**

In accordance with the current Joint Programme Regulations and directions on examination from

the Study Board for Media Technology:

Oral exam with an internal censor based on a scientific paper written in English and a media-technological product, an AVproduction illustrating and summarizing the project, a poster in English, and edited worksheets/portfolio documenting project details.

The assessment is performed in accordance with the 7-point grading scale.

**Evaluation criteria:**

The criteria for the evaluation are specified in the Joint Programme Regulations.

<p><b>Title:</b>  <b>Problem Based Learning (PBL) at Aalborg University</b>  (Problembaseret læring på Aalborg Universitet)  Semester: 1<sup>st</sup> Semester</p>
<p><b>Prerequisites:</b> None, but the course is compulsory for students not acquainted with the PBL model at Aalborg University</p>
<p><b>Objectives:</b>  After completion of the course the student should</p> <p><b>Knowledge:</b></p> <ul style="list-style-type: none"> <li>• know how to describe in own words some of the fundamental principles of Problem Based Learning (PBL) as implemented in the Aalborg PBL model at the Faculty of Engineering and Science</li> <li>• know how to identify similarities and differences between the Aalborg PBL study environment and previous study environments, incl. strengths and weaknesses in both environments</li> </ul> <p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>• be able to structure project management activities based on a well-formulated problem formulation</li> <li>• be able to assess project documentation based on scientific codes of conduct competences</li> <li>• to plan for effective collaborative learning in an intercultural environment and manage group conflicts</li> <li>• be able to reflect on, plan and manage a study project in a PBL learning environment</li> </ul>
<p><b>Type of Instructions:</b> Lectures, discussions and group work. The course will take place during three Wednesday afternoons.</p>
<p><b>Assessment:</b> Internal assessment during the course/class participation according to the rules in the Examination Policies and Procedures, addendum to the Joint Programme Regulations of the Technical Faculty of IT and Design, Aalborg University. In this case the assessment is primarily based on the oral performance during the course. This means that the student has to be active during the course time and participate in discussions. The course is an integrated part of the project and a precondition for participation in the project examination for those who are not acquainted with the Aalborg PBL model. Consequently, no diploma will be issued for the course nor will it appear on the academic transcripts. The assessment is pass/fail.</p>
<p><b>Evaluation criteria:</b>  The criteria for the evaluation are specified in the Joint Programme Regulations.</p>

**Title:****Machine Learning for Media Technology**

(Machine learning i medieteknologi)

Semester: 1<sup>st</sup> semester

**Size:** 5 ECTS

**Objectives:**

When designing and developing interactive media systems and technology, one is often faced with looking for interesting patterns and trends. This course presents theoretical concepts and practical tools for analyzing data for multimedia applications and solving machine learning problems, such as classification, in media technology. Many of these methods are used in, e.g., automatic speech recognition, face detection, web page ranking, autonomous driving, etc. The course includes the following topics: multivariate probability density functions, Bayesian classification, estimation, and detection, parametric (e.g., Gaussian density-based) and non-parametric classifiers (e.g. k-nn, parzen, convolutional neural networks), regression, data fitting, evaluation of classifiers and estimators, unsupervised and supervised learning (e.g., reinforcement learning), feature selection and reduction.

Students who complete the course module will obtain the following qualifications:

**Knowledge:**

- **Understand** multivariate statistics and describe how to model multivariate data, e.g., using probabilistic and parametric descriptions
- **Understand** the principles of Bayesian classification
- **Understand** supervised (classification, regression) and unsupervised learning methods, (e.g., k-means clustering, principal component analysis)
- **Understand** features, feature selection, and dimensionality reduction

**Skills:**

- Choose, implement and **apply** pattern recognition tools to solve classification problems, e.g., footstep detection from accelerometers, recognition of single spoken digits
- **Apply** knowledge to compare classification methods in terms of performance and complexity
- **Apply** theory of multivariate statistics and **analyze** multimedia data, e.g., speech and music, images of faces, etc.

**Competencies:**

- **Analyze** machine learning to a problem in media technology, and reflect on a variety of possibilities to recommend a solution
- **Apply** machine learning methods to this problem,
- **Evaluate**, discuss and generalize the results and reflect on their implications regarding the problem and the data

**Type of instruction:**

Refer to the overview of instruction types listed in the start of chapter 3. The types of instruction for this course are decided in accordance with the current Joint Programme Regulations and directions are decided and given by the Study Board for Media Technology.

**Exam format:**

In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology:

Oral or written examination with internal censor. The assessment is performed in accordance with the 7-point scale.

**Evaluation criteria:**

The criteria for the evaluation are specified in the Joint Programme Regulations.

**Title:****Multimodal Perception and Cognition**

(Multimodal perception og kognition)

Semester: 1<sup>st</sup> semester

**Size:** 5 ECTS

**Objectives:**

In interactive-immersive systems that rely on digital technology, human interactivity and responsiveness are directly linked to the processes of human perception and cognition.

This course introduces current research trends and emerging paradigms on the relation between digital technologies and multi-modal perception and cognition. Particular emphasis is put on multi-modal perception processes that are usually involved in interactive digital media (e.g., visual, auditory, haptic, proprioception) and higher cognitive processes related to interactivity (e.g. multimodal integration, enaction, intelligibility, cognitive closure, affective states and emotions, spatial cognition and navigation).

The course draws relevant knowledge from a variety of disciplines and fields such as cognitive neuroscience, ecological psychology, biology, cognitive ergonomics and cognitive technologies. Different bio-behavioral and biofeedback methods for interaction design and assessment are also introduced (e.g. EEG, EMG, ECG, galvanic skin response, ocular measures) and new trends in integration of interactive digital technologies with cognitive processes are addressed (e.g. multi-modal interfaces and set-ups, brain-computer-interfaces, enactive interfaces). Finally, the course provides the opportunity for targeting the knowledge provided towards the specialisation profile chosen by the student (Computer graphics, Interaction, Games).

A student who completes the course module will obtain the following qualifications:

**Knowledge:**

- **Understanding** of the main paradigms, concepts and disciplines that contribute to multimodal perception research and cognition studies and which have relevance for the interaction of human subjects with immersive-interactive systems
- **Knowledge** about the potentialities and limits that the human “perceptual apparatus” and the cognitive system present for the technology designer
- **Understanding** of the relations between multimodal perception, higher cognitive functions, affective states and action

**Skills:**

- Ability to **apply** knowledge on human multimodal perception and cognition in the design of interactive digital systems
- Ability to **apply** knowledge to the design perception and cognition tests related to the cross-modal action of two or more senses
- Be able to **apply** biofeedback and bio-behavioral measurements in experimental designs

**Competencies:**

- Ability to **synthesize** knowledge and theoretical frameworks from a variety of relevant sources and disciplines, which contribute to the study of technology-cognition interaction
- Be able to **synthesize** such knowledge in the design of multimodal interactive systems
- Ability to **analyse** and interpret experimental work and literature in the field

**Type of instruction:**

Refer to the overview of instruction types listed in the start of chapter 3. The types of instruction for this course are decided in accordance with the current Joint Programme Regulations and directions are decided and given by the Study Board for Media Technology.

**Exam format:**

In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology:

Oral or written examination with internal censor. The assessment is performed in accordance with the 7-point grading scale.

**Evaluation criteria:** The criteria for the evaluation are specified in the Joint Programme Regulations.

**Title:****Advanced A/V Production**

(Avanceret A/V-produktion)

Semester: 1<sup>st</sup> semester

**Size:** 5 ECTS

**Objectives:**

Students who complete the course module will obtain the following qualifications:

**Knowledge:**

- **Understanding** of concept- and iterative format development
- **Understanding** the dramatic premise as the basis of the three-act paradigm
- **Understanding** of the elements of propulsion within fiction: conflicts, obstacles, complications, expectations, foretellings, tests, timelimits, suspense, surprise, and changes
- **Understanding** of the elements of propulsion within entertainment formats: competition, assignment, challenge, randomizer, the vote and the unexpected visitor
- **Understanding** of AV-production management concepts and tools – and the application of such
- **Understanding** and application of various advanced lighting setups including greenscreen lighting
- **Understanding** the effects of combining multicam and singlecam within fictional and factual programming

**Skills:**

- Ability to **analyse** and methodically produce and analyse productions that feature more than one shot shown simultaneously
- Ability to **analyse** and choose the means of expression that manage the audience's perception in multishot productions
- Ability to **analyse** and edit factual material and combine it with fictioncodes
- Ability to discuss and **analyse** three different editing methods: the formalists' five methods of montage, the valuebased Rule of Six and the Kuleshov effect
- Ability to **analyse** advanced lighting set-ups combining hard light, soft light and eye light
- Ability to **analyse** and methodically produce using POV and POA
- Ability to **analyse** methodical uses of long takes
- Ability to **analyse** and methodically produce greenscreen shots on pre-produced material

**Competencies:**

- Must be able to **apply** the general framework of advanced A/V-production in new contexts. This includes choosing the relevant methods and the ability to evaluate the output
- Must be able to **synthesize** the different means of expression and understand the resulting effect they have on the audio-visual entity

**Type of instruction:**

Refer to the overview of instruction types listed in the start of chapter 3. The types of instruction for this course are decided in accordance with the current Joint Programme Regulations and directions are decided and given by the Study Board for Media Technology.

**Exam format:**

In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology.

To be eligible to take the exam the student must have fulfilled:

- handing in of written assignments or the like

- completion of certain – or all – study activities

Note that if admittance to the exam or parts of the assessment is to be based on written work or exercises, a deadline is stipulated for when the work must be handed in. If the student hands in a paper/exercises after the deadline, the student has used an examination attempt.

The exam: Oral or written examination with internal censor. The assessment is performed with the 7-point scale.

**Evaluation criteria:**

The criteria for the evaluation are specified in the Joint Programme Regulations.

**Title:**

**User Experience Design**  
(Design af brugeroplevelsen)

Semester: 1st semester

**Size:** 5 ECTS

**Objectives:**

This course trains students to research, analyse, prototype and conceptualise design considering all system aspects including the social and cultural contexts of use. The course gives a comprehensive knowledge about user involvement in the design process going beyond traditional methods such as usability lab testing. The course introduces students to the application of multi modal methods and interaction design within contemporary fields such as, for example, surface computing, pervasive computing, social and mobile computing, and/or mundane computing.

The objectives are realised by presenting methods and tools in a case based framework and through the students' active participation in workshops and assignments.

Students who complete the module will gain knowledge, skills and competences as follows:

**Knowledge:**

- Must have **knowledge** about system design methods including the social and cultural contexts of use
- Must have **knowledge** of ethnographic study methods for user behaviour research
- Must have **knowledge** about qualitative research methods involving end users in the field, such as interview techniques, analysis and experience sampling
- Must have **knowledge** about scenario-based design methods
- Must have **knowledge** about principles for multi modal interaction design

**Skills:**

- Must be able to **apply** the taught methods to solve concrete design problems.
- Must be able to **evaluate** and compare and apply the methods for a specific design problem
- Must be able to **apply** knowledge to facilitate the design process involving users in real-life contexts

**Competencies:**

- Students will acquire the competencies to decide how to choose the appropriate method to suit different dimensions of a design problem at different stages in the process and the pitfalls of each approach
- Must have competencies in **understanding** the strengths and weaknesses of the methods
- Must have the competencies to facilitate the design process involving users in context

**Type of instruction:**

Refer to the overview of instruction types listed in the start of chapter 3. The types of instruction for this course are decided in accordance with the current Joint Programme Regulations and directions are decided and given by the Study Board for Media Technology.

**Exam format:**

In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology: Oral or written examination with internal censor. The assessment is performed with the Pass/Fail.

**Evaluation criteria:** The criteria for the evaluation are specified in the Joint Programme Regulations.

**Title:****Prototyping and Fabrication Techniques**

(Prototyping og fremstillingsteknikker)

Semester: 1st semester

**Size:** 5 ECTS

**Objectives:**

In order to be part of a leading design team, it is essential to be able to develop and communicate new interaction design concepts for the implementation and production of future electronic devices. The course rationale is that students need to have an understanding of physical interaction design processes, where ideas are formed, developed and tested in proof-of-concept models that can be demonstrated to others via video, poster presentations, and working prototypes. The focus is on understanding and applying design and development strategies needed to move from concept to working prototype, with the most recent tools and techniques for producing new forms, input/output from computers and embedded systems, and interactive systems and devices. The course incorporates advanced fabrication techniques; students should be able to build a prototype for any concept they can imagine. By incorporating computer-assisted industrial and electronic design techniques, knowledge about specific design tools and procedures is gained. In order to be able to apply this knowledge, a thorough understanding of the many underlying concepts is required.

Students who complete the module must acquire the following knowledge, skills and competences:

**Knowledge:**

- The student must have **knowledge** about various approaches to Concept Design methodologies
- The student must have **knowledge** about standard methods and techniques for prototyping of new devices and systems
- The student must be able to **understand** the relationship between concept development and implementation/fabrication, specifically regarding research-based prototyping techniques

**Skills:**

- The student must be able to **apply** concept design methods and prototyping techniques to real world scenarios involving fabrication of objects or systems with intended functionalities (e.g. responsive environments, interactive games, robots, musical interfaces, public installations, etc.) Specific skills to be gained by the student may include many of the following:
  - **Knowledge** of concept development techniques
  - **Knowledge** of modelling and design tools
  - **Knowledge** of rapid prototyping techniques
  - **Understanding** advanced microcontroller programming
  - **Understanding** sensors, actuators, and displays
  - **Understanding** wired and wireless communication protocols
  - **Understanding** 3D input devices and haptics
  - **Understanding** iterative development (redesign/polish of product)
  - **Understanding** circuit design (schematic to printed circuit board)
  - **Understanding** Field Programmable Gate Arrays

**Competencies:**

- The student must be able to **analyse** a problem, design a solution and translate it into an rapid prototyping design
- The student must be able to **analyse** his/her solutions in order to compare and assess the

potential of different concept design methods and prototyping techniques, iteratively making the proper design choices

- The student must be able to **synthesize** results and concepts in a professional way equivalent to practices in both academic and industrial contexts

**Type of instruction:**

The types of instruction for this course are decided in accordance with the current Joint Programme Regulations and directions are decided and given by the Study Board for Media Technology.

**Exam format:** In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology:

Oral or written examination with internal censor. The assessment is performed with the Pass/Fail grade.

**Evaluation criteria:**

Are stated in the Joint Programme Regulations.

<p><b>Title:</b>  <b>Foundations in Medialogy</b>  (Foundations in Medialogy)  Semester: 1<sup>st</sup> semester</p>
<p><b>Size:</b> 5 ECTS</p>
<p><b>Objectives:</b>  The goal of this course is to provide the foundations necessary to perform advanced work in the student-selected specialisation in the 9th and 10th semesters. Students explore state of the art theories and techniques in a formalized manner by analyzing a selection of research texts fundamental to the specialisation through, e.g., critical annotations, paper presentations, reproduction of experiments, etc.</p> <p>Students who complete the module will gain knowledge, skills and competences as follows:</p> <p><b>Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Must be able to understand theories and principles related to the chosen specialisation.</li> </ul> <p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>• Must be able to analyse research topics in the chosen specialisation</li> <li>• Must be able to analyse research papers related to the chosen specialisation</li> <li>• Must be able to apply concepts, tools, theories and technologies of the chosen specialisation to address a specific research problem</li> </ul> <p><b>Competencies:</b></p> <ul style="list-style-type: none"> <li>• Must be able to critically evaluate the developed application, and explain its relevance in science and society</li> </ul>
<p><b>Type of instruction:</b>  Refer to the overview of instruction types listed in the start of chapter 3. The types of instruction for this course are decided in accordance with the current Joint Programme Regulations and directions are decided and given by the Study Board for Media Technology.</p>
<p><b>Exam format:</b>  In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology:  Oral or written examination with internal censor. The assessment is performed in accordance with the 7-point scale.</p>
<p><b>Evaluation criteria:</b>  The criteria for the evaluation are specified in the Joint Programme Regulations.</p>

Semester project:

**Mediating Reality - Games**

(Mediering af virkeligheden - spil)

Workload: 15 ECTS, consisting of project work

Semester: 2nd semester

**Prerequisites:**

The module adds to the knowledge obtained in the 1<sup>st</sup> semester.

**Objectives:**

Explore the chosen specialisation from a formal perspective with a focus on exploring the relationships between real and artificially generated stimuli. Develop and evaluate an application in the chosen specialisation investigating this issue in terms of either: 1) emulating reality, 2) enhancing reality or virtuality, or 3) transforming reality into novel forms of expression and aesthetics.

Students who complete the module will gain knowledge, skills and competences as follows:

**Knowledge**

- Must be able to **understand** game development and the evaluation of user experience in games
- Must be able to **understand** and compare game design theories, principles and methods

**Skills**

- Must be able to **analyse** games, gameplay, and game mechanics according to game design theories
- Must be able to **apply** game design theories, principles and methods to design new games and interactive entertainment

**Competencies**

- Must be able to **analyse** and plan new game-related development projects by applying knowledge about game design and game development

**Type of instruction:**

Academically supervised student-governed problem oriented project work.

**Exam format:**

In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology:

Oral examination with external censor based on a written project report and a media-technological product plus an A/V production that illustrates and summarizes the project.

The assessment is performed in accordance with the 7-point grading scale.

**Evaluation criteria:**

The criteria for the evaluation are specified in the Joint Programme Regulations.

Semester project:

**Mediating Reality - Computer Graphics**

(Mediering af virkeligheden - computergrafik)

Workload: 15 ECTS, consisting of project work

Semester: 2nd semester

**Prerequisites:**

The module adds to the knowledge obtained in the 1<sup>st</sup> semester.

**Objectives:**

Explore the chosen specialisation from a formal perspective with a focus on exploring the relationships between real and artificially generated stimuli. Develop and evaluate an application in the chosen specialisation investigating this issue in terms of either: 1) emulating reality, 2) enhancing reality or virtuality, or 3) transforming reality into novel forms of expression and aesthetics.

Students who complete the module will gain knowledge, skills and competences as follows:

**Knowledge**

- Must be able to **understand** core elements in computer graphics in terms of fundamental radiometric/photometric concepts, and advanced modelling and animation techniques
- Must be able to **understand** principles of modelling and animation of 3D computer graphics content
- Must be able to **understand** how some of the models applied in computer graphics relate to the real physical world

**Skills**

- Must be able to **apply** computer graphics related concepts, tools, and technologies to create products with a conscious and purposive relation to applicable concepts and phenomena of the real world

**Competencies**

- Must be able to **evaluate** and select relevant computer graphics theories, methods, and tools, and synthesize them to produce new knowledge and solutions

**Type of instruction:**

Academically supervised student-governed problem oriented project work.

**Exam format:**

In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology:

Oral examination with external censor based on a written project report and a media-technological product plus an A/V production that illustrates and summarizes the project.

The assessment is performed in accordance with the 7-point grading scale.

**Evaluation criteria:**

The criteria for the evaluation are specified in the Joint Programme Regulations.

Semester project:

**Mediating Reality - Interaction**

(Mediering af virkeligheden - interaktion)

Workload: 15 ECTS, consisting of project work

Semester: 2nd semester

**Prerequisites:**

The module adds to the knowledge obtained in the 1<sup>st</sup> semester.

**Objectives:**

Explore the chosen specialisation from a formal perspective with a focus on exploring the relationships between real and artificially generated stimuli. Develop and evaluate an application in the chosen specialisation investigating this issue in terms of either: 1) emulating reality, 2) enhancing reality or virtuality, or 3) transforming reality into novel forms of expression and aesthetics.

Students who complete the module will gain knowledge, skills and competences as follows:

**Knowledge**

- Must be able to **understand**, describe and distinguish between core elements in sensor technology and mapping of information
- Must be able to **understand** parameters for technology mediated interaction and interactions in public social environments
- Must be able to **understand** fundamentals of embodied interaction and physical interface design

**Skills**

- Must be able to **analyse** and compare the state of the art in tangible and embodied interaction
- Must be able to **apply** scientific methods for assessing the quality of their solution
- Must be able to **apply** knowledge to the design and implement spatial interactive installations and embodied and/or interactive artifacts
- Must be able to **synthesize** state of the art sensor technologies
- Must be able to **evaluate** the feasibility of their solution in terms of cost/benefit and social impact

**Competencies**

- Must be able to compare, select and **analyse** relevant sensor technologies
- Must be able to evaluate and **apply** signal processing methods
- Must be able to **synthesize** knowledge in various forms of scientific documentation
- Must be able to **evaluate** ethical consideration of applying advanced sensor technologies

**Type of instruction:**

Academically supervised student-governed problem oriented project work.

**Exam format:**

In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology:

Oral examination with external censor based on a written project report and a media-technological product plus an A/V production that illustrates and summarizes the project. The assessment is performed in accordance with the 7-point grading scale.

**Evaluation criteria:** The criteria for the evaluation are specified in the joint Programme Regulations

Semester project  
**Mediating Reality**  
(Mediering af virkeligheden)  
Workload: 15 ECTS, consisting of project work  
Semester: 2nd semester

**Prerequisites:**

The module adds to the knowledge obtained in the 1<sup>st</sup> semester.

**Objectives:**

Explore the chosen specialisation from a formal perspective with a focus on exploring the relationships between real and artificially generated stimuli. Develop and evaluate an application in the chosen specialisation investigating this issue in terms of either: 1) emulating reality, 2) enhancing reality or virtuality, or 3) transforming reality into novel forms of expression and aesthetics.

Students who complete the module will gain knowledge, skills and competences as follows:

**Knowledge**

- Must be able to **understand** core elements in current and emerging immersive-interactive technology systems (e.g., mobile devices and platforms, augmented reality, game consoles, affective computing, multimodal systems, virtual reality, ambient intelligence, etc.)
- Must be able to **analyse** the principles and challenges behind the design and integration of such systems
- Must be able to **understand** how to produce and/or implement digital content and assets in such systems
- Must be able to **understand** on the concepts behind virtuality (i.e.: mixed, augmented, virtual, simulated and fictional worlds) in the process of delivering content in such systems and platforms

**Skills**

- Must be able to **synthesize** emerging paradigms, concepts, theories, tools, and technologies to create products with a conscious and purposive relation to applicable concepts and phenomena of the real world

**Competencies**

- Must be able to **evaluate** and select relevant strategies, methods and theories for integrating immersive-interactive systems and synthesize them to produce new knowledge and solutions
- Must be able to **synthesize** considerations of sustainability, social responsibility and ethical dimensions in the design of such systems

**Type of instruction:** Academically supervised student-governed problem oriented project work.

**Exam format:** In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology:

Oral examination with external censor based on a written project report and a media-technological product plus an A/V production that illustrates and summarizes the project.

The assessment is performed in accordance with the 7-point grading scale.

**Evaluation criteria:** The criteria for the evaluation are specified in the Joint Programme Regulations.

<p><b>Title:</b>  <b>Algorithms, Data Structures and Software Engineering for Media Technology</b>  (Algoritmer, datastrukturer og software engineering for medieteknologi)  Semester: 2<sup>nd</sup> semester</p>
<p><b>Size:</b> 5 ECTS</p>
<p><b>Prerequisites:</b>  The module adds to the knowledge obtained in the 1<sup>st</sup> semester.</p>
<p><b>Objectives:</b>  The goal of this module is to strengthen a student's ability to use efficient and appropriate algorithms, data structures and software engineering techniques in the design, implementation and analysis of media technology software.</p> <p>The topics covered in the course may include: efficient data structures (e.g., trees and heaps), advanced algorithmic techniques (e.g., divide-and-conquer, dynamic programming, greedy algorithms), methods for analysing software (e.g., analysis of time and space complexity), machine-learning algorithms (e.g., k-NN, SVM, neural networks), and advanced software engineering concepts (e.g., generics, closures, reflection, GPU programming).</p> <p>Students who complete the module will gain knowledge, skills and competences as follows:</p> <p><b>Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Must understand the fundamentals of algorithm design and analysis.</li> <li>• Must understand methods for analysing time and space complexity.</li> <li>• Must understand basic and advanced data structures used in various computational problems.</li> <li>• Must understand advanced algorithmic techniques such as recursion and dynamic programming.</li> <li>• Must have knowledge of basic machine learning algorithms and techniques.</li> <li>• Must understand advanced software engineering concepts and programming techniques.</li> </ul> <p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>• Must be able to select and implement efficient and appropriate algorithms, data structures and software engineering techniques to solve programming problems in media technology.</li> <li>• Must be able to work in a group to build a substantial media-technological product that uses state-of-the-art programming techniques.</li> </ul> <p><b>Competencies:</b></p> <ul style="list-style-type: none"> <li>• Ability to analyse multimedia software engineering problems and select and implement efficient and appropriate algorithms, data structures and software engineering techniques to develop successful solutions.</li> <li>• Ability to analyse solutions and quantify their resource requirements in terms of time and space complexity.</li> </ul>
<p><b>Type of instruction:</b> Refer to the overview of instruction types listed in the start of chapter 3. The types of instruction for this course are decided in accordance with the current Joint Programme Regulations and directions are decided and given by the Study Board for Media Technology.</p>
<p><b>Exam format:</b>  In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology: Oral or written examination with internal censor. The assessment is performed in accordance with the 7-point scale.</p>

**Evaluation criteria:**

The criteria for the evaluation are specified in the Joint Programme Regulations.

<p><b>Title:</b>  <b>Modelling Physical Systems</b>          (Modellering af fysiske systemer)          Semester: 2<sup>nd</sup> semester</p>
<p><b>Size:</b> 5 ECTS</p>
<p><b>Objectives:</b>          The module gives an in-depth introduction to modelling of physical systems and the analogies between dynamics systems such as mechanical, hydraulic, electronic, and acoustic systems. Constructing and modelling physical systems requires an understanding of basic kinematics and kinetics. In turn, models of dynamic systems have analogies that can be described by the same underlying mathematics. Students who complete this module will understand the basics of mechatronic systems and the analogy between various dynamic systems.</p> <p>Students who complete the module will gain knowledge, skills and competences as follows:</p> <p><b>Knowledge</b></p> <ul style="list-style-type: none"> <li>• Must have <b>knowledge</b> about the kinematics of particles</li> <li>• Must have <b>knowledge</b> about the kinetics of particles</li> <li>• Must be able to <b>understand</b> the analogy between various dynamic systems, i.e. electronic, mechanical and hydraulic systems</li> <li>• Must be able to <b>understand</b> how to model the kinematics and kinetics of simple mechanical systems</li> </ul> <p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• Must be able to <b>apply</b> knowledge to the creation of free body diagrams of dynamic systems</li> <li>• Must be able to <b>understand</b> how to calculate and model forces of dynamic systems</li> <li>• Must be able to select and <b>apply</b> methods for modelling the analogy between various dynamic systems i.e. electronic, mechanical and hydraulic systems</li> </ul> <p><b>Competencies</b></p> <ul style="list-style-type: none"> <li>• Must be able to <b>understand</b> how to collaborate within teams designing, building and modelling physical artefacts</li> <li>• Must be able to <b>synthesize</b> methods for modelling of physical systems and analogies between various dynamic systems such as electronic and hydraulic systems</li> </ul>
<p><b>Type of instruction:</b>          Refer to the overview of instruction types listed in the start of chapter 3. The types of instruction for this course are decided in accordance with the current Joint Programme Regulations and directions are decided and given by the Study Board for Media Technology.</p>
<p><b>Exam format:</b>          In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology:          Oral or written examination with internal censor. The assessment is performed with the 7-point scale.</p>
<p><b>Evaluation criteria:</b>          The criteria for the evaluation are specified in the Joint Programme Regulations.</p>

<p><b>Title:</b>  <b>Embodied Interaction</b>  (Embodied interaction)  Semester: 2<sup>nd</sup> semester</p>
<p><b>Size:</b> 5 ECTS</p>
<p><b>Objectives:</b>  The course presents the emerging theory of embodied interaction interleaved with practical implementations of intelligent systems, where the participants work on open-source, community-supported interactive audio-visual coding platforms, such as <u>Processing</u> and <u>open Frameworks</u>.</p> <p>The focus of the theoretical part is on embodied mind and cognition, intelligent agents, and movement as design material. These will be centered on emerging literature (e.g., Proc. Intl. Workshop on Movement and Computing: <a href="http://moco.ircam.fr">http://moco.ircam.fr</a>).</p> <p>Students who complete the module will gain knowledge, skills and competences as follows:</p> <p><b>Knowledge</b></p> <ul style="list-style-type: none"> <li>• Must have <b>knowledge</b> about standard methods and techniques in embodied interaction</li> <li>• Must be able to <b>understand</b> and describe movement as a design material.</li> <li>• Must be able to <b>understand</b> the bodily skills needed for technological development, decision making, steering and path finding</li> <li>• Must be able to <b>understand</b> what movement qualities are and how they are extracted from movement tracking data.</li> </ul> <p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• Must be able to <b>apply</b> methods and techniques to real world scenarios (e.g., games, robots, public installations, etc.).</li> </ul> <p><b>Competences</b></p> <ul style="list-style-type: none"> <li>• Must be able to <b>analyze</b> a problem, design a solution and translate it into an intelligent embodied system.</li> <li>• Must be able to <b>analyze</b>, compare, and assess the potential of different methods and techniques in order to make the proper design choices.</li> <li>• Must be able to <b>synthesize</b> results and concepts in a professional way equivalent to practices in Embodied Interaction.</li> </ul>
<p><b>Type of instruction:</b>  Refer to the overview of instruction types listed in the start of chapter 3. The types of instruction for this course are decided in accordance with the current Joint Programme Regulations and directions are decided and given by the Study Board for Media Technology.</p>
<p><b>Exam format:</b>  In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology:  Individual oral or written examination with internal censor. The assessment is performed with the 7-point scale.</p>
<p><b>Evaluation criteria:</b> The criteria for the evaluation are specified in the Joint Programme Regulations.</p>

**Title:****Narratives in Digital Culture**

(Narrativer i digital kultur)

Semester: 2nd semester

**Size:** 5 ECTS

**Objectives:**

The digital revolution is having a great impact on cultural processes and society. Innovation runs at a high speed and there is a constant emergence of new paradigms and futuristic ideas for new developments and applications.

In this course students will have the opportunity to place their own work in the historical perspective of these developments, so they can effectively monitor and interpret current and future trends. Analytical tools are provided from a variety of disciplines in order to be on top of such rapid evolution in the field. Working with examples from, for instance, games, edutainment, performing arts, interactive storytelling, virtual reality, social media, and art installations, and by establishing comparisons with a wide range of media and art forms, students also learn how to work with, evaluate and design narrative structures as a key element for reconciling the interplay between immersion, engagement and interactivity in different creative applications.

Furthermore, the students also acquire knowledge on how to combine elements of persuasive communication and aesthetics in order to optimize the relation between content and convergent media technology. A final important objective of the course is to explore the dimensions of sustainability and social responsibility in interactive media technology.

A student who completes the course module will obtain the following qualifications:

**Knowledge:**

- **Understanding** of the advent of digital culture in contemporary society
- **Knowledge** about new emerging and innovative technological paradigms
- **Understanding** about the social implications and the cultural context of interactive media technology and familiarity with the main academic disciplines that study digital culture
- **Understanding** of the importance and design implications of narrative structures in different applications of immersive and interactive media
- **Knowledge** about new methodologies for non-linear interactive narrative and immersive story-telling.
- Broad understanding of the concepts behind virtuality (i.e. virtual, simulated and fictional worlds)
- **Knowledge** about a sustainability and ethical perspective of digital culture
- **Knowledge** about the cultural and creative industries

**Skills:**

- Be able to **synthesize** knowledge from a variety of academic disciplines such as anthropology, cultural studies, cybernetics, semiotics and economics to comprehend the cultural and social processes that originate with the development and expansion of new interactive, immersive and representational digital media
- Ability to **analyse** technologies in order to predict new trends of technological convergence and engage in innovative design
- Be able to **analyse** the trade-offs between immersion and interactivity in new digital systems as compared to other media and artistic forms
- Be able to **analyse** the specificities of cultural products and services based on digital media
- Be able to **synthesize** a rhetoric strategy and the aesthetic choices in the design of user experience in immersive and interactive applications

**Competencies:**

- Be able to **synthesize** new fields of application for interactive, immersive and/or representational digital media
- Be able to **synthesize** case studies on particular current, emerging or future trends in the field.
- Be able to **synthesize** different theoretical perspectives and frameworks to contemplate user experience in narrative-based immersive and interactive applications
- Be able to **analyse** and characterize such emerging and future trends in terms of its contextual aspects and socio-cultural implications

**Type of instruction:** Refer to the overview of instruction types listed in the start of chapter 3. The types of instruction for this course are decided in accordance with the current Joint Programme Regulations and directions are decided and given by the Study Board for Media Technology.

**Exam format:** In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology:  
Oral or written examination with internal censor. The assessment is performed in accordance with the 7-point scale.

**Evaluation criteria:** The criteria for the evaluation are specified in the Joint Programme Regulations.

<p><b>Title:</b>  <b>Image Processing and Computer Vision</b>  <i>(Billedbehandling og computervision) – only offered in Aalborg</i>  Semester: 2nd semester  <a href="http://www.sict.aau.dk/digitalAssets/101/101025_36173_vision_graphics_interactive_systems_godkendt.pdf">http://www.sict.aau.dk/digitalAssets/101/101025_36173_vision_graphics_interactive_systems_godkendt.pdf</a></p>
5 ECTS
<b>Prerequisites:</b> Basic knowledge in linear algebra and statistics
<p><b>Objective:</b>  Cameras capture visual data from the surrounding world. Building systems which can automatically process such data requires computer vision methods. Students who complete the module will understand the nature of digital images and video and have an inside into relevant theories and methods within computer vision and an understanding of their applicability.</p> <p>Students who complete the module:</p> <p><b>Knowledge:</b>  Must have knowledge about the primary parameters of a camera system</p> <ul style="list-style-type: none"> <li>• Must have knowledge about the representation and compression of digital images and video signal</li> <li>• Must be able to understand the general framework of image processing as well as the basic point and neighborhood operations, i.e., binarization, color processing, BLOB analysis and filtering</li> <li>• Must be able to explain the principles behind invariant feature point descriptors such as SIFT and Harris corners.</li> <li>• Must have knowledge of different motion analysis methods, such as background subtraction and optical flow</li> <li>• Must be able to understand the tracking frameworks such as the Kalman filter, mean-shift and the particle filter</li> <li>• Must be able to understand different shape analysis methods such as active-shape models, procrustes, Hungarian method</li> </ul> <p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>• Must be able to apply stereo vision to generate 3D data from two or more cameras. This implies projective geometry, camera calibration, epipolar geometry, correspondence and triangulation</li> <li>• Must be able to apply advanced 2D segmentation methods such as Hough transform, compound morphology, and histogram-of-oriented histograms.</li> <li>• Must be able to demonstrate understanding of error propagation techniques as a tool for performance characterization of computer vision based solutions</li> </ul> <p><b>Competencies:</b></p> <ul style="list-style-type: none"> <li>• Must be able to learn further computer vision methods and theories, and select an appropriate solution for a given problem</li> </ul>
<b>Type of instruction:</b> As described in the introduction to Chapter 3.
<b>Exam format:</b> Oral or written examination
<b>Evaluation criteria:</b> As stated in the Joint Programme Regulations

Semester project:  
**Media Innovation – Games**  
(Medie-innovation – spil)  
Workload: 20 ECTS  
Semester: 3rd semester

**Prerequisites:**

The module adds to the knowledge obtained in the 2<sup>nd</sup> semester.

**Objectives:**

Develop and evaluate a novel system that uses concepts and technologies in the chosen specialisation with a focus on exploring 1) its commercial aspects, and/or 2) its socio-cultural implications, and/or 3) its use in generating scientific knowledge.

Students who complete the module will gain knowledge, skills and competences as follows:

**Knowledge:**

- Must be able to **understand** game design theories, principles, and methods that have been applied in the project
- Must be able to **synthesize** relevant concepts in media commercialization and innovation

**Skills:**

- Must be able to **apply** market and trend analysis methods to a media product or production with game elements
- Must be able to **apply** game-related tools and technologies to create products that are viable from a commercial, socio-cultural, and/or scientific perspective

**Competencies:**

- Must be able to **evaluate** and select relevant game design theories, methods, and tools, with the specific aim of working towards creating new products, commercially viable products, or new knowledge

**Type of instruction:** Academically supervised student-governed problem oriented project work.

**Exam format:** In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology:  
Oral examination with internal censor based on a written project report and a media-technological product plus an A/V-production that illustrates and summarizes the project. The assessment is performed in accordance with the 7-point grading scale.

**Evaluation criteria:** The criteria for the evaluation are specified in the Joint Programme Regulations.

<p><b>Title:</b>  <b>Project Oriented Work in a Company – Games</b>  (projektorienteret forløb i en virksomhed – spil)  Workload: 30 ECTS  Semester: 3rd semester</p>
<p><b>Prerequisites:</b>  The module adds to the knowledge obtained in the 2<sup>nd</sup> semester.</p>
<p>The Academic Internship must have a scope that corresponds the ECTS load.</p> <p><b>Objectives:</b>  Develop and evaluate a novel system that uses concepts and technologies in the chosen specialisation with a focus on exploring 1) its commercial aspects, and/or 2) its socio-cultural implications, and/or 3) its use in generating scientific knowledge.</p> <p>The purpose of this project module is to give the student the opportunity to acquire practical, real-world experience with developing media technological products within the context of a company or an organization. The development must be subject to relevant constraints and conditions of the real-world context.</p> <p>Students who complete the module will gain knowledge, skills and competences as follows:</p> <p><b>Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Must be able to <b>understand</b> game design theories, principles, and methods that have been applied in the project</li> <li>• Must be able to <b>synthesize</b> relevant concepts in media commercialization and innovation</li> <li>• Must be able to <b>understand</b> professional, business-related and organizational concepts that are relevant for the hosting organization and the developed project.</li> </ul> <p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>• Must be able to <b>apply</b> market and trend analysis methods to a media product or production with game elements</li> <li>• Must be able to <b>apply</b> game-related tools and technologies to create products that are viable from a commercial, socio-cultural, and/or scientific perspective</li> <li>• Must be able to <b>apply</b> host relevant constraints and affordances in the product design</li> </ul> <p><b>Competencies:</b></p> <ul style="list-style-type: none"> <li>• Must be able to <b>evaluate</b> and select relevant game design theories, methods, and tools, with the specific aim of working towards creating new products, commercially viable products, or new knowledge</li> </ul>
<p><b>Type of instruction:</b> Academically supervised student-governed problem oriented project work.</p>
<p><b>Exam format:</b> Oral examination on basis of a submitted Company Stay Report. Assessment: pass/fail</p>
<p><b>Evaluation criteria:</b> The criteria for the evaluation are specified in the Joint Programme Regulations.</p>

Semester project:

**Media Innovation – Computer Graphics**

(Medie-innovation – computergrafik)

Workload: 20 ECTS

Semester: 3rd semester

**Prerequisites:**

The module adds to the knowledge obtained in the 2<sup>nd</sup> semester.

**Objectives:**

Develop and evaluate a novel system that uses concepts and technologies in the chosen specialisation with a focus on exploring 1) its commercial aspects, and/or 2) its socio-cultural implications, and/or 3) its use in generating scientific knowledge.

Students who complete the module will gain knowledge, skills and competences as follows:

**Knowledge:**

- Must be able to **understand** core state-of-the-art concepts, theories, techniques and methodologies relating to the sub-area of computer graphics that has been applied in the project
- Must be able to **synthesize** relevant concepts in media commercialization and innovation

**Skills:**

- Must be able to **apply** market and trend analysis methods to a media product or production with computer generated imagery content
- Must be able to **apply** computer graphics related tools and technologies to create products that are viable from a commercial, socio-cultural, and/or scientific perspective

**Competencies:**

- Must be able to **evaluate** and select relevant computer graphics theories, methods, and tools, with the specific aim of working towards creating new products, commercially viable products, or new knowledge

**Type of instruction:** Academically supervised student-governed problem oriented project work.

**Exam format:** In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology:

Oral examination with internal censor based on a written project report and a media-technological product plus an A/V-production that illustrates and summarizes the project. The assessment is performed in accordance with the 7-point grading scale.

**Evaluation criteria:** The criteria for the evaluation are specified in the Joint Programme Regulations.

**Project-Oriented Work in Collaboration with a Company – Computer Graphics**  
(projektorienteret forløb i en virksomhed – computergrafik)

Workload: 30 ECTS

Semester: 3rd semester

**Prerequisites:**

The module adds to the knowledge obtained in the 2<sup>nd</sup> semester.

The Academic Internship must have a scope that corresponds the ECTS load.

**Objectives:**

Develop and evaluate a novel system that uses concepts and technologies in the chosen specialisation with a focus on exploring 1) its commercial aspects, and/or 2) its socio-cultural implications, and/or 3) its use in generating scientific knowledge.

The purpose of this project module is to give the student the opportunity to acquire practical, real-world experience with developing media technological products within the context of a company or an organization. The development must be subject to relevant constraints and conditions of the real-world context.

Students who complete the module will gain knowledge, skills and competences as follows:

**Knowledge:**

- Must be able to **understand** core state-of-the-art concepts, theories, techniques and methodologies relating to the sub-area of computer graphics that has been applied in the project
- Must be able to **synthesize** relevant concepts in media commercialization and innovation
- Must be able to **understand** professional, business-related and organizational concepts that are relevant for the hosting organization and the developed project

**Skills:**

- Must be able to **apply** market and trend analysis methods to a media product or production with computer generated imagery content
- Must be able to **apply** computer graphics related tools and technologies to create products that are viable from a commercial, socio-cultural, and/or scientific perspective
- Must be able to **apply** host relevant constraints and affordances in the product design

**Competencies:**

- Must be able to **evaluate** and select relevant computer graphics theories, methods, and tools, with the specific aim of working towards creating new products, commercially viable products, or new knowledge

**Type of instruction:**

Academically supervised student-governed problem oriented project work.

**Exam format:**

Oral examination on basis of a submitted Company Stay Report. Assessment: 7-point scale

**Evaluation criteria:**

The criteria for the evaluation are specified in the Joint Programme Regulations.

<p>Semester project:  <b>Media Innovation – Interaction</b>  (Medie-innovation – interaktion)  Workload: 20 ECTS  Semester: 3rd semester</p>
<p><b>Prerequisites:</b>  The module adds to the knowledge obtained in the 2<sup>nd</sup> semester.</p>
<p><b>Objectives:</b>  Develop and evaluate a novel system that uses concepts and technologies in the chosen specialisation with a focus on exploring 1) its commercial aspects, and/or 2) its socio-cultural implications, and/or 3) its use in generating scientific knowledge.</p> <p>Students who complete the module will gain knowledge, skills and competences as follows:</p> <p><b>Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Must be able to <b>understand</b> core state-of-the-art concepts, theories, techniques and methodologies relating to the sub-area of interaction design that has been applied in the project</li> <li>• Must be able to <b>synthesize</b> relevant concepts in media commercialization and innovation</li> </ul> <p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>• Must be able to <b>apply</b> market and trend analysis methods to a media product or production involving advanced interaction design</li> <li>• Must be able to <b>apply</b> interaction design methods and technologies to create products that are viable from a commercial, socio-cultural, and/or scientific perspective</li> </ul> <p><b>Competencies:</b></p> <ul style="list-style-type: none"> <li>• Must be able to <b>evaluate</b> and select relevant theories, methods, and tools, with the specific aim of working towards creating new products, commercially viable products, or new knowledge</li> </ul>
<p><b>Type of instruction:</b>  Academically supervised student-governed problem oriented project work.</p>
<p><b>Exam format:</b>  In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Medi Technology:  Oral examination with internal censor based on a written project report and a media-technological product plus an A/V-production that illustrates and summarizes the project. The assessment is performed in with the 7-point grading scale.</p>
<p><b>Evaluation criteria:</b>  The criteria for the evaluation are specified in the Joint Programme Regulations.</p>

**Project-Oriented Work in a Company – Interaction**  
(Projektorienteret forløb I en virksomhed – interaktion)

Workload: 30

Semester: 3<sup>rd</sup> semester

**Prerequisites:**

The module adds to the knowledge obtained in the 2<sup>nd</sup> semester.

The Academic Internship must have a scope that corresponds the ECTS load.

**Objectives:**

Develop and evaluate a novel system that uses concepts and technologies in the chosen specialisation with a focus on exploring 1) its commercial aspects, and/or 2) its socio-cultural implications, and/or 3) its use in generating scientific knowledge.

The purpose of this project module is to give the student the opportunity to acquire practical, real-world experience with developing media technological products within the context of a company or an organization. The development must be subject to relevant constraints and conditions of the real-world context.

Students who complete the module will gain knowledge, skills and competences as follows:

**Knowledge:**

- Must be able to **understand** core state-of-the-art concepts, theories, techniques and methodologies relating to the sub-area of interaction design that has been applied in the project
- Must be able to **synthesize** relevant concepts in media commercialization and innovation
- Must be able to **understand** professional, business-related and organizational concepts that are relevant for the hosting organization and the developed project.

**Skills:**

- Must be able to **apply** market and trend analysis methods to a media product or production involving advanced interaction design
- Must be able to **apply** interaction design methods and technologies to create products that are viable from a commercial, socio-cultural, and/or scientific perspective
- Must be able to **apply** host relevant constraints and affordances in the product design

**Competencies:**

- Must be able to **evaluate** and select relevant theories, methods, and tools, with the specific aim of working towards creating new products, commercially viable products, or new knowledge

**Type of instruction:** Academically supervised student-governed problem oriented project work.

**Exam format:**

Oral based on basis of a submitted Company Stay Report. Assessment: pass/fail

**Evaluation criteria:**

The criteria for the evaluation are specified in the Joint Programme Regulations.

<p>Semester project:  <b>Media Innovation</b>  (Medie-innovation)  Workload: 20 ECTS  Semester: 3rd semester</p>
<p><b>Prerequisites:</b>  The module adds to the knowledge obtained in the 2<sup>nd</sup> semester.</p>
<p><b>Objectives:</b>  Develop and evaluate a novel system that uses concepts and technologies in the chosen specialisation with a focus on exploring 1) its commercial aspects, and/or 2) its socio-cultural implications, and/or 3) its use in generating scientific knowledge.</p> <p>Students who complete the module will gain knowledge, skills and competences as follows:</p> <p><b>Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Must be able to <b>understand</b> core state-of-the-art concepts, theories, techniques and methodologies relating to the particular technologies integrated in the system and the overall strategy and rationale for their integration</li> <li>• Must be able to <b>synthesize</b> relevant concepts in media commercialization and innovation, as well as relevant considerations of the socio-cultural implications of new media systems</li> </ul> <p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>• Must be able to <b>apply</b> market and trend analysis methods to a convergent media integrated product or production which includes multimodal digital content</li> <li>• Must be able to <b>apply</b> tools and technologies to create products, processes and systems that are viable and of interest from a commercial, socio-cultural, and/or scientific perspective</li> </ul> <p><b>Competencies:</b></p> <ul style="list-style-type: none"> <li>• Must be able to <b>evaluate</b> and integrate different technological components, theories and tools into a unified system or product that can lead to commercial applications or to the generation of knowledge</li> <li>• Must be able to <b>analyse</b> and incorporate considerations of sustainability, social responsibility and ethical dimensions in the design of such systems</li> </ul>
<p><b>Type of instruction:</b>  Academically supervised student-governed problem oriented project work.</p>
<p><b>Exam format:</b>  In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology:  Oral examination with internal censor based on a written project report and a media-technological product plus an A/V-production that illustrates and summarizes the project. The assessment is performed in accordance with the 7-point grading scale.</p>
<p><b>Evaluation criteria:</b>  The criteria for the evaluation are specified in the Joint Programme Regulations.</p>

## Project-Oriented Work in a Company – without Specialization

(projektorienteret forløb i en virksomhed)

Workload: 30 ECTS

Semester: 3rd semester

### Prerequisites:

The module adds to the knowledge obtained in the 2<sup>nd</sup> semester.

The Academic Internship must have a scope that corresponds the ECTS load.

### Objectives:

Develop and evaluate a novel system that uses concepts and technologies in the chosen specialisation with a focus on exploring 1) its commercial aspects, and/or 2) its socio-cultural implications, and/or 3) its use in generating scientific knowledge.

The purpose of this project module is to give the student the opportunity to acquire practical, real-world experience with developing media technological products within the context of a company or an organization. The development must be subject to relevant constraints and conditions of the real-world context.

Students who complete the module will gain knowledge, skills and competences as follows:

### Knowledge:

- Must be able to **understand** core state-of-the-art concepts, theories, techniques and methodologies relating to the particular technologies integrated in the system and the overall strategy and rationale for their integration
- Must be able to **synthesize** relevant concepts in media commercialization and innovation, as well as relevant considerations of the socio-cultural implications of new media systems
- Must be able to **understand** professional, business-related and organizational concepts that are relevant for the hosting organization and the developed project.

### Skills:

- Must be able to **apply** market and trend analysis methods to a convergent media integrated product or production which includes multimodal digital content
- Must be able to **apply** tools and technologies to create products, processes and systems that are viable and of interest from a commercial, socio-cultural, and/or scientific perspective
- Must be able to **apply** host relevant constraints and affordances in the product design

### Competencies:

- Must be able to **evaluate** and integrate different technological components, theories and tools into a unified system or product that can lead to commercial applications or to the generation of knowledge
- Must be able to **analyse** and incorporate considerations of sustainability, social responsibility and ethical dimensions in the design of such systems

**Type of instruction:** Academically supervised student-governed problem oriented project work.

### Exam format:

Oral examination on basis of a submitted Company Stay Report. Assessment: pass/fail.

**Evaluation criteria:** The criteria for the evaluation are specified in the Joint Programme Regulations.



<p><b>Title:</b>  <b>Creative Innovation and Entrepreneurship</b>  (Kreativ innovation og entrepreneurskab)  Semester: 3<sup>rd</sup> semester</p>
<p><b>Size:</b> 5 ECTS</p>
<p><b>Objectives:</b>  This course will give an in-depth introduction of the various factors that are in play when starting a business in the media and entertainment industry. It will provide the necessary background for startup of business both in context of a team working inside an existing organisation (Intrepreneurship) and startup of new businesses (Entrepreneurship).</p> <p>Students who complete the module will gain knowledge, skills and competences as follows:</p> <p><b>Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Must have <b>knowledge</b> about methods and concepts for startup of businesses</li> <li>• Must be able to <b>understand</b> market potentials for new media products or productions</li> <li>• Must be able to <b>understand</b> different business forms in relation to specific products or productions</li> </ul> <p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>• Must be able to <b>analyse</b> a business case</li> <li>• Must be able to <b>synthesize</b> a business plan</li> <li>• Must be able to <b>understand</b> property rights and patents</li> <li>• Must be able to <b>understand</b>, design and conduct media culture analysis</li> </ul> <p><b>Competencies:</b></p> <ul style="list-style-type: none"> <li>• Must be able to <b>understand</b> how to collaborate within teams developing and implementing new business plans within existing companies or for startup companies</li> <li>• Be able to <b>analyse</b>, compare and discuss different business strategies</li> <li>• Be able <b>analyse</b> and evaluate the potential market for new media products or productions</li> </ul>
<p><b>Type of instruction:</b>  Refer to the overview of instruction types listed in the start of chapter 3. The types of instruction for this course are decided in accordance with the current Joint Programme Regulations and directions are decided and given by the Study Board for Media Technology.</p>
<p><b>Exam format:</b>  In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology:  Oral or written examination with internal censor. The assessment is performed in accordance with the 7-point grading scale.</p>
<p><b>Evaluation criteria:</b> The criteria for the evaluation are specified in the Joint Programme Regulations.</p>

<p><b>Title:</b>  <b>Research in Medialogy</b>  (Forskning i medialogi)  Semester: 3<sup>rd</sup> semester</p>
<p><b>Size:</b> 5 ECTS</p>
<p><b>Prerequisites:</b>  The module adds to the knowledge obtained in the 2<sup>nd</sup> semester.</p>
<p><b>Objective</b>  The goal of this course is to perform advanced work in the student-selected specialisation, building upon the foundation gained in the 8th semester. Students explore state of the art theories and techniques in a formalized manner by analyzing a selection of new research texts to the specialisation through, e.g., critical annotations, paper presentations, reproduction of experiments, etc.</p> <p>Students who complete the module will gain knowledge, skills and competences as follows:</p> <p><b>Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Must be able to understand theories and principles related to a specific area of the chosen specialisation</li> </ul> <p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>• Must be able to <b>analyse</b> a research topic in the chosen specialisation</li> <li>• Must be able to <b>analyse</b> research papers related to a specific area of the chosen specialisation</li> <li>• Must be able to <b>apply</b> concepts, tools, theories and technologies of the chosen specialisation to address a specific research problem</li> </ul> <p><b>Competencies:</b></p> <ul style="list-style-type: none"> <li>• Must be able to <b>synthesize</b> a specific topic in the chosen specialisation</li> </ul>
<p><b>Type of instruction:</b> Refer to the overview of instruction types listed in the start of chapter 3. The types of instruction for this course are decided in accordance with the current Joint Programme Regulations and directions are decided and given by the Study Board for Media Technology.</p>
<p><b>Exam format:</b> In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology:  Oral or written examination with internal censor. The assessment is performed in accordance with the 7-point grading scale.</p>
<p><b>Evaluation criteria:</b> The criteria for the evaluation are specified in the Joint Programme Regulations.</p>

## Master's Thesis

(Kandidatspeciale)

Workload: 30 ECTS

Semester: 4<sup>th</sup> semester

### Prerequisites:

The module adds to the knowledge obtained in the 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> semester.

The master thesis can be conducted as a long master thesis. If choosing to do a long master thesis, it has to include experimental work and has to be approved by the study board. The amount of experimental work must reflect the allotted ECTS

### Objectives:

To document that the student, independently or in a small group, is capable of planning and completing a major research project in the chosen specialisation. The final thesis must document the student's ability to apply scientific theories and methods, critically analyse existing work, and synthesize new knowledge.

Students who complete the module will gain knowledge, skills and competences as follows:

### Knowledge:

- Must have knowledge and **understanding** in one or more subject areas that are representative of the state of the art in the research community of the chosen specialisation
- Can understand and, on a scientific basis, **apply** an area of the chosen specialisation and identify scientific problems

### Skills:

- **Synthesize** scientific methods and tools and general skills related to the chosen specialisation
- Can **evaluate** and select among scientific theories, methods, tools and general skills and, on a scientific basis, advance new analyses and solutions in the chosen specialisation
- Can **synthesize** research-based knowledge and discuss professional and scientific problems with both peers and non-specialists

### Competencies:

- Can **synthesize** work and development situations that are complex, unpredictable and require new solutions
- Can **apply** acquired knowledge to independently initiate and implement discipline-specific and interdisciplinary cooperation and assume professional responsibility
- Can independently **synthesize** and take responsibility for own professional development and specialisation

**Type of instruction:** Academically supervised student-governed problem oriented project work. The project is carried out individually or in small groups of a maximum of three students. At least one internal supervisor is assigned, who deals with the primary area of the project in his or her research.

**Exam format:** In accordance with the current Joint Programme Regulations and directions on examination from the Study Board for Media Technology:

Individual oral examination with external censor based on a written project report and a media-technological product plus an A/V-production illustrating and summarizing the project. The assessment is performed in accordance with the 7-point grading scale.

**Evaluation criteria:** The criteria for the evaluation are specified in the Joint Programme Regulations

## Chapter 4: Entry into Force, Interim Provisions and Revision

The curriculum is approved by the Dean of The Technical Faculty of IT and Design and enters into force as of september 2017.

Students who wish to complete their studies under the previous curriculum from 2014 must conclude their education by the summer examination period 2018 at the latest, since examinations under the previous curriculum are not offered after this time.

## Chapter 5: Other Provisions

### 5.1 Rules concerning written work, including the Master's thesis

In the assessment of all written work, regardless of the language it is written in, weight is also given to the student's spelling and formulation ability, in addition to the academic content. Orthographic and grammatical correctness as well as stylistic proficiency are taken as a basis for the evaluation of language performance. Language performance must always be included as an independent dimension of the total evaluation. However, no examination can be assessed as 'Pass' on the basis of good language performance alone; similarly, an examination normally cannot be assessed as 'Fail' on the basis of poor language performance alone.

The Board of Studies can grant exemption from this in special cases (e.g., dyslexia or a native language other than Danish).

The Master's thesis must include an English summary.<sup>4</sup> If the project is written in English, the summary must be in Danish.<sup>5</sup> The summary must be at least 1 page and not more than 2 pages. The summary is included in the evaluation of the project as a whole.

### 5.2 Rules concerning credit transfer (*merit*), including the possibility for choice of modules that are part of another programme at a university in Denmark or abroad

In the individual case, the Board of Studies can approve successfully completed (passed) programme elements from other Master's programmes in lieu of programme elements in this programme (credit transfer). The Board of Studies can also approve successfully completed (passed) programme elements from another Danish programme or a programme outside of Denmark at the same level in lieu of programme elements within this curriculum. Decisions on credit transfer are made by the Board of Studies based on an academic assessment. See the Joint Programme Regulations for the rules on credit transfer

### 5.3 Rules for examinations

The rules for examinations are stated in the Examination Policies and Procedures published by The Technical Faculty of IT and Design, The Faculty of Engineering and Science, and the Faculty of Medicine on their website

### 5.4 Exemption

In exceptional circumstances, the Board of Studies study can grant exemption from those parts of the curriculum that are not stipulated by law or ministerial order. Exemption regarding an examination applies to the immediate examination.

### 5.5 Rules and requirements for the reading of texts

At programmes that are taught in Danish, it is assumed that the student can read academic texts in modern Danish, Norwegian, Swedish and English and use reference works, etc., in other European languages. At programmes taught in English, it is assumed that the student can read academic text and use reference works, etc., in English.

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<sup>4</sup> Or another foreign language (upon approval from the Board of Studies).

<sup>5</sup> The Board of Studies can grant exemption from this.

## **5.6 Additional information**

The current version of the curriculum is published on the Board of Studies' website, including more detailed information about the programme, including exams.