AALBORG UNIVERSITET

STUDIEORDNING FOR KANDIDATUDDANNELSEN (CAND.POLYT.) I ARKITEKTUR, 2022

CIVILINGENIØR
AALBORG

MODULER SOM INDGÅR I STUDIEORDNINGEN

INDHOLDSFORTEGNELSE

ADVANCED INTEGRATED DESIGN I: SUSTAINABLE-TECTONIC DESIGN WITH INTEGRATING OF STRUCTURE, SITE AND CLIMATE CONDITIONS

2022/2023

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The aim of the course is to introduce the students to advanced integrated design and train a combined sustainable-tectonic thinking. As part hereof, to train and enable students to critically discuss and evaluate climatic/environmental, material, structural, functional, and aesthetic aspects of- and approaches to architectural design. As well as to acquire knowledge of advanced integrated design methods, and to become skilled in analyzing and comparing different concepts for climate mitigation and adaption with regard to different user needs.

Students who complete the module:

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge of key scientific literature related to the design of sustainable and tectonic architecture on an international level.
- Must have knowledge of different concepts of climate mitigation and adaption.
- Must have knowledge of sustainable-tectonic design and the relation to site, user, present and future climate conditions, material strategies and construction methods.
- Must have knowledge about different analogue/digital approaches to develop sustainable and tectonic architectural design.

SKILLS

- Must be able to use the correct terminology in the field of sustainable-tectonic architecture and include relevant scientific literature.
- Must be able to analyse and integrate climatic, structural, material, spatial, social, functional, and aesthetic needs of a specific client and/or user group in the design process.
- Must be able to choose and apply different strategies and analogue/digital tools to design sustainable-tectonic architecture.

COMPETENCES

- Can manage and evaluate different concepts for climate mitigation and adaption.
- Can manage to develop, evaluate and reflect on a building design concept with regard to its sustainable and tectonic architectural qualities.
- Can critically evaluate and reflect on different design concepts with regard to their technical performance and users' needs.
- Can critically evaluate the advantages and limitations in using different analogue/digital design tools.

TYPE OF INSTRUCTION

Types of instruction are listed at the start of § 17; Structure and contents of the programme

EXAM

EXAMS

Name of exam	Advanced Integrated Design I: Sustainable-tectonic Design with Integrating of Structure, Site and Climate Conditions
Type of exam	Oral exam based on a project
ECTS	5
Permitted aids	Without aids
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	Udvidet integreret design I: Bæredygtig-tektonisk design med integration af konstruktion, sted og klimatekniske forhold
Module code	AODAM1K201
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Location of the lecture	Campus Aalborg
Responsible for the module	Tenna Doktor Olsen Tvedebrink, Helle Vadsholt

ORGANISATION

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

ADVANCED INTEGRATED DESIGN II: GREEN BUILDING STRATEGIES WITH FOCUS ON ENERGY AND EMISSION ASSESSMENT

2022/2023

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The aim of the course is to introduce students to extended low-energy and low emission design strategies and principles of sustainability evaluation/green building assessment methods. This with the aim to further train a holistic and integrated design thinking, but also to enable students to develop, adjust/optimize and document the performance of buildings during the design process. As part hereof, to train students in using relevant digital tools for quick analysis and data simulation in the early design phases to support a creative-iterative and explorative integrated design process.

Students who complete the module:

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge of principles in green building assessment methods and the political strategy/legislation at national and international level for climate mitigation and adaptation in the building sector.
- Must have knowledge of energy optimisation of buildings.
- Must have knowledge of intelligent and dynamic climate shields.
- Must have knowledge of relevant digital tools for implementation of data analysis and data simulation related to low-energy and low emission building design in the design process.

SKILLS

- Must be able to choose and apply relevant green building assessment principles, and discuss the interplay between building design, building use and outdoor climate.
- Must be able to choose, apply, and evaluate low-energy and low emission concepts as part of the design process, as well as discuss indoor environmental systems and technologies.
- Must be able to use relevant digital tools to simulate and analyse the dynamic behaviour of a building, regarding indoor environment and energy use, taking all relevant parameters into account during the design process.

COMPETENCES

- Can independently discuss and reflect on the principles of green building assessment as a design driver.
- Can manage and use a professional and interdisciplinary approach to the design of low-energy and low emission buildings with architectural quality.

- Can choose and evaluate proper modelling of single zone and multi-zone buildings and discuss inherent model limitations.

TYPE OF INSTRUCTION

Types of instruction are listed at the start of § 17; Structure and contents of the programme.

EXAM

EXAMS

Name of exam	Advanced Integrated Design II: Green Building Strategies with Focus on Energy and Emission Assessment
Type of exam	Oral exam based on a project
ECTS	5
Permitted aids	Without aids
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	Udvidet integreret design II: Bæredygtighedsevaluering og designstrategier med fokus på energi og klimapåvirkning
Module code	AODAM1K202
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Location of the lecture	Campus Aalborg
Responsible for the module	Tenna Doktor Olsen Tvedebrink, Helle Vadsholt

ORGANISATION

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

SUSTAINABLE-TECTONIC ARCHITECTURE: INTEGRATING SOCIAL SUSTAINABILITY AND CLIMATE IMPACT

2022/2023

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The aim of this project module is to develop a preliminary building design for a sustainable-tectonic building using advanced integrated design methodology. As part hereof a sub-thematic introduction to social sustainability and climate impact. The building typology is complex and large of scale, with mixed programming and with a socio-functional focus aimed at diverse stakeholder perspectives and user groups with different functional demands. Content-wise the project focuses on developing a creative-iterative design process synthesizing climatic/environmental, structural, spatial, social, functional, and aesthetic parameters. The module PBL-pedagogically focuses on an advanced problem-based intercultural learning environment training students to apply scientific and research-informed knowledge into their project work.

Students who complete the module:

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge of advanced integrated design and social sustainability in built environments.
- Must have knowledge of different strategies in the field of sustainable and tectonic architecture and relevant scientific literature and theory.
- Must have knowledge of technologies, strategies and design principles in relation to climate/environmental impact.
- Must have knowledge of methods to address human well-being, needs and behaviour related to architectural design.

SKILLS

- Must be able to include relevant scientific literature/research-informed knowledge and critically discuss best-practice related to the topic of social sustainable architecture, sustainability and tectonics.
- Must master an advanced integrated design process applying analouge/digital tools and develop a sustainable-tectonic building design with architectural qualities that combines social, structural, and climatic/environmental aspects.
- Must be able to choose, implement and combine strategies for the use of passive as well as active energy technologies, as part hereof evaluate solutions in relation to climate mitigation and climate adaptation.
- Must be able to identify and target the building design for a defined user group and critically address their demands and well-being in the building.

COMPETENCES

- Can critically discuss and reflect on potentials and limitations in social sustainability and integrated design for sustainable buildings.
- Can handle the planning and management of an advanced integrated design process as part of a team and participate in interdisciplinary/intercultural team-collaborations.
- Can communicate proper terminology in oral, written and graphical communication and documentation of problems, process and solutions in the integrated design of buildings and building services.

TYPE OF INSTRUCTION

Types of instruction are listed at the start of § 17; Structure and contents of the programme

EXAM

EXAMS

Name of exam	Sustainable-Tectonic Architecture: Integrating Social Sustainability and Climate Impact
Type of exam	Oral exam based on a project
ECTS	20
Permitted aids	Without aids
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	Bæredygtig-tektonisk arkitektur: Integration af social bæredygtighed og klimapåvirkninger
Module code	AODAM1P223
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	20
Language of instruction	English
Location of the lecture	Campus Aalborg
Responsible for the module	Helle Vadsholt, Thomas Arvid Jaeger

ORGANISATION

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

EXPLORATIONS AND EXPERIMENTS IN SUSTAINABLE-TECTONIC ARCHITECTURAL DESIGN

2022/2023

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module adds to knowledge, skills and competencies within the architectural design and engineering field corresponding to the completion of the MSc01 level at the Architectural Design-engineering education.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The aim of the project is to provide the students with the opportunity to explore and experiment with the development of a sustainable-tectonic architectural element/building design. This by using an advanced integrated design approach synthesizing perspectives of sustainable and tectonic design thinking. Further with the aim to achieve an authenticity of innovative design of the structural and architectural-aesthetic expression. Also, by ensuring a continuity and integrity between the intended aesthetic experience and socio-cultural purpose with form, structure, construction, material use and energy performance. Finally, the project module PBL-pedagogically focuses on an advanced problem-based learning environment training students to independently choosing and applying different techniques of experimentation and prototyping/fabrication into the creative-iterative design process and their project work. As well as, to critically assess their own professional development and further specialisation.

LEARNING OBJECTIVES

KNOWLEDGE

- Must master knowledge of advanced integrated design, tectonic thinking and sustainable assessment in an international level.
- Must have knowledge of sustainable- and tectonic scientific literature/theory and design methods.
- Must have knowledge of complex spatial structures and a critical understanding of the interplay between aesthetic experience, form, structure, materials, energy performance and detail in relation to the integrity of architectural design.

SKILLS

- Must master relevant digital tools for analysis/simulation of technical parameters in quick feed-back loops during the design process.
- Must be able to synthesize complex technical, functional, environmental and aesthetic demands, in a coherent sustainable-tectonic solution of substantial architectural quality.
- Must master critical reasoning to the innovative engineering and architectural design issues that arise through project development and to demonstrate independent thinking and informed judgment.
- Must be able to evaluate the sustainability standard of the element/building according to acknowledged assessment methods.

COMPETENCES

- Can handle the planning, implementation and management of an advanced creative-iterative and experimental design process with a professional responsibility.

- Can prepare a design proposal for a sustainable-tectonic element/building, of high complexity and with substantial aesthetic, architectural, constructive, structural, material, and functional qualities.

- Can present the project in a professionally competent way by means of relevant media, analogue/digital tools, models, and techniques.

- Can take responsibility for own professional development and specialization.

TYPE OF INSTRUCTION

See the general types of instruction in §17; Structure and Contents of the Programme.

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	Explorations and Experiments in Sustainable-Tectonic Architectural Design
Type of exam	Oral exam based on a project
ECTS	20
Permitted aids	Without aids
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	Designrelateret undersøgelser og eksperimenter i bæredygtig-tektonisk arkitektur
Module code	AODAM2P205
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	20
Language of instruction	English
Location of the lecture	Campus Aalborg
Responsible for the module	Tenna Doktor Olsen Tvedebrink, Helle Vadsholt

ORGANISATION

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

INDEPENDENT CHOICE: RESEARCH, PRACTICE OR DEVELOPMENT IN ARCHITECTURAL DESIGN-ENGINEERING

2022/2023

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module adds to knowledge, skills and competencies within the architectural design and engineering field corresponding to the completion of the MSc01 and MSc02 level at the Architectural Design-engineering education.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The aim of the module is to use the latest architectural design and engineering research and/or professional practice to raise students' knowledge and development level. Furthermore, the module must document the use of research based or practice based knowledge. This means to familiarize the students with basic research, practice or development methods and theory, as well as enable them to acquire specific knowledge within one of the following chosen fields:

- A) *Project-Oriented Study in an External Organisation (academic internship);*
- *B) Semester project with company contact (semester project)*; or
- *C) Experimental research semester project (research internship)*, related to architectural design-engineering.

PBL-pedagogically, the module focus on strengthening problem formulation and process analysis based on insights from external collaboration and/or practice-oriented studies.

The project-oriented study in an external organization must have a scope that correspond the ECTS load.

Students who complete the module:

LEARNING OBJECTIVES

KNOWLEDGE

- Must have scientific, practical or conceptual knowledge of relevance to the chosen field related to architectural design and engineering.
- Must have knowledge of the relevant scientific literature/theory or/and methodologies used within the chosen field related to architectural design and engineering.
- Must have knowledge of the relevance and validity of results produced through methods in the chosen field.

SKILLS

- Must be able to formulate a given scientific or practice-based problem in a clear and consistent way.
- Must have the ability to select research- or practice based knowledge in the chosen field related to architectural design and engineering.
- Must be able to select and apply an appropriate research or praxis-oriented method and relevant digital and analouge tools for the chosen problem area to be examined within the given timeframe or time available.
- Must be able to engage with- and critically evaluate professional environments and further develop their interdisciplinary approach in the chosen field.

COMPETENCES

- Can independently seek out, choose and critically reflect on relevant scientific literature/theoretical, methodological and/or empirical knowledge, and apply to a given problem/project of their choice.
- Can handle the integration of relevant research knowledge into a practical project or a theoretical project related to architectural design-engineering.
- Can communicate and transfer process and results in a clear and systematic way.
- Can independently work in relevant interdisciplinary environments, participate in collaborative teams, and take professional responsibility in solving complex design related tasks in the chosen field.

TYPE OF INSTRUCTION

Types of instruction are listed in § 17; Structure and Contents of the Programme

EXAM

EXAMS

Name of exam	Independent choice: Research, Practice or Development in Architectural Design-engineering
Type of exam	Oral exam based on a project
ECTS	25
Permitted aids	Without aids
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	Selvstændigt valg: Forskning, praksis eller udvikling inden for arkitektur-ingeniørens faglighed
Module code	AODAM3P222
Module type	Project
Duration	1 semester
Semester	Autumn
ECTS	25
Language of instruction	English
Location of the lecture	Campus Aalborg
Responsible for the module	Helle Vadsholt, Thomas Arvid Jaeger

ORGANISATION

Study Board	Study Board of Architecture and Design
Department	Department of Architecture, Design and Media Technology

Faculty	The Technical Faculty of IT and Design

MASTER'S THESIS

2022/2023

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module adds to knowledge, skills and competencies within the architectural design and engineering field corresponding to the completion of the MSc01 - MSc03 Architectural Design-engineering education.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The final semester sets the stage for manifestation of the students' abilities to make integrated design solutions of high architectural quality. As well as provide the student with a unique ability to – on high international level – make a project as an experimental, empirical, and/or theoretical investigation of one or more central issues within the field of architectural design-engineering. Related to this, the PBL-pedagogical focus is that the students must independently define a problem, select, include, and critically reflect on relevant literature, theories and methodologies. As well as demonstrate, in a self-driven work process, their mastery of key competencies acquired throughout the Master's program in Architectural Design-engineering and problem-based learning environment.

Students who complete the module:

LEARNING OBJECTIVES

KNOWLEDGE

- Must develop knowledge on an international level of selected architectural design-engineering issues within the thesis subject area.
- Must be able to critically assess and explain key scientific literature/theoretical knowledge and relevant methods within the thesis subject area.
- Must account for the appropriate research based knowledge and analogue/digital tools implemented in the design process and project work.
- Must demonstrate a high degree of awareness regarding problem-based learning and methods to identify and solve complex design problems.

SKILLS

- Must master advanced integrated design processes and use correct terminology, as well as demonstrate a high level of integration of selected technical parameters and state-of-the-art research within the thesis subject area.
- Must be able to independently frame a complex design problem, as well as motivate and critically evaluate the choice of methods and scientific literature/theoretical approach.
- Must master acquired skills in tectonics or/and sustainability at a high international level, as part hereof the combination of a range of methods, techniques and analogue/digital tools within the field of design-engineering and architecture.
- Must demonstrate high ability to communicate and present the project work in a clear and systematic way to relevant scientific and professional peers and non-peers.
- Must be able to critically discuss and evaluate the potential of the project and design solution for further development, assessing relevant scientific, environmental, societal and human factors.

COMPETENCES

- Can independently participate in and develop a project to international standards, based on the identification of a specific problem within the thesis subject area.
- Can be competent in developing an integrated design solution of high tectonic and sustainable architectural quality.
- Can anticipate and solve complex/wicked design problems and make a synthesis in the design process that integrates technical, functional and aesthetic parameters.
- Must be able to independently and professionally manage, facilitate and review the project work, as well as reflect on own professional development and specialisation.

TYPE OF INSTRUCTION

Types of instruction are listed in § 17; Structure and contents of the programme

EXAM

EXAMS

Name of exam	Master's Thesis
Type of exam	Master's thesis/final project
ECTS	30
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	AODAM4P201
Module type	Project
Duration	1 semester
Semester	Spring
ECTS	30
Language of instruction	English
Location of the lecture	Campus Aalborg
Responsible for the module	Tenna Doktor Olsen Tvedebrink, Helle Vadsholt

ORGANISATION

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

ADVANCED INTEGRATED DESIGN III-A: CRITICAL-EXPERIMENTAL STUDIES IN COMPUTATION AND PERFORMANCE-AIDED DESIGN TO SUPPORT SUSTAINABLE-TECTONIC DESIGN THINKING

2022/2023

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The course module adds to integrated design knowledge obtained in 1st semester of the Master's program in Architectural Design-engineering. Therefore, the student is recommended to have knowledge, skills and competencies within the architectural design and engineering field corresponding to the completion of the MSc01 level at the Architectural Design-engineering education.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The aim of the course is to enable students with an advanced critical and experimental understanding of computation, simulation, and parametric design tools required to develop integrated design as a creative-iterative and explorative process. This within a sustainable-tectonic framework and related to the synthesis of spatial-aesthetic experience, form, material, structure and fabrication into a smaller building design of architectural quality. In this course, there is a specific focus on exploring the relationship between structure and material. Parametric design tools thus support the definition of advanced geometry, and the interaction between geometry and structural-material analysis. Issues of fabrication are considered in the context of computation, parametric modelling and rapid prototyping.

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge of complex spatial structures, including a sustainable-tectonic understanding of the structural functionality of various construction systems using shells, plates, frames, beams, etc.
- Must have knowledge of computation, simulation and parametric design tools that enable the generation of quick feedback loops from generation of form and performance analysis (structure and material).
- Must have knowledge of how different tectonic design strategies and choices on construction methods, structural typologies and material properties enable sustainable practices and influence spatial-aesthetic experiences.

SKILLS

- Must be able to use computational thinking and parametric design tools to enable quick feedback loops between geometric exploration of form and performance analysis including structural and material parameters.
- Must be able to make a structural analysis of complex spatial structural systems, and relate this to a sustainable-tectonic perspective and desired spatial-aesthetic experience.
- Must be able to use advanced numerical tools for structural and material analysis of advanced structural systems.

COMPETENCES

- Can create a synthesis of architectural, structural and material requirements in smaller scale buildings, by using parametric design tools that support the definition and control of advanced geometry, digital fabrication and performance analysis.
- Can independently and critically reflect on how the choice of structural typology, construction method, and material use influence sustainable practices.

TYPE OF INSTRUCTION

Types of instruction are listed in § 17; Structure and contents of the programme

EXAM

EXAMS

Name of exam	Advanced Integrated Design III-A: Critical-experimental Studies in Computation and Performance-aided Design to Support Sustainable-tectonic Design Thinking
Type of exam	Oral exam based on a project
ECTS	5
Permitted aids	Without aids
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	Udvidet integreret design III-A: Kritisk-eksperimentelle studier i computation og performance-baseret design til støtte af en bæredygtig-tektonisk design tilgang
Module code	AODAM2K201
Module type	Course
Duration	1 semester
Semester	Spring
ECTS	5
Language of instruction	English
Location of the lecture	Campus Aalborg
Responsible for the module	Tenna Doktor Olsen Tvedebrink, Helle Vadsholt

ORGANISATION

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

ADVANCED INTEGRATED DESIGN III-B: CRITICAL-EXPERIMENTAL STUDIES IN ACOUSTICS AND MATERIALITY TO SUPPORT SUSTAINABLE-TECTONIC DESIGN THINKING

2022/2023

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The course module adds to integrated design knowledge obtained in 1st semester of the Master's program in Architectural Design-engineering. Therefore, the student is recommended to have knowledge, skills and competencies within the architectural design and engineering field corresponding to the completion of the MSc01 level at the Architectural Design-engineering education.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The aim of the course is to provide the student with a broad critical understanding of tectonic theory and practice in tectonic design in a high international level. This through the presentation and analysis of relevant design-engineering and architectural theories, methods and models in a historical as well as contemporary context. Finally, this knowledge is combined with advanced acoustic analysis and physical tectonic studies exploring different techniques of analogue/digital experimentation, modelling, prototyping, and crafting.

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge of scientific literature/theory, methods and models that are applicable to a tectonic design.
- Must have knowledge of advanced room acoustics.
- Must have knowledge of material experimentation, modelling, prototyping and relevant crafting methods.
- Must have tectonic knowledge of interrelationship between aesthetic experience, form, structure, acoustics, materials and detail

SKILLS

- Must be able to analyse and critically reflect on the application and use of aesthetic experience, form, structure, acoustics, materials, and details in a tectonic design.
- Must be able to use digital tools for advanced acoustic analysis.
- Must be able to design and model tectonic constructions with an interrelationship between aesthetic experience, form, structure, acoustics, materials, and detail.
- Must master an understanding of tectonic construction during experimentation, modelling, prototyping, and crafting.

COMPETENCES

- Can create a synthesis of architectural, structural/material and acoustic requirements

- Can independently design a small-scale tectonic project on the basis of design-engineering and architectural analyses, sketches, physical models and a critical account of the process evaluating its tectonic quality.

TYPE OF INSTRUCTION

Types of instruction are listed in § 17; Structure and Contents of the Programme

EXAM

EXAMS

Name of exam	Advanced Integrated Design III-B: Critical-experimental Studies in Acoustics and Materiality to Support Sustainable-tectonic Design Thinking
Type of exam	Oral exam based on a project
ECTS	5
Permitted aids	Without aids
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	Udvidet integreret design III-B: Kritisk-eksperimentelle studier i akustik og materialitet til støtte af en bæredygtig-tektonisk design tilgang
Module code	AODAM2K202
Module type	Course
Duration	1 semester
Semester	Spring
ECTS	5
Language of instruction	English
Location of the lecture	Campus Aalborg
Responsible for the module	Tenna Doktor Olsen Tvedebrink, Helle Vadsholt

ORGANISATION

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

ADVANCED INTEGRATED DESIGN III-C: CRITICAL-EXPERIMENTAL STUDIES IN LIFE CYCLE ASSESSMENT AND MATERIALITY TO SUPPORT SUSTAINABLE-TECTONIC DESIGN THINKING

2022/2023

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The course module adds to integrated design knowledge obtained in 1st semester of the Master's program in Architectural Design-engineering. Therefore, the student is recommended to have knowledge, skills and competencies within the architectural design and engineering field corresponding to the completion of the MSc01 level at the Architectural Design-engineering education.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The aim of the course is to provide students with an advanced critical understanding of sustainable building materials and their use in contemporary building constructions. This through the presentation and analysis of relevant design-engineering and architectural scientific literature/theory and experimental methods. As well as through hands-on working with materials and practice in the design and evaluation of sustainable buildings. Finally, insight into material behavior of selected materials, life cycle assessment (LCA) as well as appreciation of how materials may be applied and perceived within the architectural realm.

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge of scientific literature/theory, methods and state-of-the-art materials/building products related to sustainable building design.
- Must have advanced knowledge of selected principles of green building assessment analouge and digital methods, including principles and methods for life cycle assessment.
- Must have advanced knowledge of materiality/perception of materials in architecture in relation to perceptual and life cycle aspects.

SKILLS

- Must be able to carry out principles of sustainability assessment of buildings with focus on materials and construction.
- Must master the design and crafting of a sustainable building detail with an interrelationship between spatial-experience, form, detail, technical performance and materiality.
- Must critically discuss and reflect on developments in sustainable building materials/components as regards to technical properties, technology and impact on human perception.

COMPETENCES

- Can independently handle and evaluate the selection and application of sustainable materials in building designs.
- Can independently handle and evaluate selected principles of green building assessment methods.

TYPE OF INSTRUCTION

Types of instruction are listed in § 17; Structure and contents of the programme

EXAM

EXAMS

Name of exam	Advanced Integrated Design III-C: Critical-experimental Studies in Life Cycle Assessment and Materiality to Support Sustainable-tectonic Design Thinking
Type of exam	Oral exam based on a project
ECTS	5
Permitted aids	Without aids
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	Udvidet integreret design III-C: Kritisk-eksperimentelle studier i livscyklusvurdering og materialitet til støtte af en bæredygtig-tektonisk design tilgang
Module code	AODAM2K223
Module type	Course
Duration	1 semester
Semester	Spring
ECTS	5
Language of instruction	English
Location of the lecture	Campus Aalborg
Responsible for the module	Helle Vadsholt, Thomas Arvid Jaeger

ORGANISATION

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

ADVANCED INTEGRATED DESIGN III-D: CRITICAL-EXPERIMENTAL STUDIES IN SOCIAL SUSTAINABILITY, HEALTH AND WELLBEING TO SUPPORT SUSTAINABLE-TECTONIC DESIGN THINKING

2022/2023

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The course module adds to integrated design knowledge obtained in 1st semester of the Master's program in Architectural Design-engineering. Therefore, the student is recommended to have knowledge, skills and competencies within the architectural design and engineering field corresponding to the completion of the MSc01 level at the Architectural Design-engineering education

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The aim of the course is to provide students with an in depth and critical understanding of social sustainability, health and wellbeing in sustainable-tectonic architectural design. This with the aim to train students to address how some of the most important societal challenges such as aging society, chronic lifestyle diseases and issues of stress/anxiety relate to architectural design practices and the human perception and experience of different architectural atmospheres. This through the presentation and analysis of relevant design-engineering and architectural scientific literature/research/theory on topics of social sustainability and design for health and wellbeing. As well as an introduction to human-centred research methods and design-ethnographic tools supporting the early design phases.

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge of scientific literature/research/theory in design for health and wellbeing and social sustainability in built environments.
- Must have knowledge of state-of-the-art design principles/strategies for social sustainability, health and well-being.
- Must have knowledge of principles in human perception and atmosphere related to the design of built environments.
- Must have knowledge of research-based and design-oriented methods to address human needs and demands in the early design phases

SKILLS

- Must be able to identify, select and apply relevant scientific literature/research/theory to support the integration of perspectives of social sustainability, health and well-being in the early design phases.
- Must be able to understand and integrate principles of human perception and architectural atmosphere in the early design phases.
- Must be able to critically address user perspectives and integrate concerns for human needs and demands in the early design phases.

COMPETENCES

- Can independently handle, evaluate and critically reflect on the selection of relevant scientific literature/research/theory.
- Can independently evaluate and critically reflect on state-of-the-art design principles/strategies for social sustainability, health and well-being.
- Can independently discuss and critically evaluate theories and methods related to human-centered research and design-ethnographic tools

TYPE OF INSTRUCTION

Types of instruction are listed in § 17; Structure and contents of the programme

EXAM

EXAMS

Name of exam	Advanced Integrated Design III-D: Critical-experimental Studies in Social Sustainability, Health and Wellbeing to Support Sustainable-tectonic Design Thinking
Type of exam	Oral exam based on a project
ECTS	5
Permitted aids	Without aids
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	Udvidet integreret design III-D: Kritisk-eksperimentelle studier i social bæredygtighed, sundhed og trivsel til støtte af en bæredygtig-tektonisk design tilgang
Module code	AODAM2K204
Module type	Course
Duration	1 semester
Semester	Spring
ECTS	5
Language of instruction	English
Location of the lecture	Campus Aalborg
Responsible for the module	Tenna Doktor Olsen Tvedebrink, Helle Vadsholt

ORGANISATION

Study Board	Study Board of Architecture and Design
Department	Department of Architecture, Design and Media Technology

Faculty	The Technical Faculty of IT and Design

ACADEMIC PAPER WRITING

2022/2023

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The course module adds to integrated design knowledge obtained in 1st semester of the Master's program in Urban Design engineering. Therefore, the student is recommended to have knowledge, skills and competencies within the urban design and engineering field corresponding to the completion of the MSc01 - MSc02 level at the Urban Design Engineering education.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The objective is to give the students the necessary skills to participate in the academic and professional practice within the fields of Architecture, Design, Planning and mobilities (or related areas) as contributing scholars and researchers by training the basic academic skills of paper writing and design of research methodology seen in light of the adequate positions within theories of science / philosophy of science.

LEARNING OBJECTIVES

KNOWLEDGE

- Must have knowledge about the academic production process, the systems of research quality assessments and monitoring governing the field of research and the channels for publication and dissemination of academic knowledge
- Must be able to understand societal and contextual conditions for a situation of increasing 'scientification' of practice fields
- Must be able to understand how the 'state-of-the-art' within academic fields of relevance are emerging and how these are evolving

SKILLS

- Must be able to apply established models for paper writing and methodological reflection to a specific case within architecture, design, planning or mobilities
- Must be able to write a methodologically reflective paper which positions itself in relation to relevant and adequate positions within theories of science / philosophy of science
- Must be able to evaluate the paper in relation to established practices and systems of academic research

COMPETENCES

- Must have competencies in writing an academic paper and/or a design for a research methodology relating to the state-of-the-art of knowledge production within architecture, design planning or mobilities
- Must have competencies in communicating with lay and professional audiences

TYPE OF INSTRUCTION

See general description of the types of instruction described in § 17.

EXAM

EXAMS

Name of exam	Academic Paper Writing
Type of exam	Written 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	Akademisk artikelskrivning
Module code	AODUM3K201
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Location of the lecture	Campus Aalborg
Responsible for the module	Tenna Doktor Olsen Tvedebrink, Helle Vadsholt

ORGANISATION

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

ADVANCED INTEGRATED DESIGN IV: EXTENDED CONSTRUCTION MANAGEMENT, PROJECT DESIGN AND LIFE CYCLE COST ESTIMATES

2022/2023

RECOMMENDED PREREQUISITE FOR PARTICIPATION IN THE MODULE

The module adds to knowledge, skills and competencies within the architectural design and engineering field corresponding to the completion of the MSc01 and MSc02 level at the Architectural Design-engineering education.

CONTENT, PROGRESS AND PEDAGOGY OF THE MODULE

The aim of this course is to provide the student with an extended introduction to project-, design- and construction management, as well as an understanding of relevant professional building industry and building design practice in an international level. This includes training life cycle cost analysis (LCC) and dynamic cost evaluations.

LEARNING OBJECTIVES

KNOWLEDGE

- Must independently demonstrate knowledge and understanding of theories and methods within project-, design- or construction management.
- Must have knowledge of ethical-, economical-, legal-, political-, and social interests in the field of construction management.
- Must have knowledge of current practice in construction management.
- Must have knowledge of current practice in life cycle cost analysis and dynamic cost evaluations.

SKILLS

- Must be able to analyse and assess the cross-disciplinary inclusion of actors/stakeholders involved in the decision-making processes of a building construction project.
- Must be able to use methods and techniques for preparing life cycle cost analysis and dynamic cost evaluations/calculations for building construction projects.
- Must be able to apply methods of planning and scheduling of building construction projects.
- Must be able to identifying work elements, estimating activity durations, preparing network schedules and schedule updates, analysing planned vs. actual project progress.

COMPETENCES

- Can independently choose, apply and critically reflect on methods and theories for project-, design- or/and construction management within a given budget using specified materials and construction methods.

TYPE OF INSTRUCTION

See the general types of instructions in §17; Structure and Contents of the Programme.

EXAM

EXAMS

Name of exam	Advanced Integrated Design IV: Extended Construction Management, Project Design and Life Cycle Cost Estimates
Type of exam	Oral exam
ECTS	5
Permitted aids	Without aids
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	Udvidet Integreret Design IV: Udvidet arkitektonisk projektering, byggeledelse og totaløkonomiske vurdering
Module code	AODAM3K201
Module type	Course
Duration	1 semester
Semester	Autumn
ECTS	5
Language of instruction	English
Location of the lecture	Campus Aalborg
Responsible for the module	Tenna Doktor Olsen Tvedebrink, Helle Vadsholt

ORGANISATION

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