AALBORG UNIVERSITET

STUDIEORDNING FOR KANDIDATUDDANNELSEN I MEDIALOGI, 2020, AALBORG

CAND.SCIENT.
AALBORG

MODULER SOM INDGÅR I STUDIEORDNINGEN

INDHOLDSFORTEGNELSE

SENSING MEDIA

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

BSc in Medialogy or equivalent

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will gain the following qualifications:

- 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

Students who complete the module will gain the following qualifications:

- 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
- Produce a project report according to norms of the area, take into consideration relevant literature, apply correct terminology and convey the research-based foundation, problem and results of the project orally and in writing in a coherent manner, including the relationship between the problem formulation, the project's realization and its conclusions

- Evaluate and select relevant literature, scientific methods and models and other tools for application in the project work, and evaluate the project's problem area in a relevant scientific context

COMPETENCES

Students who complete the module will gain the following qualifications:

- 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 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
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for carrying out, potentially cross-disciplinary, collaborations
- Assume responsibility for own scientific development and specialization

TYPE OF INSTRUCTION

Academically supervised student-governed problem oriented project work

EXAM

EXAMS

Name of exam	Sensing Media
Type of exam	Oral exam based on a project Oral exam based on a scientific paper written in English and a mediatechnological product, an AVproduction illustrating and summarizing the project, a poster in English, and edited worksheets/portfolio documenting project details.
ECTS	15
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Sansning af medier
Module code	MSNMEDM1204
Module type	Project

Duration	1 semester
Semester	Autumn
ECTS	15
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

MACHINE LEARNING FOR MEDIA TECHNOLOGY

2023/2024

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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 techology. 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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- **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

Students who complete the module will obtain the following qualifications:

- 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.

COMPETENCES

Students who complete the module will obtain the following qualifications:

- **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 § 17.

EXAM

EXAMS

Name of exam	Machine Learning for Media Technology
Type of exam	Oral exam based on a project
ECTS	5
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Machine learning i medieteknologi
Module code	MSNMEDM1205
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

MULTIMODAL PERCEPTION AND COGNITION

2023/2024

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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).

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- **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

Students who complete the module will obtain the following qualifications:

- 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

COMPETENCES

Students who complete the module will obtain the following qualifications:

- 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 § 17.

EXAM

EXAMS

Name of exam	Multimodal Perception and Cognition
Type of exam	Written or oral exam
ECTS	5
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Multimodal perception og kognition
Module code	MSNMEDM1206
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

MEDIATING REALITY

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module adds to the knowledge obtained in the 1st semester.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- 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

Students who complete the module will obtain the following qualifications:

- 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
- Produce a project report according to norms of the area, take into consideration relevant literature, apply correct terminology and convey the research-based foundation, problem and results of the project orally and in writing in a coherent manner, including the relationship between the problem formulation, the project's realization and its conclusions
- Evaluate and select relevant literature, scientific methods and models and other tools for application in the project work, and evaluate the project's problem area in a relevant scientific context

COMPETENCES

Students who complete the module will obtain the following qualifications:

- 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
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for carrying out, potentially cross-disciplinary, collaborations
- Assume responsibility for own scientific development and specialization

TYPE OF INSTRUCTION

Academically supervised student-governed problem oriented project work.

EXAM

PREREQUISITE FOR ENROLLMENT FOR THE EXAM

- An approved PBL competency profile is a prerequisite for participation in the project exam

EXAMS

Name of exam	Mediating Reality
Type of exam	Oral exam based on a project 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.
ECTS	15
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	External examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Mediering af virkeligheden
Module code	MSNMWSM2201
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	15
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

ALGORITHMS, DATA STRUCTURES AND SOFTWARE ENGINEERING FOR MEDIA TECHNOLOGY

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module adds to the knowledge obtained in the 1st semester.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Objectives:

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.

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).

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- Must understand the fundamentals of algorithm design and analysis.
- Must understand methods for analysing time and space complexity.
- Must understand basic and advanced data structures used in various computational problems.
- Must understand advanced algorithmic techniques such as recursion and dynamic programming.
- Must have knowledge of basic machine learning algorithms and techniques.
- Must understand advanced software engineering concepts and programming techniques.

SKILLS

Students who complete the module will obtain the following qualifications:

- Must be able to select and implement efficient and appropriate algorithms, data structures and software engineering techniques to solve programming problems in media technology.
- Must be able to work in a group to build a substantial media-technological product that uses state-of-the-art programming techniques.

COMPETENCES

Students who complete the module will obtain the following qualifications:

- 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.
- Ability to analyse solutions and quantify their resource requirements in terms of time and space complexity.

TYPE OF INSTRUCTION

Refer to the overview of instruction types listed in § 17. Directions are decided and given by the Study Board for Media Technology.

EXAM

EXAMS

Name of exam	Algorithms, Data Structures and Software Engineering for Media Technology
Type of exam	Written or oral exam
ECTS	5
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Algoritmer, datastrukturer og software engineering for medieteknologi
Module code	MSNMEDM2202
Module type	Course
Duration	1 semester
Semester	Spring
ECTS	5
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

MEDIA INNOVATION

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module adds to the knowledge obtained in the 2nd semester.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- 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
- Account for the scientific foundation, and scientific problem areas, of the specialization
- Describe the state of the art of relevant research in the specialization

SKILLS

Students who complete the module will obtain the following qualifications:

- 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
- Account for the scientific foundation, and scientific problem areas, of the specialization
- Describe the state of the art of relevant research in the specialization

COMPETENCES

Students who complete the module will obtain the following qualifications:

- 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
- Participate in, and independently carry out, technological development and research, and apply scientific methods in solving complex problems
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for independently carrying out, potentially cross-disciplinary, collaborations
- Independently assume responsibility for own scientific development and specialization

TYPE OF INSTRUCTION

Academically supervised student-governed problem oriented project work.

EXAM

EXAMS

Name of exam	Media Innovation
Type of exam	Oral exam based on a project 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.
ECTS	20
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Medie-innovation
Module code	MSNMWSM3201
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	20
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

ENTREPRENØRSKAB

2023/2024

MODULETS INDHOLD, FORLØB OG PÆDAGOGIK

LÆRINGSMÅL

VIDEN

Den studerende skal opnå viden om software-relateret iværksætteri og forretningsudvikling, herunder:

- forskellige paradigmatiske tilgange til entrepreneurship, herunder effectuation
- intra-/entrepreneurship
- konkurrence- og markedsvilkår
- forretningsmodeller og -mønstre
- intellectual property rights
- markedsudvikling og -føring
- vækststrategier
- open entrepreneurship

FÆRDIGHEDER

- kunne sammenholde og redegøre præcist for fagets forskellige teorier og begreber
- kunne gøre brug af fagets teorier og begreber til at belyse cases eller praktiske kontekster

KOMPETENCER

- kunne formulere og begrunde software-baserede forretningsideer for ny eller eksisterende virksomhed ved hjælp af kursets begreber, teorier og værktøjer

UNDERVISNINGSFORM

Undervisningen tilrettelægges i henhold til de generelle undervisningsformer for uddannelsen jf. § 17.

OMFANG OG FORVENTET ARBEJDSINDSATS

Det forventes at den studerende bruger 30 timer per ECTS, hvilket for denne aktivitet betyder 150 timer.

EKSAMEN

PRØVER

Prøvens navn	Entreprenørskab
Prøveform	Skriftlig eller mundtlig
ECTS	5
Bedømmelsesform	7-trins-skala
Censur	Intern prøve
Vurderingskriterier	Vurderingskriterierne er angivet i Universitetets eksamensordning

YDERLIGERE INFORMATIONER

Kontakt: Studienævn for datalogi via cs-sn@cs.aau.dk eller 9940 8854

FAKTA OM MODULET

Engelsk titel	Entrepreneurship
Modulkode	DSNDATFK311
Modultype	Kursus
Varighed	1 semester
Semester	Efterår
ECTS	5
Undervisningssprog	Dansk
Tomplads	Ja
Undervisningssted	Campus Aalborg
Modulansvarlig	Thomsen

ORGANISATION

Uddannelsesejer	Cand.scient. i datalogi
Studienævn	Studienævn for Datalogi
Institut	Institut for Datalogi
Fakultet	Det Teknisk Fakultet for IT og Design

RESEARCH IN MEDIALOGY

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module adds to the knowledge obtained in the 2nd semester.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Objective

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- Must be able to understand theories and principles related to a specific area of the chosen specialisation

SKILLS

Students who complete the module will obtain the following qualifications:

- Must be able to **analyse** a research topic in the chosen specialisation
- Must be able to **analyse** research papers related to a specific area of the chosen specialisation
- Must be able to **apply** concepts, tools, theories and technologies of the chosen specialisation to address a specific research problem

COMPETENCES

Students who complete the module will obtain the following qualifications:

- Must be able to **synthesize** a specific topic in the chosen specialisation

TYPE OF INSTRUCTION

Refer to the overview of instruction types listed in § 17. The directions are decided and given by the Study Board for Media Technology.

EXAM

EXAMS

Name of exam	Research in Medialogy
Type of exam	Written or oral exam
ECTS	5

Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Forskning i medialogi
Module code	MSNMEDM3203
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

PROJECT ORIENTED STUDY IN AN EXTERNAL ORGANISATION

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module adds to the knowledge obtained in the 2nd semester.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The Project Oriented Study in an External Organisation 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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- Must be able to **understand** relevant design theories, principles, and methods that have 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
- Account for the scientific foundation, and scientific problem areas, of the specialization
- Describe the state of the art of relevant research in the specialization

SKILLS

Students who complete the module will obtain the following qualifications:

- Must be able to **apply** market and trend analysis methods to a media product or production
- Must be able to **apply** relevant 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
- Master the scientific methods and general skills associated with the specialization
- Produce a project report according to norms of the area, apply correct terminology, document extensive command over relevant literature, communicate and discuss the research-based foundation, problem and results of the project orally, graphically and in writing in a coherent manner
- Critically evaluate the results of the project in relation to relevant literature and established scientific methods and models, evaluate and discuss the project's problem area in a relevant scientific context
- Evaluate and discuss the project's potential for further development

COMPETENCES

Students who complete the module will obtain the following qualifications:

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

- Participate in, and independently carry out, technological development and research, and apply scientific methods in solving complex problems
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for independently carrying out, potentially cross-disciplinary, collaborations
- Independently assume responsibility for own scientific development and specialization

TYPE OF INSTRUCTION

Academically supervised student-governed problem oriented project work.

EXAM

EXAMS

Name of exam	Project Oriented Study in an External Organisation
Type of exam	Oral exam based on a project Oral examination on basis of a submitted Company Stay Report.
ECTS	30
Permitted aids	With certain aids: See semester description
Assessment	Passed/Not Passed
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Projektorienteret forløb i en virksomhed
Module code	MSNMEDM3204
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	30
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

PROJECT ORIENTED STUDY IN AN EXTERNAL ORGANISATION

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module adds to the knowledge obtained in the 2nd semester.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The Project Oriented Study in an External Organisation 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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- Must be able to **understand** design theories, principles, and methods that have 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
- Account for the scientific foundation, and scientific problem areas, of the specialization
- Describe the state of the art of relevant research in the specialization

SKILLS

Students who complete the module will obtain the following qualifications:

- Must be able to **apply** market and trend analysis methods to a media product or production
- Must be able to **apply** 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
- Account for the scientific foundation, and scientific problem areas, of the specialization
- Describe the state of the art of relevant research in the specialization

COMPETENCES

Students who complete the module will obtain the following qualifications:

- Must be able to **evaluate** and select relevant design theories, methods, and tools, with the specific aim of working towards creating new products, commercially viable products, or new knowledge
- Participate in, and independently carry out, technological development and research, and apply scientific methods in solving complex problems
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for independently carrying out, potentially cross-disciplinary, collaborations
- Independently assume responsibility for own scientific development and specialization

TYPE OF INSTRUCTION

Academically supervised student-governed problem oriented project work.

EXAM

EXAMS

Name of exam	Project Oriented Study in an External Organisation
Type of exam	Oral exam based on a project Oral examination on basis of a submitted Company Stay Report.
ECTS	25
Permitted aids	With certain aids: See semester description
Assessment	Passed/Not Passed
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Projektorienteret forløb i en virksomhed
Module code	MSNMEDM3206
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	25
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

PROJECT ORIENTED STUDY IN AN EXTERNAL ORGANISATION

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module adds to the knowledge obtained in the 2nd semester.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The Project Oriented Study in an External Organisation 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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- Must be able to **understand** design theories, principles, and methods that have 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

Students who complete the module will obtain the following qualifications:

- Must be able to **apply** market and trend analysis methods to a media product or production
- Must be able to **apply** relevant 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

COMPETENCES

Students who complete the module will obtain the following qualifications:

- Must be able to **evaluate** and select relevant 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

EXAMS

Name of exam	Project Oriented Study in an External Organisation
Type of exam	Oral exam based on a project Oral examination on basis of a submitted Company Stay Report.
ECTS	20
Permitted aids	With certain aids: See semester description
Assessment	Passed/Not Passed
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Projektorienteret forløb i en virksomhed
Module code	MSNMEDM3205
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	20
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

DADIU GAME PRODUCTION

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

Bachelor in Computer Science, Software or equivalent

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The student should achieve knowledge and skills to analyse, design and implement a computer game in collaboration with an interdisciplinary development team.

Typically, computer games are developed in interdisciplinary development teams, which require that individual developers possess strong professional abilities, collaboration skills and insight into related subject areas. Therefore, the student must acquire an understanding of technical challenges in the development of computer games, including the analysis of technical and programming aspects of a game idea or game design, as well as (technical) design and implementation of the game or significant functionality of the game. Furthermore, the student must work with limited time on analysing, designing, programming, and testing a computer game of significant size across a wide range of subjects, including aesthetic and organizational subjects, with focus on collaboration skills, problem solving, creativity, programming, testing, and application of advanced development environments and software technologies.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will be able to:

- use correct technical terminology
- document knowledge and overview of key techniques for the development of realistic computer games, including programming of games using a game engine, mathematical models for and programming of computer graphics, and development pipeline

SKILLS

Students who complete the module will be able to:

- analyse, design, program, and test a computer game
- justify and select relevant solution models, development tools, and environments based on knowledge of possibilities and limitations, which is provided by the subject area’s theories and methods.

COMPETENCES

Students who complete the module will be able to:

- define and implement solutions of parts of a realistic computer game using relevant techniques and tools
- analyse and evaluate the solution process and the resulting solution

TYPE OF INSTRUCTION

Project work that is organised by DADIU, which includes the development of a completed computer game in an interdisciplinary development team. The project work must result in a completed game.

EXAM

EXAMS

Name of exam	DADIU Game Production

Type of exam	Oral exam based on a project Oral examination based on material that the student's DADIU team must deliver as part of the DADIU course.
ECTS	30
Permitted aids	With certain aids: See semester description
Assessment	Passed/Not Passed
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	DADIU spilproduktion
Module code	MSNMEDM3207E
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	30
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

MASTER´S THESIS 50 ECTS

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

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

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- 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
- Account for the scientific foundation, and scientific problem areas, of the specialization
- Describe the state of the art of relevant research in the specialization

SKILLS

Students who complete the module will obtain the following qualifications:

- **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
- Account for the scientific foundation, and scientific problem areas, of the specialization
- Describe the state of the art of relevant research in the specialization

COMPETENCES

Students who complete the module will obtain the following qualifications:

- 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
- Participate in, and independently carry out, technological development and research, and apply scientific methods in solving complex problems
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for independently carrying out, potentially cross-disciplinary, collaborations
- Independently assume responsibility for own scientific development and specialization

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

EXAMS

Name of exam	Master's Thesis
Type of exam	Master's thesis/final project Oral examination based on a written project report and a media-technological product plus an A/V-production illustrating and summarizing the project.
ECTS	50
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	External examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Kandidatspeciale 50 ECTS
Module code	MSNMWSM422
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	50
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

MASTER´S THESIS

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

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

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- 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
- Account for the scientific foundation, and scientific problem areas, of the specialization
- Describe the state of the art of relevant research in the specialization

SKILLS

Students who complete the module will obtain the following qualifications:

- **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
- Account for the scientific foundation, and scientific problem areas, of the specialization
- Describe the state of the art of relevant research in the specialization

COMPETENCES

Students who complete the module will obtain the following qualifications:

- 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
- Participate in, and independently carry out, technological development and research, and apply scientific methods in solving complex problems
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for independently carrying out, potentially cross-disciplinary, collaborations
- Independently assume responsibility for own scientific development and specialization

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

EXAMS

Name of exam	Master's Thesis
Type of exam	Master's thesis/final project Oral examination based on a written project report and a media-technological product plus an A/V-production illustrating and summarizing the project.
ECTS	30
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	External examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Kandidatspeciale
Module code	MSNMWSM4201
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	30
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

SENSING MEDIA - COMPUTER GRAPHICS

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

BSc in Medialogy or equivalent

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Objectives:

Investigate the chosen specialization 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 specialization, 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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will gain the following qualifications:

- 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

Students who complete the module will gain the following qualifications:

- 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
- Produce a project report according to norms of the area, take into consideration relevant literature, apply correct terminology and convey the research-based foundation, problem and results of the project orally and in writing in a coherent manner, including the relationship between the problem formulation, the project's realization and its conclusions
- Evaluate and select relevant literature, scientific methods and models and other tools for application in the project work, and evaluate the project's problem area in a relevant scientific context

COMPETENCES

Students who complete the module will gain the following qualifications:

- 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
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for carrying out, potentially cross-disciplinary, collaborations
- Assume responsibility for own scientific development and specialization

TYPE OF INSTRUCTION

Academically supervised student-governed problem oriented project work

EXAM

EXAMS

Name of exam	Sensing Media - Computer Graphics
Type of exam	Oral exam based on a project Oral exam based on a scientific paper written in English and a mediatechnological product, an AVproduction illustrating and summarizing the project, a poster in English, and edited worksheets/portfolio documenting project details.
ECTS	15
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Sansning af medier - computergrafik
Module code	MSNMEDM1202
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	15
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

MEDIATING REALITY - COMPUTER GRAPHICS

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module adds to the knowledge obtained in the 1st semester.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- 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

Students who complete the module will obtain the following qualifications:

- 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
- Produce a project report according to norms of the area, take into consideration relevant literature, apply correct terminology and convey the research-based foundation, problem and results of the project orally and in writing in a coherent manner, including the relationship between the problem formulation, the project's realization and its conclusions
- Evaluate and select relevant literature, scientific methods and models and other tools for application in the project work, and evaluate the project's problem area in a relevant scientific context

COMPETENCES

Students who complete the module will obtain the following qualifications:

- Must be able to **evaluate** and select relevant computer graphics theories, methods, and tools, and synthesize them to produce new knowledge and solutions
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for carrying out, potentially cross-disciplinary, collaborations
- Assume responsibility for own scientific development and specialization

TYPE OF INSTRUCTION

Academically supervised student-governed problem oriented project work.

EXAM

PREREQUISITE FOR ENROLLMENT FOR THE EXAM

- An approved PBL competency profile is a prerequisite for participation in the project exam

EXAMS

Name of exam	Mediating Reality - Computer Graphics
Type of exam	Oral exam based on a project Oral examination based on a written project report and a media-technological product plus an A/V production that illustrates and summarizes the project.
ECTS	15
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	External examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Mediering af virkeligheden - computergrafik
Module code	MSNMCGM2201
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	15
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

MEDIA INNOVATION – COMPUTER GRAPHICS

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module adds to the knowledge obtained in the 2nd semester.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- 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
- Account for the scientific foundation, and scientific problem areas, of the specialization
- Describe the state of the art of relevant research in the specialization

SKILLS

Students who complete the module will obtain the following qualifications:

- 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
- Master the scientific methods and general skills associated with the specialization
- Produce a project report according to norms of the area, apply correct terminology, document extensive command over relevant literature, communicate and discuss the research-based foundation, problem and results of the project orally, graphically and in writing in a coherent manner
- Critically evaluate the results of the project in relation to relevant literature and established scientific methods and models, evaluate and discuss the project’s problem area in a relevant scientific context
- Evaluate and discuss the project’s potential for further development

COMPETENCES

Students who complete the module will obtain the following qualifications:

- 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
- Participate in, and independently carry out, technological development and research, and apply scientific methods in solving complex problems
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for independently carrying out, potentially cross-disciplinary, collaborations
- Independently assume responsibility for own scientific development and specialization

TYPE OF INSTRUCTION

Academically supervised student-governed problem oriented project work.

EXAM

EXAMS

Name of exam	Media Innovation – Computer Graphics
Type of exam	Oral exam based on a project Oral examination based on a written project report and a media-technological product plus an A/V-production that illustrates and summarizes the project.
ECTS	20
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Medie-innovation – computergrafik
Module code	MSNMCGM3201
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	20
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

MASTER'S THESIS

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

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

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- 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
- Account for the scientific foundation, and scientific problem areas, of the specialization
- Describe the state of the art of relevant research in the specialization

SKILLS

Students who complete the module will obtain the following qualifications:

- **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
- Master the scientific methods and general skills associated with the specialization
- Produce a project report according to norms of the area, apply correct terminology, document extensive command over relevant literature, communicate and discuss the research-based foundation, problem and results of the project orally, graphically and in writing in a coherent manner
- Critically evaluate the results of the project in relation to relevant literature and established scientific methods and models, evaluate and discuss the project's problem area in a relevant scientific context
- Evaluate and discuss the project's potential for further development

COMPETENCES

Students who complete the module will obtain the following qualifications:

- 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
- Participate in, and independently carry out, technological development and research, and apply scientific methods in solving complex problems

- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for independently carrying out, potentially cross-disciplinary, collaborations
- Independently assume responsibility for own scientific development and specialization

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

EXAMS

Name of exam	Master's Thesis
Type of exam	Master's thesis/final project Individual oral examination based on a written project report and a media-technological product plus an A/V-production illustrating and summarizing the project.
ECTS	50
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	External examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Kandidatspeciale
Module code	MSNMCGM4202
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	50
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

MASTER'S THESIS

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

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

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- 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
- Account for the scientific foundation, and scientific problem areas, of the specialization
- Describe the state of the art of relevant research in the specialization

SKILLS

Students who complete the module will obtain the following qualifications:

- **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
- Master the scientific methods and general skills associated with the specialization
- Produce a project report according to norms of the area, apply correct terminology, document extensive command over relevant literature, communicate and discuss the research-based foundation, problem and results of the project orally, graphically and in writing in a coherent manner
- Critically evaluate the results of the project in relation to relevant literature and established scientific methods and models, evaluate and discuss the project's problem area in a relevant scientific context
- Evaluate and discuss the project's potential for further development

COMPETENCES

Students who complete the module will obtain the following qualifications:

- 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
- Participate in, and independently carry out, technological development and research, and apply scientific methods in solving complex problems
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for independently carrying out, potentially cross-disciplinary, collaborations
- Independently assume responsibility for own scientific development and specialization

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

EXAMS

Name of exam	Master's Thesis
Type of exam	Master's thesis/final project Individual oral examination based on a written project report and a media-technological product plus an A/V-production illustrating and summarizing the project.
ECTS	30
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	External examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Kandidatspeciale
Module code	MSNMCGM4201
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	30
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

SENSING MEDIA - GAMES

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

BSc in Medialogy or equivalent

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will gain the following qualifications:

- 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

Students who complete the module will gain the following qualifications:

- Must be able to measure, analyse, and evaluate the user experience in games or play
- Produce a project report according to norms of the area, take into consideration relevant literature, apply correct terminology and convey the research-based foundation, problem and results of the project orally and in writing in a coherent manner, including the relationship between the problem formulation, the project's realization and its conclusions
- Evaluate and select relevant literature, scientific methods and models and other tools for application in the project work, and evaluate the project's problem area in a relevant scientific context

COMPETENCES

Students who complete the module will gain the following qualifications:

- 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
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for carrying out, potentially cross-disciplinary, collaborations
- Assume responsibility for own scientific development and specialization

TYPE OF INSTRUCTION

Academically supervised student-governed problem oriented project work

EXAM

EXAMS

Name of exam	Sensing Media - Games
Type of exam	Oral exam based on a project Oral exam 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.
ECTS	15
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Sansning af medier - spil
Module code	MSNMEDM1201
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	15
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

MEDIATING REALITY - GAMES

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module adds to the knowledge obtained in the 1st semester.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- 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

Students who complete the module will obtain the following qualifications:

- 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
- Produce a project report according to norms of the area, take into consideration relevant literature, apply correct terminology and convey the research-based foundation, problem and results of the project orally and in writing in a coherent manner, including the relationship between the problem formulation, the project's realization and its conclusions
- Evaluate and select relevant literature, scientific methods and models and other tools for application in the project work, and evaluate the project's problem area in a relevant scientific context

COMPETENCES

Students who complete the module will obtain the following qualifications:

- Must be able to **analyse** and plan new game-related development projects by applying knowledge about game design and game development
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for carrying out, potentially cross-disciplinary, collaborations
- Assume responsibility for own scientific development and specialization

TYPE OF INSTRUCTION

Academically supervised student-governed problem oriented project work.

EXAM

PREREQUISITE FOR ENROLLMENT FOR THE EXAM

- An approved PBL competency profile is a prerequisite for participation in the project exam

EXAMS

Name of exam	Mediating Reality - Games
Type of exam	Oral exam based on a project
ECTS	15
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	External examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Mediering af virkeligheden - spil
Module code	MSNMGAM2201
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	15
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

MEDIA INNOVATION – GAMES

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module adds to the knowledge obtained in the 2nd semester.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- 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
- Account for the scientific foundation, and scientific problem areas, of the specialization
- Describe the state of the art of relevant research in the specialization

SKILLS

Students who complete the module will obtain the following qualifications:

- 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
- Master the scientific methods and general skills associated with the specialization
- Produce a project report according to norms of the area, apply correct terminology, document extensive command over relevant literature, communicate and discuss the research-based foundation, problem and results of the project orally, graphically and in writing in a coherent manner
- Critically evaluate the results of the project in relation to relevant literature and established scientific methods and models, evaluate and discuss the project's problem area in a relevant scientific context
- Evaluate and discuss the project's potential for further development

COMPETENCES

Students who complete the module will obtain the following qualifications:

- 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
- Participate in, and independently carry out, technological development and research, and apply scientific methods in solving complex problems
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for independently carrying out, potentially cross-disciplinary, collaborations
- Independently assume responsibility for own scientific development and specialization

TYPE OF INSTRUCTION

Academically supervised student-governed problem oriented project work.

EXAM

EXAMS

Name of exam	Media Innovation – Games
Type of exam	Oral exam based on a project Oral examination based on a written project report and a media-technological product plus an A/V-production that illustrates and summarizes the project.
ECTS	20
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Medie-innovation – spil
Module code	MSNMGAM3201
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	20
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

MASTER'S THESIS

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

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

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- 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
- Account for the scientific foundation, and scientific problem areas, of the specialization
- Describe the state of the art of relevant research in the specialization

SKILLS

Students who complete the module will obtain the following qualifications:

- **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
- Master the scientific methods and general skills associated with the specialization
- Produce a project report according to norms of the area, apply correct terminology, document extensive command over relevant literature, communicate and discuss the research-based foundation, problem and results of the project orally, graphically and in writing in a coherent manner
- Critically evaluate the results of the project in relation to relevant literature and established scientific methods and models, evaluate and discuss the project's problem area in a relevant scientific context
- Evaluate and discuss the project's potential for further development

COMPETENCES

Students who complete the module will obtain the following qualifications:

- 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
- Participate in, and independently carry out, technological development and research, and apply scientific methods in solving complex problems

- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for independently carrying out, potentially cross-disciplinary, collaborations
- Independently assume responsibility for own scientific development and specialization

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

EXAMS

Name of exam	Master's Thesis
Type of exam	Master's thesis/final project Individual oral examination based on a written project and a media-technological product plus an A/V-production illustrating and summarizing the project.
ECTS	50
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	External examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Kandidatspeciale
Module code	MSNMGAM4202
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	50
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

MASTER'S THESIS

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

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

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- 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
- Account for the scientific foundation, and scientific problem areas, of the specialization
- Describe the state of the art of relevant research in the specialization

SKILLS

Students who complete the module will obtain the following qualifications:

- **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
- Master the scientific methods and general skills associated with the specialization
- Produce a project report according to norms of the area, apply correct terminology, document extensive command over relevant literature, communicate and discuss the research-based foundation, problem and results of the project orally, graphically and in writing in a coherent manner
- Critically evaluate the results of the project in relation to relevant literature and established scientific methods and models, evaluate and discuss the project's problem area in a relevant scientific context
- Evaluate and discuss the project's potential for further development

COMPETENCES

Students who complete the module will obtain the following qualifications:

- 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
- Participate in, and independently carry out, technological development and research, and apply scientific methods in solving complex problems
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for independently carrying out, potentially cross-disciplinary, collaborations
- Independently assume responsibility for own scientific development and specialization

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

EXAMS

Name of exam	Master's Thesis
Type of exam	Master's thesis/final project Individual oral examination based on a written project and a media-technological product plus an A/V-production illustrating and summarizing the project.
ECTS	30
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	External examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Kandidatspeciale
Module code	MSNMGAM4201
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	30
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

SENSING MEDIA - INTERACTION

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

BSc in Medialogy or equivalent

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will gain the following qualifications:

- 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

Students who complete the module will gain the following qualifications:

- 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 **anlyse** the feasibility of the proposed solution in terms of cost/benefit and social impact
- Produce a project report according to norms of the area, take into consideration relevant literature, apply correct terminology and convey the research-based foundation, problem and results of the project orally and in writing in a coherent manner, including the relationship between the problem formulation, the project’s realization and its conclusions

- Evaluate and select relevant literature, scientific methods and models and other tools for application in the project work, and evaluate the project's problem area in a relevant scientific context

COMPETENCES

Students who complete the module will gain the following qualifications:

- 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
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for carrying out, potentially cross-disciplinary, collaborations
- Assume responsibility for own scientific development and specialization

TYPE OF INSTRUCTION

Academically supervised student-governed problem oriented project work

EXAM

EXAMS

Name of exam	Sensing Media - Interaction
Type of exam	Oral exam based on a project Oral exam based on a scientific paper written in English and a mediatechnological product, an AVproduction illustrating and summarizing the project, a poster in English, and edited worksheets/portfolio documenting project details.
ECTS	15
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Sansning af medier - interaktion
Module code	MSNMEDM1203
Module type	Project
Duration	1 semester
Semester	Autumn

ECTS	15
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen, Campus Esbjerg
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

MEDIATING REALITY - INTERACTION

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module adds to the knowledge obtained in the 1st semester.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- 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

Students who complete the module will obtain the following qualifications:

- 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
- Produce a project report according to norms of the area, take into consideration relevant literature, apply correct terminology and convey the research-based foundation, problem and results of the project orally and in writing in a coherent manner, including the relationship between the problem formulation, the project's realization and its conclusions
- Evaluate and select relevant literature, scientific methods and models and other tools for application in the project work, and evaluate the project's problem area in a relevant scientific context

COMPETENCES

Students who complete the module will obtain the following qualifications:

- 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
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for carrying out, potentially cross-disciplinary, collaborations
- Assume responsibility for own scientific development and specialization

TYPE OF INSTRUCTION

Academically supervised student-governed problem oriented project work.

EXAM

PREREQUISITE FOR ENROLLMENT FOR THE EXAM

- An approved PBL competency profile is a prerequisite for participation in the project exam

EXAMS

Name of exam	Mediating Reality - Interaction
Type of exam	Oral exam based on a project Oral examination based on a written project report and a media-technological product plus an A/V production that illustrates and summarizes the project.
ECTS	15
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	External examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Mediering af virkeligheden - interaktion
Module code	MSNMINM2201
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	15
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

MEDIA INNOVATION – INTERACTION

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module adds to the knowledge obtained in the 2nd semester.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- 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
- Account for the scientific foundation, and scientific problem areas, of the specialization
- Describe the state of the art of relevant research in the specialization

SKILLS

Students who complete the module will obtain the following qualifications:

- 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
- Master the scientific methods and general skills associated with the specialization
- Produce a project report according to norms of the area, apply correct terminology, document extensive command over relevant literature, communicate and discuss the research-based foundation, problem and results of the project orally, graphically and in writing in a coherent manner
- Critically evaluate the results of the project in relation to relevant literature and established scientific methods and models, evaluate and discuss the project’s problem area in a relevant scientific context
- Evaluate and discuss the project’s potential for further development

COMPETENCES

Students who complete the module will obtain the following qualifications:

- 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
- Participate in, and independently carry out, technological development and research, and apply scientific methods in solving complex problems
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for independently carrying out, potentially cross-disciplinary, collaborations
- Independently assume responsibility for own scientific development and specialization

TYPE OF INSTRUCTION

Academically supervised student-governed problem oriented project work.

EXAM

EXAMS

Name of exam	Media Innovation – Interaction
Type of exam	Oral exam based on a project Oral examination based on a written project report and a media-technological product plus an A/V-production that illustrates and summarizes the project.
ECTS	20
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Medie-innovation – interaktion
Module code	MSNMINM3201
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	20
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

MASTER'S THESIS

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

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

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- 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
- Account for the scientific foundation, and scientific problem areas, of the specialization
- Describe the state of the art of relevant research in the specialization

SKILLS

Students who complete the module will obtain the following qualifications:

- **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
- Account for the scientific foundation, and scientific problem areas, of the specialization
- Describe the state of the art of relevant research in the specialization

COMPETENCES

Students who complete the module will obtain the following qualifications:

- 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
- independently carry out, technological development and research, and apply scientific methods in solving complex problems
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for independently carrying out, potentially cross-disciplinary, collaborations
- Independently assume responsibility for own scientific development and specialization

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

EXAMS

Name of exam	Master's Thesis
Type of exam	Master's thesis/final project Oral examination based on a written project report and a media-technological product plus an A/V-production illustrating and summarizing the project.
ECTS	50
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	External examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Kandidatspeciale
Module code	MSNMINM4202
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	50
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

MASTER'S THESIS

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

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

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- 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
- Account for the scientific foundation, and scientific problem areas, of the specialization
- Describe the state of the art of relevant research in the specialization

SKILLS

Students who complete the module will obtain the following qualifications:

- **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
- Account for the scientific foundation, and scientific problem areas, of the specialization
- Describe the state of the art of relevant research in the specialization

COMPETENCES

Students who complete the module will obtain the following qualifications:

- 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
- Participate in, and independently carry out, technological development and research, and apply scientific methods in solving complex problems
- Plan, execute and manage complex research and/or development tasks, and assume a professional responsibility for independently carrying out, potentially cross-disciplinary, collaborations
- Independently assume responsibility for own scientific development and specialization

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

EXAMS

Name of exam	Master’s Thesis
Type of exam	Master's thesis/final project Oral examination based on a written project report and a media-technological product plus an A/V-production illustrating and summarizing the project.
ECTS	30
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	External examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Kandidatspeciale
Module code	MSNMINM4201
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	30
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

ADVANCED A/V PRODUCTION

2023/2024

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- **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

Students who complete the module will obtain the following qualifications:

- 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

COMPETENCES

Students who complete the module will obtain the following qualifications:

- 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 § 17. The directions are decided and given by the Study Board for Media Technology.

EXAM

PREREQUISITE FOR ENROLLMENT FOR THE EXAM

- Handing in of written assignments or the like

Completion of certain – or all – study activities
If the student hands in a paper/exercises after the deadline, the student has used an examination attempt.

EXAMS

Name of exam	Advanced A/V Production
Type of exam	Oral exam based on a project
ECTS	5
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Avanceret A/V-produktion
Module code	MSNMEDM1207
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

USER EXPERIENCE DESIGN

2023/2024

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

This course trains students to research, analyze, prototype, and conceptualize 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 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 realized by presenting methods and tools in a case based framework and through the students' active participation in workshops and assignments.

LEARNING OBJECTIVES

KNOWLEDGE

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

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 facilitate the design process involving users in real-life contexts

COMPETENCES

- 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

As described in § 17.

EXAM

EXAMS

Name of exam	User Experience Design
Type of exam	Written or oral exam
ECTS	5
Assessment	Passed/Not Passed
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Design af brugeroplevelsen
Module code	ESNVGISK1K2A
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg, Campus Esbjerg, Campus Copenhagen
Responsible for the module	Ove Kjeld Andersen

ORGANISATION

Study Board	Study Board of Electronics and IT, Study Board of Media Technology
Department	Department of Electronic Systems
Faculty	The Technical Faculty of IT and Design

PROTOTYPING AND FABRICATION TECHNIQUES

2023/2024

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- 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

Students who complete the module will obtain the following qualifications:

- 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

COMPETENCES

Students who complete the module will obtain the following qualifications:

- 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

For the types of instruction for this course, see § 17.

EXAM

EXAMS

Name of exam	Prototyping and Fabrication Techniques
Type of exam	Written or oral exam
ECTS	5
Permitted aids	With certain aids: See semester description
Assessment	Passed/Not Passed
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Prototyping og fremstillingsteknikker
Module code	MSNMEDM1209
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

FOUNDATIONS IN MEDIALOGY

2023/2024

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Objectives:

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

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- Must be able to understand theories and principles related to the chosen specialisation.

SKILLS

Students who complete the module will obtain the following qualifications:

- Must be able to analyse research topics in the chosen specialisation
- Must be able to analyse research papers related to the chosen specialisation
- Must be able to apply concepts, tools, theories and technologies of the chosen specialisation to address a specific research problem

COMPETENCES

Students who complete the module will obtain the following qualifications:

- Must be able to critically evaluate the developed application, and explain its relevance in science and society

TYPE OF INSTRUCTION

Refer to the overview of instruction types listed in § 17.

EXAM

EXAMS

Name of exam	Foundations in Medialogy
Type of exam	Oral exam based on a project
ECTS	5
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Foundations in Medialogy
Module code	MSNMEDM12010
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

MODELLING PHYSICAL SYSTEMS

2023/2024

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Objectives:

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- Must have **knowledge** about the kinematics of particles
- Must have **knowledge** about the kinetics of particles
- Must be able to **understand** the analogy between various dynamic systems, i.e. electronic, mechanical and hydraulic systems
- Must be able to **understand** how to model the kinematics and kinetics of simple mechanical systems

SKILLS

Students who complete the module will obtain the following qualifications:

- Must be able to **apply** knowledge to the creation of free body diagrams of dynamic systems
- Must be able to **understand** how to calculate and model forces of dynamic systems
- Must be able to select and **apply** methods for modelling the analogy between various dynamic systems i.e. electronic, mechanical and hydraulic systems

COMPETENCES

Students who complete the module will obtain the following qualifications:

- Must be able to **understand** how to collaborate within teams designing, building and modelling physical artefacts
- Must be able to **synthesize** methods for modelling of physical systems and analogies between various dynamic systems such as electronic and hydraulic systems

TYPE OF INSTRUCTION

Refer to the overview of instruction types listed in § 17.

EXAM

EXAMS

Name of exam	Modelling Physical Systems
Type of exam	Written or oral exam
ECTS	5

Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Modellering af fysiske systemer
Module code	MSNMEDM2203
Module type	Course
Duration	1 semester
Semester	Spring
ECTS	5
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

EMBODIED INTERACTION

2023/2024

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

Objectives:

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 Processing and open Frameworks.

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: http://moco.ircam.fr).

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- Must have **knowledge** about standard methods and techniques in embodied interaction
- Must be able to **understand** and describe movement as a design material.
- Must be able to **understand** the bodily skills needed for technological development, decision making, steering and path finding
- Must be able to **understand** what movement qualities are and how they are extracted from movement tracking data.

SKILLS

Students who complete the module will obtain the following qualifications:

- Must be able to **apply** methods and techniques to real world scenarios (e.g., games, robots, public installations, etc.).

COMPETENCES

Students who complete the module will obtain the following qualifications:

- Must be able to **analyze** a problem, design a solution and translate it into an intelligent embodied system.
- Must be able to **analyze**, compare, and assess the potential of different methods and techniques in order to make the proper design choices.
- Must be able to **synthesize** results and concepts in a professional way equivalent to practices in Embodied Interaction.

TYPE OF INSTRUCTION

Refer to the overview of instruction types listed in § 17.

EXAM

EXAMS

Name of exam	Embodied Interaction
Type of exam	Written or oral exam
ECTS	5

Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Embodied interaction
Module code	MSNMEDM2204
Module type	Course
Duration	1 semester
Semester	Spring
ECTS	5
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

NARRATIVES IN DIGITAL CULTURE

2023/2024

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

Students who complete the module will obtain the following qualifications:

- **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-lineal 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

Students who complete the module will obtain the following qualifications:

- 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

COMPETENCES

Students who complete the module will obtain the following qualifications:

- 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 § 17.

EXAM

EXAMS

Name of exam	Narratives in Digital Culture
Type of exam	Written or oral exam
ECTS	5
Permitted aids	With certain aids: See semester description
Assessment	7-point grading scale
Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Narrativer i digital kultur
Module code	MSNMEDM2205
Module type	Course
Duration	1 semester
Semester	Spring
ECTS	5
Language of instruction	English
Location of the lecture	Campus Aalborg, Campus Copenhagen
Responsible for the module	Madsen

ORGANISATION

Study Board	Study Board of Media Technology
Department	Department of Architecture, Design and Media Technology
Faculty	The Technical Faculty of IT and Design

IMAGE PROCESSING AND COMPUTER VISION

2023/2024

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module builds upon basic knowledge of linear algebra and statistics

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

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.

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge about the primary parameters of a camera system
- Must have knowledge about the representation and compression of digital images and video signal
- 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
- Must be able to explain the principles behind invariant feature point descriptors such as SIFT and Harris corners.
- Must have knowledge of different motion analysis methods, such as background subtraction and optical flow
- Must be able to understand the tracking frameworks such as the Kalman filter, mean-shift and the particle filter
- Must be able to understand different shape analysis methods such as active-shape models, procrustes, Hungarian method

SKILLS

- Must be able to apply stereo vision to generate 3D date from two or more cameras. This implies projective geometry, camera calibration, epipolar geometry, correspondence and triangulation
- Must be able to apply advanced 2D segmentation methods such as Hough transform, compound morphology, and histogram-of-oriented histograms.
- Must be able to demonstrate understanding of error propagation techniques as a tool for performance characterization of computer vision based solutions

COMPETENCES

- Must be able to learn further computer vision methods and theories, and select an appropriate solution for a given problem

TYPE OF INSTRUCTION

As described in § 17.

EXAM

EXAMS

Name of exam	Image Processing and Computer Vision
Type of exam	Written or oral exam
ECTS	5
Assessment	Passed/Not Passed

Type of grading	Internal examination
Criteria of assessment	The criteria of assessment are stated in the Examination Policies and Procedures

FACTS ABOUT THE MODULE

Danish title	Billedbehandling og computervision
Module code	ESNVGISK2K1
Module type	Course
Duration	1 semester
Semester	Spring
ECTS	5
Language of instruction	English
Empty-place Scheme	Yes
Location of the lecture	Campus Aalborg
Responsible for the module	Ove Kjeld Andersen

ORGANISATION

Study Board	Study Board of Electronics and IT
Department	Department of Electronic Systems
Faculty	The Technical Faculty of IT and Design